Ohio | Public Utilities Commission

Application to Commit Energy Efficiency/Peak Demand Reduction Programs (Mercantile Customers Only)

Case No.: 12-2675-EL-EEC

Mercantile Customer: **Sun Chemical Corporation**

Electric Utility: **Duke Energy**

Program Title or Description: **Chiller Tune-up**

Rule 4901:1-39-05(F), Ohio Administrative Code (O.A.C.), permits a mercantile customer to file, either individually or jointly with an electric utility, an application to commit the customer's existing demand reduction, demand response, and energy efficiency programs for integration with the electric utility's programs. The following application form is to be used by mercantile customers, either individually or jointly with their electric utility, to apply for commitment of such programs in accordance with the Commission's pilot program established in Case No. 10-834-EL-POR

Completed applications requesting the cash rebate reasonable arrangement option (Option 1) in lieu of an exemption from the electric utility's energy efficiency and demand reduction (EEDR) rider will be automatically approved on the sixty-first calendar day after filing, unless the Commission, or an attorney examiner, suspends or denies the application prior to that time. Completed applications requesting the exemption from the EEDR rider (Option 2) will also qualify for the 60-day automatic approval so long as the exemption period does not exceed 24 months. Rider exemptions for periods of more than 24 months will be reviewed by the Commission Staff and are only approved up the issuance of a Commission order.

Complete a separate application for each customer program. Projects undertaken by a customer as a single program at a single location or at various locations within the same service territory should be submitted together as a single program filing, when possible. Check all boxes that are applicable to your program. For each box checked, be sure to complete all subparts of the question, and provide all requested additional information. Submittal of incomplete applications may result in a suspension of the automatic approval process or denial of the application.

Any confidential or trade secret information may be submitted to Staff on disc or via email at ee-pdr@puc.state.oh.us.

Section 1: Mercantile Customer Information

Name: **Sun Chemical Corporation**

Principal address: **3922 Bach-Buxton Road Amelia, Ohio 45102**

Address of facility for which this energy efficiency program applies:

3922 Bach-Buxton Road Amelia, Ohio 45102

Name and telephone number for responses to questions:

Grady Reid Jr, 513-287-1038

Electricity use by the customer (check the box(es) that apply):

✓ **The customer uses more than seven hundred thousand kilowatt hours per year at the above facility**. (**Refer to Appendix A**.)

Section 2: Application Information

A) The customer is filing this application (choose which applies):

□ Individually, without electric utility participation.

✓ **Jointly with the electric utility.**

B) The electric utility is: **Duke Energy**

C) The customer is offering to commit (check any that apply):

□ Energy savings from the customer's energy efficiency program. (Complete Sections 3, 5, 6, and 7.)

□ Capacity savings from the customer's demand response/demand reduction program. (Complete Sections 4, 5, 6, and 7.)

✓ **Both the energy savings and the capacity savings from the customer's energy efficiency program. (Complete all sections of the Application.)**

Section 3: Energy Efficiency Programs

A) The customer's energy efficiency program involves (check those that apply):

□ Early replacement of fully functioning equipment with new equipment. (Provide the date on which the customer replaced fully functioning equipment, and the date on which the customer would have replaced such equipment if it had not been replaced early. Please include a brief explanation for how the customer determined this future replacement date (or, if not known, please explain why this is not known)).

□ Installation of new equipment to replace equipment that needed to be replaced The customer installed new equipment on the following date(s):

□ Installation of new equipment for new construction or facility expansion. The customer installed new equipment on the following date(s): _____.

✓ **Behavioral or operational improvement.**

B) Energy savings achieved/to be achieved by the energy efficiency program:

1) If you checked the box indicating that the project involves the early replacement of fully functioning equipment replaced with new equipment, then calculate the annual savings [(kWh used by the original equipment) – (kWh used by new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: _____kWh

2) If you checked the box indicating that the customer installed new equipment to replace equipment that needed to be replaced, then calculate the annual savings [(kWh used by less efficient new equipment) – (kWh used by the higher efficiency new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: _____kWh

Please describe any less efficient new equipment that was rejected in favor of the more efficient new equipment.

3) If you checked the box indicating that the project involves equipment for new construction or facility expansion, then calculate the annual savings [(kWh used by less efficient new equipment) – (kWh used by higher efficiency new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: _____kWh

Please describe the less efficient new equipment that was rejected in favor of the more efficient new equipment.

4) If you checked the box indicating that the project involves behavioral or operational improvements, provide a description of how the annual savings were determined. **Chiller tune-ups - preventative maintenance performed resulting in energy savings.**

Section 4: Demand Reduction/Demand Response Programs

A) The customer's program involves (check the one that applies):

- ✓ **Coincident peak-demand savings from the customer's energy efficiency program.**
- □ Actual peak-demand reduction. (Attach a description and documentation of the peak-demand reduction.)
- □ Potential peak-demand reduction (check the one that applies):
  - □ The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a tariff of a regional transmission organization (RTO) approved by the Federal Energy Regulatory Commission.
  - □ The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a program that is equivalent to an RTO program, which has been approved by the Public Utilities Commission of Ohio.

B) On what date did the customer initiate its demand reduction program?

December 2009 and October 2011

C) What is the peak demand reduction achieved or capable of being achieved (show calculations through which this was determined):

23 KW (See Attachment 1 - Appendix 2)

Section 5: Request for Cash Rebate Reasonable Arrangement (Option 1) or Exemption from Rider (Option 2)

Under this section, check the box that applies and fill in all blanks relating to that choice.

Note: If Option 2 is selected, the application will not qualify for the 60-day automatic approval. All applications, however, will be considered on a timely basis by the Commission.

A) The customer is applying for:

✓ **Option 1: A cash rebate reasonable arrangement.**

OR

□ Option 2: An exemption from the energy efficiency cost recovery mechanism implemented by the electric utility.

OR

□ Commitment payment

B) The value of the option that the customer is seeking is:

Option 1: A cash rebate reasonable arrangement, which is the lesser of (show both amounts):

✓ A cash rebate of **$920.00 (See Attachment 1 - Appendix 3).** (Rebate shall not exceed 50% project cost. Attach documentation showing the methodology used to determine the cash rebate value and calculations showing how this payment amount was determined.)

Option 2: An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider.

□ An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for ____ months (not to exceed 24 months). (Attach calculations showing how this time period was determined.)

OR

□ A commitment payment valued at no more than

$\_\_\_\_\_$. (Attach documentation and calculations showing how this payment amount was determined.)

OR

□ Ongoing exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for an initial period of 24 months because this program is part of the customer's ongoing efficiency program. (Attach documentation that establishes the ongoing nature of the program.) In order to continue the exemption beyond the initial 24 month period, the customer will need to provide a future application establishing additional energy savings and the continuance of the organization's energy efficiency program.)

Section 6: Cost Effectiveness

The program is cost effective because it has a benefit/cost ratio greater than 1 using the (choose which applies):

□ Total Resource Cost (TRC) Test. The calculated TRC value is: _____ (Continue to Subsection 1, then skip Subsection 2)

✓ Utility Cost Test (UCT). The calculated UCT value is **4.41 (See Attachment 1 - Appendix 4)**

Subsection 1: TRC Test Used (please fill in all blanks).

The TRC value of the program is calculated by dividing the value of our avoided supply costs (generation capacity, energy, and any transmission or distribution) by the sum of our program overhead and installation costs and any incremental measure costs paid by either the customer or the electric utility.

The electric utility's avoided supply costs were _____.

Our program costs were _____.

The incremental measure costs were _____.

Subsection 2: UCT Used (please fill in all blanks).

We calculated the UCT value of our program by dividing the value of our avoided supply costs (capacity and energy) by the costs to our electric utility (including administrative costs and incentives paid or rider exemption costs) to obtain our commitment.

Our avoided supply costs were **$6900 (See Attachment 1 - Appendix 5).**

The utility's program costs were **$561(See Attachment 1 - Appendix 6).**

The utility's incentive costs/rebate costs were **$920 (See Attachment 1 - Appendix 3)**.

Section 7: Additional Information

Please attach the following supporting documentation to this application:

Narrative description of the program including, but not limited to, make, model, and year of any installed and replaced equipment.

A copy of the formal declaration or agreement that commits the program or measure to the electric utility, including:

1) any confidentiality requirements associated with the agreement;
2) a description of any consequences of noncompliance with the terms of the commitment;
3) a description of coordination requirements between the customer and the electric utility with regard to peak demand reduction;
4) permission by the customer to the electric utility and Commission staff and consultants to measure and verify energy savings and/or peak-demand reductions resulting from your program; and,
5) a commitment by the customer to provide an annual report on your energy savings and electric utility peak-demand reductions achieved.

Refer to Offer Letter following this application

A description of all methodologies, protocols, and practices used or proposed to be used in measuring and verifying program results. Additionally, identify and explain all deviations from any program measurement and verification guidelines that may be published by the Commission.

DUKE ENERGY CORPORATION
Mercantile Self Direct Program
139 East Fourth Street
Cincinnati, OH 45202
513 629 5572 fax

July 12, 2012

Mr. Richard Krieger
Sun Chemical Corporation
3922 Bach-Buxton Road
Amelia, Ohio 45102

Subject: Your Application for a Duke Energy Mercantile Self-Direct Rebate

Dear Mr. Krieger:

Thank you for your Duke Energy Mercantile Self Direct rebate application. As noted in the Energy Conservation Measure (ECM) chart on page two, a total rebate of $920.00 has been proposed for your chiller tune-up projects completed in the 2009 and 2011 calendar years. **All Self Direct Rebates are contingent upon approval by the Public Utilities Commission of Ohio (PUCO).**

At your earliest convenience, please indicate if you accept this rebate by

- providing your signature on page two
- completing the PUCO-required affidavit on page three.

Please return the documents to my attention via fax at 513-629-5572 or e-mail to SelfDirect@Duke-Energy.com. Upon receipt, Duke Energy will submit the necessary documentation to PUCO. Following PUCO's approval, Duke Energy will remit payment.

At Duke Energy, we value your business and look forward to working with you on this and future energy efficiency projects. We hope you will consider our Smart $aver® incentives, when applicable. Please contact me if you have any questions.

Sincerely,

Grady Reid, Jr
Product Manager
Mercantile Self Direct Rebates

cc: Bob Bandenburg, Duke Energy
Rob Jung, WECC
Adam Pulskamp, Engineering Excellence

Please indicate your response to this rebate offer within 30 days of receipt.

☒ Rebate is accepted. ☐ Rebate is declined.

By accepting this rebate, Sun Chemical Corporation affirms its intention to commit and integrate the energy efficiency projects listed on the following pages into Duke Energy's peak demand reduction, demand response and/or energy efficiency programs.

Additionally, Sun Chemical Corporation also agrees to serve as joint applicant in any future filings necessary to secure approval of this arrangement as required by PUCO and to comply with any information and reporting requirements imposed by rule or as part of that approval.

Finally, Sun Chemical Corporation affirms that all application information submitted to Duke Energy pursuant to this rebate offer is true and accurate. Information in question would include, but not be limited to, project scope, equipment specifications, equipment operational details, project costs, project completion dates, and the quantity of energy conservation measures installed.

If rebate is accepted, will you use the monies to fund future energy efficiency and/or demand reduction projects?

☒ YES* ☐ NO

* Continued "Tune-Ups" via Qualified Contractor (2012)

If rebate is declined, please indicate reason (optional):

Richard E Krieger Richard E Krieger 9/28/12

Customer Signature Printed Name Date

Proposed Rebate Amounts

Measure ID	Energy Conservation Measure (ECM)	Proposed Rebate Amount
ECM-1	Air Cooled Chiller Tune-up – Year 2009 (Qty – 1)	$60.00
ECM-2	Air Cooled Chiller Tune-up – Year 2011 (Qty – 1)	$60.00
ECM-3	Water Cooled Chiller Tune-up – Year 2011 (Qty – 1)	$800.00
Total		$920.00

Ohio | Public Utilities Commission

Application to Commit Energy Efficiency/Peak Demand Reduction Programs (Mercantile Customers Only)

Case No.: ____-____-EL-EEC

State of Ohio :

Richard E. Krieger, Affiant, being duly sworn according to law, deposes and says that:

1. I am the duly authorized representative of:

Sun Chemical Corporation

[insert customer or EDU company name and any applicable name(s) doing business as]

2. I have personally examined all the information contained in the foregoing application, including any exhibits and attachments. Based upon my examination and inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete.

3. I am aware of fines and penalties which may be imposed under Ohio Revised Code Sections 2921.11, 2921.31, 4903.02, 4903.03, and 4903.99 for submitting false information.

Richard E Krieger Plant Manager

Signature of Affiant & Title

Sworn and subscribed before me this 28 day of September, 2012 Month/Year

Judy Quimby

Signature of official administering oath

Judy Quimby

Print Name and Title

Judy Quimby
NOTARY PUBLIC
State of Ohio
My Commission Expires 11/09/2015

My commission expires on _____

Attachment 1 – Sun Chemical

Appendix 1 – Electric History

10800743 01		
elec -bulked; rate DS01		
SUN CHEMICAL CO		
3922 BACH BUXTON RD		
AMELIA, OH 45102		
Date	Days	Bill KWH
6/11/2012	32	825,587
5/10/2012	29	793,019
4/11/2012	30	859,014
3/12/2012	31	932,813
2/10/2012	29	821,905
1/12/2012	31	508,091
1/12/2012	31	508,091
12/12/2011	33	763,771
11/9/2011	29	697,163
10/11/2011	29	841,734
9/12/2011	32	967,661
8/11/2011	29	876,217
Total		**9,395,066**

Appendix 2 – Annual kWh losses and annual KW losses

Measure	Annual kWh Gross with losses	Upload Amount	TOTAL Annual kWh losses	KW Per Measure	Total KW Savings
Air Cooled Chiller Tune-up	128.92	460	59303.2	0.05	23

Appendix 3 – Cash Rebate

Measure	Amount
Air Cooled Chiller Tune-up	$920

Appendix 4 – Utility Cost Test

Measure	UCT
Air Cooled Chiller Tune-up	4.41

Appendix 5 – Avoided Supply Costs

Measure	T&D	Production	Capacity	Quantity	Total Avoided Costs
Air Cooled Chiller Tune-up	$2.00	$8.00	$5.00	460	$6,900

Appendix 6 – Utility Program Costs

Measure	Qty	Admin Costs	Total Costs
Air Cooled Chiller Tune-up	460	$1.22	$561

Ohio Mercantile Self Direct Program

Application Guide & Cover Sheet

Questions? Call 1-866-380-9580 or visit www.duke-energy.com.

Email this form along with completed Mercantile Self Direct Prescriptive or Custom applications, proof of payment, energy savings calculations and spec sheets to SelfDirect@Duke-Energy.com. You may also fax to 1-513-419-5572.

Mercantile customers, defined as using at least 700,000 kWh annually are eligible for the Mercantile Self Direct program. Please indicate mercantile qualification:

- ☒ a single Duke Energy Ohio account
- ☐ multiple accounts in Ohio (energy usage with other utilities may be counted toward the total)

Please list Duke Energy account numbers below (attach listing of multiple accounts an/or billing history for other utilities as required):

Account Number	Annual Usage	Account Number	Annual Usage
1080-0743-01-05			

Self Direct rebates are available for completed Custom projects that have not previously received a Duke Energy Smart $aver® Custom Incentive. Self Direct incentives are applicable to Prescriptive measures that were installed more than 90 days prior to submission to Duke Energy and have not previously received a Duke Energy Prescriptive rebate.

Self Direct Program requirements dictate that certain projects that may be Prescriptive in nature under the Smart $aver program must be evaluated using the Custom process. Use the table on page two as a guide to determine which Self Direct program fits your project(s). Apply for Self Direct projects using the appropriate application forms in conjunction with this cover sheet. Where Mercantile Self Direct Prescriptive applications are listed, please refer to the measure list on that application. If your measure is not listed, you may be eligible for a Self Direct Custom rebate. Self Direct Custom applications, like Smart $aver Custom applications, should include detailed analysis of pre-project and post-project energy usage and project costs. Please indicate which type of rebate applications are included in the table provided on page two.

Please check each box to indicate completion of the following program requirements:

☒ All sections of appropriate application(s) are completed	☒ Proof of payment.*	☒ Manufacturer's Spec sheets	☐ Energy model/calculations and detailed inputs for Custom applications

* If a single payment record is intended to demonstrate the costs of both Prescriptive & Custom projects, please include an additional document with an estimated breakout of costs for each Prescriptive and Custom energy conservation measure.

Application Type	Replaced equipment at end of lifetime or because equipment failed**	Replaced fully operational equipment to improve efficiency***	New Construction
Lighting	MSD Custom Part 1 ☐ Custom Lighting Worksheet ☐	MSD Prescriptive Lighting ☐	MSD Prescriptive Lighting ☐
		MSD Custom Part 1 ☐ Custom Lighting Worksheet ☐	MSD Custom Part 1 ☐ Custom Lighting Worksheet ☐
Heating & Cooling	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Prescriptive Heating & Cooling ☐
			MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐
Window Films, Programmable Thermostats, & Guest Room Energy Management Systems	MSD Custom Part 1 ☐ MSD Custom General and/or EMS Worksheet(s) ☐	MSD Prescriptive Heating & Cooling ☐	MSD Custom Part 1 ☐ MSD Custom General and/or EMS Worksheet(s) ☐
Chillers & Thermal Storage	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Prescriptive Chillers & Thermal Storage ☐
			MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐
Chiller Tune-ups	MSD Prescriptive Chiller Tune-ups ☐	MSD Prescriptive Chiller Tune-ups ☒	MSD Prescriptive Chiller Tune-ups ☐
Motors & Pumps	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Prescriptive Motors, Pumps & Drives ☐
			MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐
VFDs	Not Applicable	MSD Prescriptive Motors, Pumps & Drives ☐	MSD Custom Part 1 ☐ MSD Custom VFD Worksheet ☐
		MSD Custom Part 1 ☐ MSD Custom VFD Worksheet ☐	
Food Service	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Prescriptive Food Service ☐
			MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐
Air Compressors	MSD Custom Part 1 ☐ MSD Custom Compressed Air Worksheet ☐	MSD Custom Part 1 ☐ MSD Custom Compressed Air Worksheet ☐	MSD Prescriptive Process ☐
			MSD Custom Part 1 ☐ MSD Custom Compressed Air Worksheet ☐
Process	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Prescriptive Process ☐	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐
		MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	
Energy Management Systems	MSD Custom Part 1 ☐ MSD Custom EMS Worksheet ☐	MSD Custom Part 1 ☐ MSD Custom EMS Worksheet ☐	MSD Custom Part 1 ☐ MSD Custom EMS Worksheet ☐
Behavioral* & No/Low Cost**	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐		

** Under the Self Direct program, failed equipment and equipment at the end of its useful life are evaluated differently than early replacement of fully functioning equipment. **All equipment replacements due to failure or old age will be evaluated via the Custom program.**

*** Please ensure that you include the age of the replaced equipment for measures classified as “Early Replacement” in your application as well as the estimated date that you would have otherwise replaced the existing equipment if you had not chosen a more energy efficient option.

MERCANTILE SELF DIRECT Ohio Chiller Tune-up Service Application

Questions? Call 1-866-380-9580 or visit www.duke-energy.com.
Email the complete, signed application with all required documents to SelfDirect@duke-energy.com or fax to 513-419-5572.

Is this application: ☒ **NEW** (original) or ☐ **REVISED** (changes made to original application)

Building Type – Required (check one)		
☐ Data Centers	☐ Full Service Restaurant	☐ Office
☐ Education/K-12	☐ Healthcare	☐ Public Assembly
☐ Education Other	☒ Industrial	☐ Public Order/Safety
☐ Elder Care/Nursing Home	☐ Lodging	☐ Religious Worship/Church
☐ Food Sales/Grocery	☐ Retail (Small Box)	☐ Service
☐ Fast Food Restaurant	☐ Retail (Big Box)	☐ Warehouse
☐ Other:		
How did you hear about the program? (check one)		
☐ Duke Energy Representative	☐ Web Site	☐ Radio
☒ Contractor / Vendor	☐ Other _____	

Please check each box to indicate completion of the following program requirements:

☒ All sections of application	☒ Invoice with make, model number, quantity and equipment manufacturer	☒ Tax ID number for payee	☒ Customer/vendor agree to Terms and Conditions

Customer Information					
Customer/Business	**Sun Chemical Corp**	Contact		**Richard Krieger**	
Phone	**(513) 753-9550 ext. 239**	**Account Number**		**1080-0743-01-05**	
Street Address (Where incentive should be mailed)		**3922 Bach-Buxton Rd.**			
City	**Amelia**	State	**OH**	Zip Code	**45102**
Installation Street Address	**3922 Bach-Buxton Rd.**				
City	**Amelia**	State	**OH**	Zip Code	**45102**
E-mail Address	**Rick.krieger@sunchemical.com**				

Failure to provide the account number associated with the location where the installation took place will result in rejection of the application.

Vendor Information					
Vendor	**Engineering Excellence**	Contact		**Adam Pulskamp**	
Phone	**(513) 761-6000**	Fax		**(513) 761-7741**	
Street Address	**10 Knollcrest Dr.**				
City	**Cincinnati**	State	**OH**	Zip Code	**45237**
E-mail Address	**apulskamp@engineeringexcellence**				

If Duke Energy has questions about this application, who should we contact? ☐ **Customer** ☒ **Vendor**

Payment Information		
Who should receive incentive payment?	☐ Customer	☒ Vendor (Customer must sign below)
I hereby authorize payment of incentive directly to the vendor:	Customer Signature (written signature)	*** Richard E Krieger
	Date	*** 06/18/2012
Provide Tax ID Number for Payee	Customer Tax ID #	N/A
	Vendor Tax ID #	261394367

Terms and Conditions			
I have read and hereby agree to the Terms & Conditions and Program Requirements.			
Customer Signature	*** Richard E Krieger	Vendor Signature	
Date	*** 06/18/2012	Date	6-20-12
Title	*** PLANT MANAGER	Title	Program Coordinator

Incentives are subject to change and may be discontinued at the sole discretion of Duke Energy. Equipment must be installed and operable to be eligible for incentives. As Federal Energy Policy Law changes, equipment efficiency requirements are subject to change.

Air Cooled and Water Cooled Chiller Tune-ups						
Manufacturer and Model #	# of Units	Tons Per unit*	Total Project Cost	Current Service Date	Previous Service Date	Total Incentive
York YCAL0030EC46XCABXT	1	30	$3,076.75	12/28/09	11/7/08	$60.00
Trane CGWCD101RGN	1	100	$10,256.00	12/28/09	11/7/08	$200.00
Trane CGWCD101RANKKG2K	1	100	$10,256.00	12/28/09	11/7/08	$200.00
McQuay #PEH063-CCBC	1	200	$20,511.25	12/28/09	11/7/08	$400.00
*Provide manufacturer's spec sheet documenting the size of the unit						

To Calculate your tune-up incentive*:	
A. Add up equipment capacity of all units serviced (in tons) and multiply by $2/ton =	$860.00
B. Cost of service = $44,100.00 x 50% of total service cost =	$22,050.00
Total Incentive (lesser amount of row A or row B)=	$860.00
*Incentives cannot exceed 50% of total service invoice (**external** labor and equipment).	

Service Requirements:

1. **This incentive is available only once per unit in a 12 month period.**
2. An individual chiller is considered one unit.
3. Copy of paid invoice must be included with this application
4. Self serviced (internal) labor should not be included as part of the total service cost. Only external labor will be considered as part of the total service invoice.
5. Cooling service must include the following normal maintenance items **(please check if completed):**

☐ Air cooled condenser coil cleaning	☒ Compressor amp draw	☒ Low Pressure controls
☒ System Pressure check and adjust	☐ Supply motor amp draw	☒ High Pressure controls
☐ Filter inspect or replace	☐ Condenser fan(s) amp draw	☒ Crankcase heater operation
☐ Belt inspect or replace	☒ Liquid line temperature	☒ Water cooled chiller condenser tube cleaning
☒ Contactors condition	☒ Suction pressure & temperature	☒ Water cooled chiller evaporator tube cleaning
☒ Evaporator condition	☒ Oil level & pressure	

Incentive Eligibility

- Incentives are only available to customers on Duke Energy Ohio non-residential rate.
- Duke Energy Customers who purchase electric generation from an alternative supplier are eligible to participate.
- Incentive will not be paid until eligible equipment has been installed, is available to operate, and verification has been completed by Duke Energy staff as noted in the Term & Conditions stated below.
- Duke Energy reserves the right to revise incentive levels and/or qualifying efficiency levels at anytime.
- Customer may assign the incentive to the vendor who installed/supplied the equipment. The customer's signature is required in the appropriate places on this form to assign the incentive to the vendor. Customer agrees that such an action constitutes an irrevocable assignment of the incentive. This assigned incentive must reduce the purchase price paid for the equipment by an equivalent amount.
- Any equipment which, either separately or as part of a project, has or will receive an incentive from any other Duke Energy program
- In no case will Duke Energy pay an incentive above the actual cost of the service.
- Incentive recipient assumes all responsibilities for any tax consequences resulting from Duke Energy incentive payment.
- To qualify for Duke Energy incentives, applicants who provide their social security number as their federal tax identification number for tax purposes must sign and return the "Customer consent to release personal information" form ("Consent Form") along with the application. Incentive applications are processed by a 3rd party vendor. The 3rd party vendor is responsible for mailing the 1099 form at the end of the calendar year for tax filing. Duke Energy and the 3rd party vendor have signed a confidentiality agreement to protect your personal information. If your social security number is your federal tax ID number and you elect not to sign the Consent Form, please do not send Duke Energy the application, as you will not be qualified to participate in the incentive program.

Air Cooled and Water Cooled Chiller Tune-ups						
Manufacturer and Model #	# of Units	Tons Per unit*	Total Project Cost	Current Service Date	Previous Service Date	Total Incentive
York YCAL003EC46XCABXT	1	30	$3,076.75	10/24/11	8/15/10	$60.00
Trane CGWCD101RGN	1	100	$10,256.00	10/24/11	8/15/10	$200.00
Trane CGWCD101RANKKG2K	1	100	$10,256.00	10/24/11	8/15/10	$200.00
McQuay #PEH063-CCBC	1	200	$20,511.25	10/24/11	8/15/10	$412.00
*Provide manufacturer's spec sheet documenting the size of the unit						

To Calculate your tune-up incentive*:	
A. Add up equipment capacity of all units serviced (in tons) and multiply by $2/ton =	$860.00
B. Cost of service = $44,100.00 x 50% of total service cost =	$22,050.00
Total Incentive (lesser amount of row A or row B)=	$860.00
*Incentives cannot exceed 50% of total service invoice (**external** labor and equipment).	

Service Requirements:

1. **This incentive is available only once per unit in a 12 month period.**
2. An individual chiller is considered one unit.
3. Copy of paid invoice must be included with this application
4. Self serviced (internal) labor should not be included as part of the total service cost. Only external labor will be considered as part of the total service invoice.
5. Cooling service must include the following normal maintenance items **(please check if completed):**

☐ Air cooled condenser coil cleaning	☒ Compressor amp draw	☒ Low Pressure controls
☒ System Pressure check and adjust	☐ Supply motor amp draw	☒ High Pressure controls
☐ Filter inspect or replace	☐ Condenser fan(s) amp draw	☒ Crankcase heater operation
☐ Belt inspect or replace	☒ Liquid line temperature	☒ Water cooled chiller condenser tube cleaning
☒ Contactors condition	☒ Suction pressure & temperature	☒ Water cooled chiller evaporator tube cleaning
☒ Evaporator condition	☒ Oil level & pressure	

Incentive Eligibility

- Incentives are only available to customers on Duke Energy Ohio non-residential rate.
- Duke Energy Customers who purchase electric generation from an alternative supplier are eligible to participate.
- Incentive will not be paid until eligible equipment has been installed, is available to operate, and verification has been completed by Duke Energy staff as noted in the Term & Conditions stated below.
- Duke Energy reserves the right to revise incentive levels and/or qualifying efficiency levels at anytime.
- Customer may assign the incentive to the vendor who installed/supplied the equipment. The customer's signature is required in the appropriate places on this form to assign the incentive to the vendor. Customer agrees that such an action constitutes an irrevocable assignment of the incentive. This assigned incentive must reduce the purchase price paid for the equipment by an equivalent amount.
- Any equipment which, either separately or as part of a project, has or will receive an incentive from any other Duke Energy program
- In no case will Duke Energy pay an incentive above the actual cost of the service.
- Incentive recipient assumes all responsibilities for any tax consequences resulting from Duke Energy incentive payment.
- To qualify for Duke Energy incentives, applicants who provide their social security number as their federal tax identification number for tax purposes must sign and return the "Customer consent to release personal information" form ("Consent Form") along with the application. Incentive applications are processed by a 3rd party vendor. The 3rd party vendor is responsible for mailing the 1099 form at the end of the calendar year for tax filing. Duke Energy and the 3rd party vendor have signed a confidentiality agreement to protect your personal information. If your social security number is your federal tax ID number and you elect not to sign the Consent Form, please do not send Duke Energy the application, as you will not be qualified to participate in the incentive program.

Engineering Excellence
Optimizing Your ENERGY Solutions

INVOICE

SOLD BY	PURCHASED BY / INSTALLATION ADDRESS
Engineering Excellence Regional Services LLC	Sun Chemical
10 Knollcrest Dr.	3922 Bach-Buxton Rd.
Cincinnati, OH 45237	Amelia, OH 45102

DUKE ENERGY ACCOUNT #	1080-0743-01-05
DATE	10/24/2011

**Fields Not Required*

Incentive that Product is Eligible For

QTY	DESCRIPTION	MODEL NUMBER	**TYPE*	**GENERAL*	SPECIFIC INCENTIVE	UNIT PRICE	**LINE TOTAL*
1	York 30 Ton Chiller Maintenance	YCAL0030EC46XCABXT	Chillers_Thermal Storage	Chiller Tune Up	Chiller Tune Up	3,076.75	3,076.75
1	Trane 100 Ton Chiller Maintenance	CGWCD101RGN	Chillers_Thermal Storage	Chiller Tune Up	Chiller Tune Up	10,256.00	10,256.00
1	Trane 100 Ton Chiller Maintenance	CGWCD101RANKKG2K	Chillers_Thermal Storage	Chiller Tune Up	Chiller Tune Up	10,256.00	10,256.00
1	McQuay 200 Ton Chiller Maintenance	PEH063-CCBC	Chillers_Thermal Storage	Chiller Tune Up	Chiller Tune Up	20,511.25	20,511.25

**SUBTOTAL*	$ 44,100.00
**SALES TAX*	-
**TOTAL*	**$ 44,100.00**

Engineering Excellence
Optimizing Your ENERGY Solutions

INVOICE

SOLD BY	PURCHASED BY / INSTALLATION ADDRESS
Engineering Excellence Regional Services LLC	Sun Chemical
10 Knollcrest Dr.	3922 Bach-Buxton Rd.
Cincinnati, OH 45237	Amelia, OH 45102

DUKE ENERGY ACCOUNT #	1080-0743-01-05
DATE	12/29/2009

**Fields Not Required*

Incentive that Product is Eligible For

QTY	DESCRIPTION	MODEL NUMBER	**TYPE*	**GENERAL*	SPECIFIC INCENTIVE	UNIT PRICE	**LINE TOTAL*
1	York 30 Ton Chiller Maintenance	YCAL0030EC46XCABXT	Chillers_Thermal Storage	Chiller Tune Up	Chiller Tune Up	3,076.75	3,076.75
1	Trane 100 Ton Chiller Maintenance	CGWCD101RGN	Chillers_Thermal Storage	Chiller Tune Up	Chiller Tune Up	10,256.00	10,256.00
1	Trane 100 Ton Chiller Maintenance	CGWCD101RANKKG2K	Chillers_Thermal Storage	Chiller Tune Up	Chiller Tune Up	10,256.00	10,256.00
1	McQuay 200 Ton Chiller Maintenance	PEH063-CCBC	Chillers_Thermal Storage	Chiller Tune Up	Chiller Tune Up	20,511.25	20,511.25

**SUBTOTAL*	$ 44,100.00
**SALES TAX*	-
**TOTAL*	**$ 44,100.00**

FORM 150.62-EG1 (103)

YORK®

AIR-COOLED SCROLL CHILLERS

STYLE C

29302A

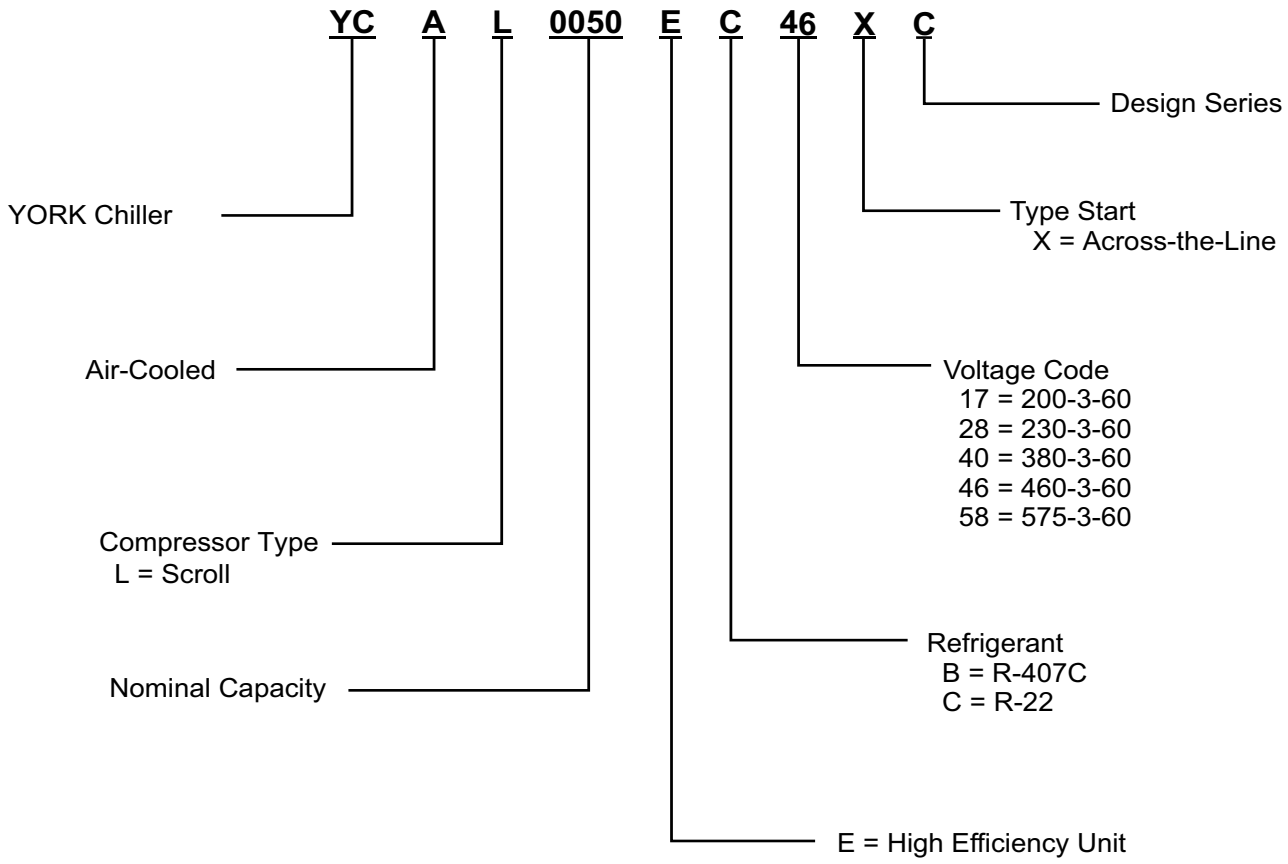
YCAL0014 – YCAL0124
10 – 125 TON
35 – 440 kW
60 Hz

R-22 **R-407C**

ASHRAE 90.1 COMPLIANT

ENERGY STAR BUILDINGS ALLY

TABLE OF CONTENTS



Introduction

29302A

YORK Millennium® Air-Cooled Scroll Chillers provide chilled water for all air conditioning applications using central station air handling or terminal units. They are completely self-contained and are designed for outdoor (roof or ground level) installation. Each unit includes hermetic scroll compressors, a liquid cooler, air cooled condenser, and a weather resistant microprocessor control center, all mounted on a formed steel base.

Specification

GENERAL

The 10 - 125 Ton (35 - 440 kW) YCAL models are shipped complete from the factory ready for installation and use.

The unit is pressure-tested, evacuated, and fully charged with either Refrigerant-22 (HCFC-22) or Chlorine-free Refrigerant-407C (HFC-407C) and includes an initial oil charge. After assembly, a complete operational test is performed with water flowing through the cooler to assure that the refrigeration circuit operates correctly.

The unit structure is heavy-gauge, galvanized steel. This galvanized steel is coated with baked-on powder paint, which, when subjected to ASTM B117 500 hour, salt spray testing, yields a minimum ASTM 1654 rating of “6”. Units are designed in accordance with NFPA 70 (National Electric Code), ASHRAE/ANSI 15 Safety code for mechanical refrigeration, ASME and rated in accordance with ARI Standard 550/590-98.

COMPRESSORS

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

COOLER

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

The water baffles are constructed of galvanized steel to resist corrosion. The removable heads allow access to the internally enhanced, seamless, copper tubes. Vent and drain connections are included.

Water inlet and outlet connections are grooved for compatibility with field supplied victaulic connections.

CONDENSER

Coils – Fin and tube condenser coils of seamless, internally-enhanced, high-condensing-coefficient, corrosion resistant copper tubes are arranged in staggered rows, mechanically expanded into aluminum fins. Integral subcooling is included. The design working pressure of the coil is 450 PSIG (31 bar).

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

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

MILLENNIUM CONTROL CENTER

All controls are contained in a NEMA 3R/12 (and equivalent to IP55*) cabinet with hinged outer door and includes:

Liquid Crystal Display with Light Emitting Diode back-lighting for outdoor viewing:
Two display lines
Twenty characters per line

Color coded 12-button non-tactile keypad with sections for:

DISPLAY/PRINT of typical information:
Chilled liquid temperatures
Ambient temperature
System pressures (each circuit)
Operating hours and starts (each compressor)

Print calls up to the liquid crystal display:
Operating data for the systems
History of fault shutdown data for up to the last six fault shutdown conditions

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

ENTRY section to:
ENTER setpoints or modify system values

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

UNIT section to:
Set time
Set unit options

UNIT ON/OFF switch

The microprocessor control center is capable of displaying the following:

- Return and leaving liquid temperature
- Low leaving liquid temperature cutout setting
- Low ambient temperature cutout setting
- Outdoor air temperature
- English or Metric data
- Suction pressure cutout setting
- Each system suction pressure (optional on 0014 - 0060 models and standard on 0064 - 0124 models)
- Discharge pressure (optional)
- Liquid Temperature Reset via a YORK ISN DDC or Building Automation System (by others) via:
  - a pulse width modulated (PWM) input as standard
  - a 4-20 milliamp or 0 -10 VDC input, or contact closure with the optional B.A.S. interface option
- Anti-recycle timer status for each system
- Anti-coincident system start timer condition
- Compressor run status
- No cooling load condition
- Day, date and time
- Daily start/stop times
- Holiday status
- Automatic or manual system lead/lag control
- Lead system definition
- Compressor starts & operating hours (each compressor)
- Status of hot gas valves, evaporator heater and fan operation
- Run permissive status
- Number of compressors running
- Liquid solenoid valve status

Provisions are included for: pumpdown at shutdown; optional remote chilled water temperature reset and two steps of demand load limiting from an external building automation system. Unit alarm contacts are standard.

The operating program is stored in non-volatile memory (EPROM) to eliminate chiller failure due to AC powered failure/battery discharge. Programmed setpoints are retained in lithium battery-backed RTC memory for 5 years minimum.

POWER PANEL

Each panel contains:

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

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

* Intensity of Protection European Standard
** International Electrotechnical Commission

Options and Accessories

POWER OPTIONS:

COMPRESSOR POWER CONNECTIONS – Single-point (YCAL0014-0034) or multiple-point (YCAL0040-0124) terminal block connection(s) are provided as standard. The following power connections are available as options. (See electrical data for specific voltage and options availability.) (Factory-mounted.)

SINGLE-POINT SUPPLY TERMINAL BLOCK – (*Available on YCAL0040 - 0080 models (standard on YCAL0014 - 0034 models)).* Includes enclosure, terminal-block and interconnecting wiring to the compressors. Separate external protection must be supplied, by others, in the incoming compressor-power wiring*. (Do not include this option if either the Single-Point Non-Fused Disconnect Switch or Single-Point Circuit Breaker options have been included.)*

SINGLE-POINT OR MULTIPLE-POINT SUPPLY TERMINAL BLOCK(S) WITH INDIVIDUAL SYSTEM BREAKERS - (*Available on YCAL0090-0124 models*) Includes single- or dual-point terminal block connection(s) with factory interconnecting wiring from the terminal block to factory supplied system circuit breakers.

SINGLE-POINT NON-FUSED DISCONNECT SWITCH (*Available on YCAL0014-0080 models*) **OR MULTIPLE-POINT NON-FUSED DISCONNECT SWITHCHES** (*Available on YCAL0090-0124 models*) – Unit-mounted disconnect switch(es) with external, lockable handle (in compliance with Article 440-14 of N.E.C.), can be supplied to isolate the unit power voltage for servicing. Separate external fusing must be supplied, by others in the power wiring, which must comply with the National Electrical Code and/or local codes.

SINGLE-POINT NON-FUSED DISCONNECT SWITCH WITH INDIVIDUAL SYSTEM BREAKERS - (*Available on YCAL0090-0124 models*) Includes unit-mounted disconnect switch with external, lockable handles (in compliance with Article 440-14 of N.E.C.) to isolate unit power voltage for servicing. Factory interconnecting wiring is provided from the disconnect switch to factory supplied system circuit breakers.

SINGLE-POINT CIRCUIT BREAKER – (*Available on YCAL0014-0080 models*) – A unit mounted circuit breaker with external, lockable handle (in compliance with N.E.C. Article 440-14), can be supplied to isolate the power voltage for servicing. *(This option includes the Single-Point Power connection.)*

CONTROL TRANSFORMER – Converts unit power voltage to 115-1-60 (0.5 or 1.0 KVA capacity). Factory mounting includes primary and secondary wiring between the transformer and the control panel. (Factory-mounted.)

POWER FACTOR CORRECTION CAPACITORS – Will correct unit compressor power factors to a 0.90-0.95. (Factory-mounted.)

CONTROL OPTIONS:

AMBIENT KIT (LOW) – (*Available on YCAL0014-0080 models only [standard on YCAL0090-0124 models]*) Units will operate to 25°F (-4°C). This accessory includes all necessary components to permit chiller operation to 0°F (-18°C). (*This option includes the Discharge Pressure Transducer / Readout Capability option.)* For proper head pressure control in applications below 25°F (-4°C) where wind gusts may exceed 5 mph, it is recommended that Optional Condenser Louvered Enclosure Panels also be included. (Factory-mounted.)

AMBIENT KIT (HIGH) – Required if units are to operate when the ambient temperature is above 115°F (46°C). Includes sun shield panels and discharge pressure transducers. *(This option includes the Discharge Pressure Transducer / Readout Capability option.)* (Field-mounted.)

BUILDING AUTOMATION SYSTEM INTERFACE – The factory addition of a Printed Circuit Board to accept a 4-20 milliamp, 0-10VDC or contact closure input to reset the leaving chiller liquid temperature from a Building Automation System. *(Only one of following options can be offered on a unit at a time: BAS, Remote Control Panel or Multi-unit Sequence Control.)* (Factory-mounted.)

- (The standard unit capabilities include remote start-stop, remote water temperature reset via a PWM input signal or up to two steps of demand (load) limiting depending on model.)
- (The standard control panel can be directly connected to a YORK Building Automated System via the standard on-board RS485 communication port.)

LANGUAGE LCD AND KEYPAD DISPLAY – Spanish, French, German, and Italian unit LCD controls and keypad display available. Standard language is English.

DISCHARGE PRESSURE TRANSDUCERS AND READ-OUT CAPABILITY – (*Available on YCAL0014-0080 models only [standard on YCAL0090-0124 models]*) The addition of pressure transducers allows models to sense and display

discharge pressure. This is recommended for brine chilling applications. *(This option is included with either the low or high ambient kits.)* (Factory-mounted.)

SUCTION PRESSURE TRANSDUCERS AND READOUT CAPABILITY – (*Available on YCAL0014-0060 models only [standard on YCAL0064-0124 models.]*) The addition of suction transducers allows models to sense and display suction pressure. (Factory-mounted.)

MOTOR CURRENT MODULE – Capable of monitoring compressor motor current. Provides extra protection against compressor reverse rotation, phase-loss and phase imbalance. Option consists of one module per electrical system. (Factory-mounted.)

REMOTE CONTROL PANEL AND WALL ADAPTOR– (*Available on YCAL0014-0080 models only*)*(Only one of following options can be offered on a unit at a time: BAS, Remote Control Panel,Optiview Remote Graphic Panel or Multi-unit Sequence Control.)* (Field-mounted.)

OPTIVIEW REMOTE CONTROL PANEL - Graphical interface panel to remotely control and monitor up to 8 different units. (*Refer to form 201.18-SG4 for detailed information*)

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

COMPRESSOR, PIPING, EVAPORATOR OPTIONS:

LOW TEMPERATURE BRINE – *(For brine chilling applications below 30°F (-1°C) LCWT. Standard units will operate down to 30°F (-1°C))*. Option includes resized thermal expansion valves. (Factory-mounted)

CHICAGO CODE RELIEF VALVES – Unit will be provided with relief valves to meet Chicago code requirements. (Factory-mounted.)

SERVICE ISOLATION VALVE – Service suction and discharge (ball type) isolation valves are added to unit per system. This option also includes a system high pressure relief valve in compliance with ASHRAE 15. (Factory-mounted.)

HOT GAS BY-PASS – Permits continuous, stable operation at capacities below the minimum step of compressor unloading to as low as 5% capacity (depending on both the unit and operating conditions) by introducing an artificial load on the cooler. Hot gas by-pass is installed on only refrigerant system #1 on two-circuited units. (Factory-mounted.)

DX COOLER 300 (21 bar) PSIG DWP WATERSIDE – The waterside will be of 300 PSIG (21 bar) instead of the standard 150 PSIG DWP. 300 PSIG R.F. flanges are included on the DX cooler nozzles. (Factory-mounted.) The companion flanges will be field-supplied by others.

FLANGES (WELD TYPE) – Consists of 150 lb. (standard 150 psi [10.5 bar] cooler) R.F. flanges to convert to flanged cooler-connections and includes companion flanges. *(300 lb. flanges included on optional DX cooler 300 PSIG DWP waterside)* (Field-mounted.)

FLANGES (VICTAULIC TYPE) – Consists of (2) Flange adapter for grooved end pipe (standard 150 psi [10.5 bar] cooler). *(Not available on optional DX cooler 300 PSIG DWP waterside.)* (Field-mounted.)

FLOW SWITCH – The flow switch or its equivalent must be furnished with each unit.

150 psig (10.5 bar) DWP – For standard units. Johnson Controls model F61MG-1C Vapor-proof SPDT, NEMA 4X switch (150 PSIG [10.5 bar] DWP), -20°F to 250°F (-29°C to 121°C), with 1" NPT connection for upright mounting in horizontal pipe. (Field-mounted.)

300 psig (21 bar) DWP – For units with optional 300 PSIG (21 bar) DX cooler. McDonnell & Miller model FS7-4W Vapor-proof SPDT, NEMA 4X switch (300 PSIG (21 bar) DWP), -20°F to 300°F (-29°C to 149°C), with 1¼ inch MPT connection for upright mounting in horizontal pipe. (Field-mounted.)

DIFFERENTIAL PRESSURE SWITCH – Alternative to an above mentioned flow switch. Pretempco model DPS300A-P40PF-82582-5 (300 psi max. working pressure), SPDT 5 amp 125/250VAC switch, Range 0 - 40 PSID, deadband 0.5 - 0.8 psi, with 1/4" NPTE Pressure Connections.

REMOTE DX COOLER – A split system arrangement with the cooler, leaving & return water sensors, liquid line solenoid valves, filter driers, sightglasses & TXVs shipped loose for field connection to the air-cooled condensing section. The DX cooler and outdoor section will have a nitrogen holding charge. Interconnecting rigid piping, wiring and refrigerant are by others. Includes YORK Service start-up. See Form 150.62-NM1.1 (200) for other application information. *(This option includes the Crankcase Heater option.)*(Field-mounted.)

CONDENSER AND CABINET OPTIONS:

Condenser coil protection against corrosive environments is available by choosing any of the following options. For additional application recommendations, refer to FORM 150.12-ES1. (Factory-mounted.)

PRE-COATED FIN CONDENSER COILS – The air-cooled condenser coils are constructed of black epoxy-coated aluminum fins. This can provide corrosion resistance comparable to copper-fin coils in typical seashore locations. Either these or the post-coated coils (below), are recommended for units being installed at the seashore or where salt spray may hit the unit.

POST-COATED DIPPED CONDENSER COILS – The unit is built with dipped-cured condenser coils. This is another choice for seashore and other corrosive applications (with the exception of strong alkalies, oxidizers and wet bromine, chlorine and fluorine in concentrations greater than 100 ppm).

COPPER FIN CONDENSER COILS – The unit constructed with condenser coils which have copper fins. (This is not recommended for units in areas where they may be exposed to acid rain.)

ENCLOSURE PANELS (UNIT) – Tamperproof Enclosure Panels prevent unauthorized access to units. Enclosure Panels can provide an aesthetically pleasing alternative to expensive fencing. Additionally, for proper head pressure control, YORK recommends the use of Condenser Louvered Panels for winter applications where wind gustss may exceed five miles per hour. The following types of enclosure panels are available:

WIRE PANELS (Full Unit) – Consists of welded wire-mesh guards mounted on the exterior of the unit. Prevents unauthorized access, yet provides free air flow. (Factory-mounted.)

WIRE/LOUVERED PANELS – Consists of welded wire-mesh panels on the bottom part of unit and louvered panels on the condenser section of the unit. (Factory-mounted).

LOUVERED PANELS (Condenser Coil Only) – Louvered panels are mounted on the sides and ends of the condenser coils for protection. (Factory-mounted.)

LOUVERED PANELS (Full Unit) – Louvered panels surround the front, back, and sides of the unit. They prevent unauthorized access and visually screen unit components. Unrestricted air flow is permitted through generously sized louvered openings. This option is applicable for any outdoor design ambient temperature up to 115°F (46°). (Factory-mounted.)

SOUND ATTENUATION – One or both of the following sound attenuation options are recommended for residential or other similar sound sensitive locations:

COMPRESSOR ACOUSTIC SOUND BLANKET – Each compressor is individually enclosed by an acoustic sound blanket. The sound blankets are made with one layer of acoustical absorbent textile fiber of 5/8" (15mm) thickness; one layer of anti-vibrating heavy material thickness of 1/8" (3mm). Both are closed by two sheets of welded PVC, reinforced for temperature and UV resistance. (Factory-mounted.)

LOW SOUND FANS – Lower RPM, 8-pole fan motors are used with steeper-pitch fans. (Factory-mounted.)

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Selection Data

GUIDE TO SELECTION

Capacity ratings for YORK YCAL Packaged Air-Cooled Liquid Chillers, shown on pages 16 through 39 cover the majority of design applications for these units. For unusual applications or uses beyond the scope of this catalog, please consult your nearest YORK Office or representative.

SELECTION RULES

1. **Ratings** – Ratings may be interpolated, but must not be extrapolated. The Ratings given on pages 16 through 39 and the DESIGN PARAMETERS given on page 11 indicate the limits of application for these chillers.
2. **Cooler Water** – Ratings are based upon 2.4 GPM per ton which is equal to a 10°F chilled water range and a 0.0001 fouling factor for the cooler at sea level. Tables on pages 16 through 39 give capacity, compressor kW required, cooler GPM and unit EER.
3. **Condenser** – Ratings are given in terms of air on condenser in degrees Fahrenheit.
4. **Copper Fin Condenser Ratings** – Since the thermal conductivity of copper is slightly higher than aluminum, apply the following corrections to the standard ratings. Tons x 0.97 and compressor kW x 0.99.
5. **Performance Data Correction Factors** – Ratings are based on 0.0001 cooler fouling factor, 10°F chilled water range and at sea level. For operation at different conditions, apply the appropriate correction factor from the following table.

FOULING FACTOR					
		0.0001		0.00025	
ALTITUDE	TEMP SPLIT	TONS	COMPR kW	TONS	COMPR kW
SEA LEVEL	8	0.994	0.999	0.991	0.998
	10	1.000	1.000	0.993	0.999
	12	1.005	1.001	0.999	0.999
	14	1.008	1.002	1.005	1.000
2000 FT.	8	0.990	1.010	0.984	1.009
	10	0.995	1.010	0.990	1.009
	12	0.999	1.011	0.995	1.010
	14	1.004	1.015	0.998	1.011
4000 FT.	8	0.983	1.021	0.977	1.020
	10	0.989	1.024	0.983	1.021
	12	0.994	1.025	0.988	1.024
	14	0.997	1.026	0.993	1.025
6000 FT.	8	0.978	1.035	0.973	1.034
	10	0.982	1.037	0.978	1.035
	12	0.987	1.037	0.980	1.036
	14	0.992	1.038	0.986	1.037

6. **Ethylene Glycol Correction Factors** – The following factors are to be applied to the standard ratings for units cooling ethylene glycol.

ETHYLENE GLYCOL					
% WEIGHT	TONS kW	COMPR	GPM°F/TON	PRESS DROP	FREEZE PT
10	0.985	0.997	24.1	1.034	26
20	0.981	0.996	24.9	1.062	16
30	0.974	0.995	26.1	1.096	5
40	0.966	0.991	27.5	1.134	-10
50	0.957	0.989	29.1	1.172	-32

7. **Propylene Glycol Correction Factors** – The following factors are to be applied to the standard ratings for units cooling propylene glycol.

PROPYLENE GLYCOL					
% WEIGHT	TONS kW	COMPR	GPM°F/TON	PRESS DROP	FREEZE PT
10	0.983	0.996	24.2	1.048	27
20	0.974	0.995	24.4	1.086	19
30	0.961	0.990	25.1	1.134	8
40	0.946	0.98	26.0	1.186	-5
50	0.928	0.984	27.2	1.247	-25

METHOD OF SELECTION

To select of YORK Packaged Air-Cooled Liquid Chiller,
the following data must be known:

1. Design Capacity in tons refrigeration (TR).
2. Entering and Leaving Liquid Temperatures.
3. Outside ambient air temperature in degrees F.
4. GPM of chilled liquid.

Determine capacity requirements from the following formula:

$$GPM = \frac{TR \times 24}{RANGE\ (°F)}$$

EXAMPLE – WATER CHILLING

1. **GIVEN:** Provide a capacity of 50 Tons at 42°F leaving water 10°F range, 0.0001FF, 80°F air on the condenser, at sea level and 60 Hz.
2. **FIND:** Unit Size
   Compressor kW Input

3. From the Ratings on pages 16 - 46:

   SELECT: YCAL0050 (English Units)
   53.1 Tons
   48.7 Compressor kW
   11.7 Unit EER

4. Calculate Compressor kW at 50 Tons:

$$kW = \frac{50}{53.1} \times 48.7kW = 45.9kW$$

5. Calculate GPM:

$$GPM = \frac{50 \text{ Tons} \times 24}{10°F \text{ Range}} = 120 \text{ GPM}$$

6. From Page 14, read 10 ft of water cooler pressure drop for GPM:
7. A YCAL0050 is suitable.

EXAMPLE – Brine Chilling

1. **GIVEN:** Provide a capacity of 34 tons cooling 30% by weight Ethylene Glycol from 50°F to 40°F, 0.00025FF, 95°F air on the condenser, 60 Hz and 4000 ft. altitude.
2. **DETERMINE:**
   Unit Size
   kW Input
   Ethylene Glycol GPM
   Cooler Pressure Drop
3. See Ethylene Glycol correction factors, for 30% by weight Ethylene Glycol.

   READ: .974 Tons factor
   .995 Compr. kW factor
   26.1 Gal./°F/Tons factor

4. See Performance Data Correction Factors for 0.00025 fouling factor and 4000 ft. altitude.

   READ: .983 Tons factor
   1.021 kW factor

5. From RATINGS on pages 16 - 46:

   SELECT: YCAL0040 (English Units)
   36.1 Tons
   38.6 Compressor kW

6. Determine YCAL0040 brine cooling capacity and Compressor kW requirement:
   A. Tons = 36.1 x .974 x .983 = 34.6
   B. Compr. kW = 38.6 x .995 x 1.021 = 39.2
7. Determine average full load Compressor kW at 34 tons:

$$\frac{34 \text{ tons}}{34.6 \text{ tons}} \times (39.2 \text{ kW}) = 38.5 \text{ Compressor kW}$$

8. Determine Ethylene Glycol GPM:

$$GPM = \frac{\text{Tons} \times \text{Gal. °F/min/Ton factor}}{\text{Range}}$$

$$GPM = \frac{34.0 \times 26.1}{10}$$

$$GPM = 88.7$$

9. Determine Cooler Pressure Drop:
   A. See Ethylene Glycol correction factors for 30% by weight Ethylene Glycol.

   READ: 1.096 Pressure Drop Factor

   B. See page 14 at 88.7 GPM for the YCAL0040.

   READ: 6.5 Ft. H_2O Pressure Drop

   C. Cooler Pressure Drop = 6.5 x 1.096 or 7.1 Ft. H_2O

10. YCAL0040 is suitable.

Design Parameters

ENGLISH UNITS

YCAL	LEAVING WATER					
	TEMPERATURE (°F)		COOLER FLOW (GPM[3])		AIR ON CONDENSER (°F)	
	MIN[1]	MAX[2]	MIN	MAX	MIN[4]	MAX[5]
0014	40	55	25	60	0	125
0020	40	55	25	60	0	125
0024	40	55	30	70	0	125
0030	40	55	35	170	0	125
0034	40	55	35	170	0	125
0040	40	55	60	325	0	125
0042	40	55	60	325	0	125
0044	40	55	60	325	0	125
0050	40	55	60	325	0	125
0060	40	55	60	325	0	125
0064	40	55	100	350	0	125
0070	40	55	100	350	0	125
0074	40	55	100	350	0	125
0080	40	55	100	400	0	125
0090	40	55	138	525	0	125
0094	40	55	138	525	0	125
0104	40	55	156	625	0	125
0114	40	55	156	625	0	125
0124	40	55	156	625	0	125

SI UNITS

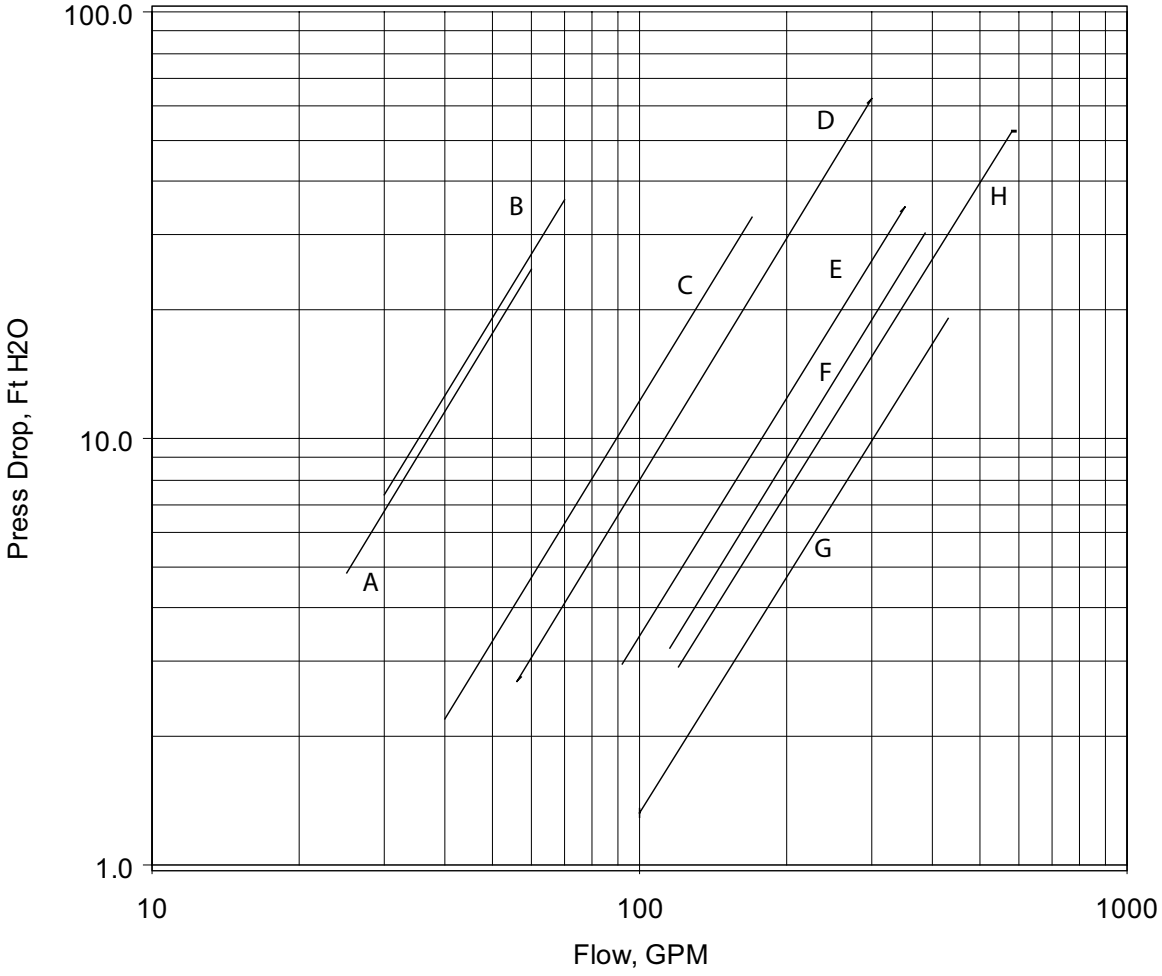
YCAL	LEAVING WATER					
	TEMPERATURE (°C)		COOLER FLOW (l/s[3])		AIR ON CONDENSER (°C)	
	MIN[1]	MAX[2]	MIN	MAX	MIN[4]	MAX[5]
0014	4.4	12.8	1.6	3.8	-17.7	51.7
0020	4.4	12.8	1.6	3.8	-17.7	51.7
0024	4.4	12.8	1.9	4.4	-17.7	51.7
0030	4.4	12.8	2.2	10.7	-17.7	51.7
0034	4.4	12.8	2.2	10.7	-17.7	51.7
0040	4.4	12.8	3.8	20.5	-17.7	51.7
0042	4.4	12.8	3.8	20.5	-17.7	51.7
0044	4.4	12.8	3.8	20.5	-17.7	51.7
0050	4.4	12.8	3.8	20.5	-17.7	51.7
0060	4.4	12.8	3.8	20.5	-17.7	51.7
0064	4.4	12.8	6.3	22.1	-17.7	51.7
0070	4.4	12.8	6.3	22.1	-17.7	51.7
0074	4.4	12.8	6.3	22.1	-17.7	51.7
0080	4.4	12.8	6.3	25.2	-17.7	51.7
0090	4.4	12.8	8.7	33.1	-17.7	51.7
0094	4.4	12.8	8.7	33.1	-17.7	51.7
0104	4.4	12.8	9.8	39.4	-17.7	51.7
0114	4.4	12.8	9.8	39.4	-17.7	51.7
0124	4.4	12.8	9.8	39.4	-17.7	51.7

NOTES:

1. For leaving brine temperature below 40°F (4.4°C), contact your nearest YORK Office for application requirements.
2. For leaving water temperature higher than 55°F (12.8°C), contact the nearest YORK Office for application guidelines.
3. The evaporator is protected against freezing to -20°F (-28.8°C) with an electric heater as standard.
4. For operation at temperatures below 25°F (-3.9°C), the optional Low Ambient Kit will need to be installed on the system (for YCAL0014-0080 models only).
5. For operation at temperatures above 115°F (46.1°C), the optional High Ambient Kit will need to be installed on the system.

Water Pressure Drop

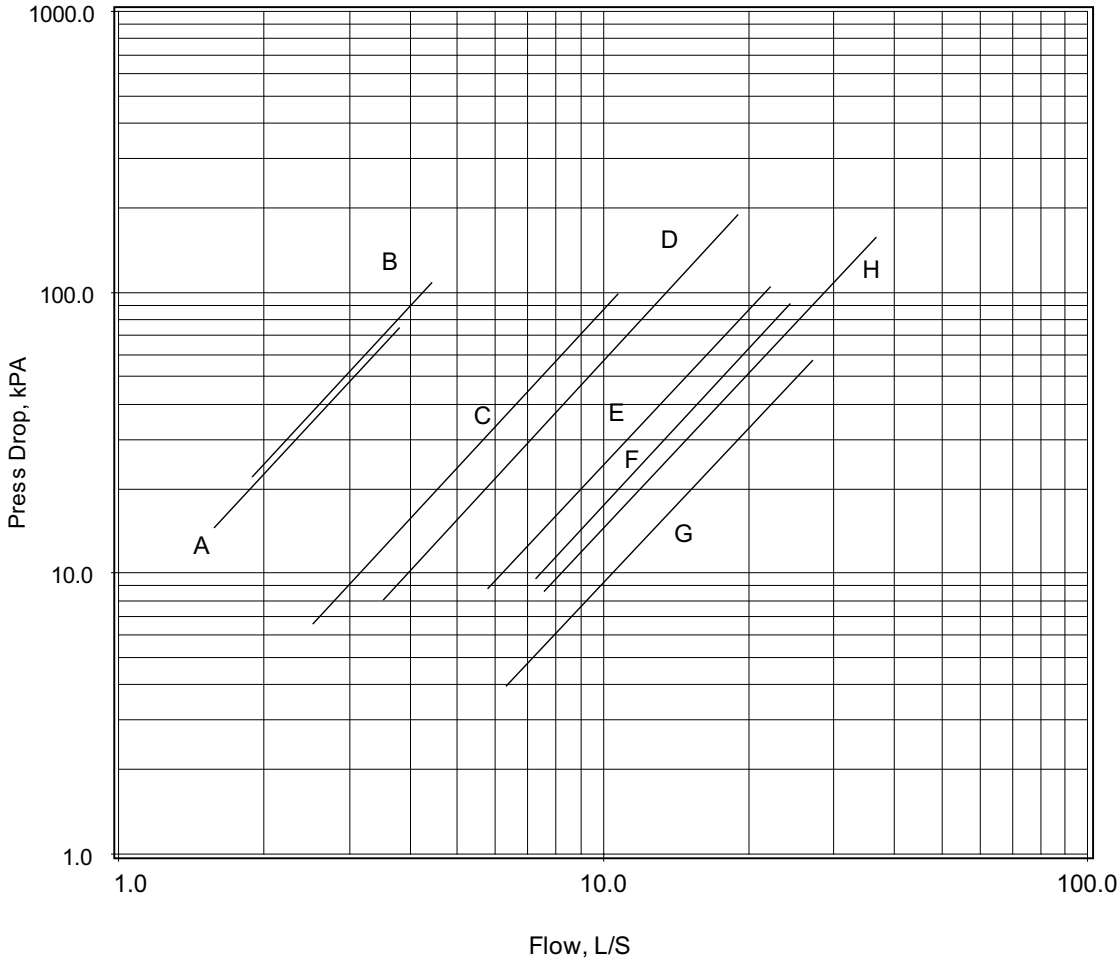
ENGLISH



MODEL YCAL	COOLER CURVE
0014, 0020	A
0024	B
0030, 0034	C
0040, 0042 0044, 0050, 0060	D
0064, 0070, 0074	E
0080	F
0090, 0094	G
0104, 0114, 0124	H

Note: Water Pressure Drop Curves may extend past the minimum and maximum water flow ranges. See page 13 for minimum and maximum flow points.

SI



MODEL YCAL	COOLER CURVE
0014, 0020	A
0024	B
0030, 0034	C
0040, 0042 0044, 0050, 0060	D
0064, 0070, 0074	E
0080	F
0090, 0094	G
0104, 0114, 0124	H

Note: Water Pressure Drop Curves may extend past the minimum and maximum water flow ranges. See page 13 for minimum and maximum flow points.

Ratings - R-22 (English Units)

YCAL0014EC

IPLV=13.1

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	13.6	10.9	11.9	13.3	11.5	11.1	12.9	12.1	10.4	12.6	12.8	9.7	12.3	13.6	9.0	12.0	14.4	8.4
42.0	14.1	10.9	12.3	13.7	11.5	11.5	13.4	12.2	10.7	13.1	12.9	10.0	12.8	13.7	9.3	12.4	14.5	8.6
44.0	14.6	11.0	12.7	14.2	11.6	11.9	13.9	12.3	11.1	13.6	13.0	10.3	13.2	13.7	9.6	12.9	14.6	8.9
45.0	14.9	11.0	12.9	14.6	11.7	12.1	14.1	12.3	11.2	13.8	13.0	10.5	13.5	13.8	9.7	13.1	14.6	9.1
46.0	15.1	11.1	13.1	14.8	11.7	12.2	14.5	12.4	11.5	14.1	13.1	10.6	13.7	13.8	9.9	13.4	14.6	9.2
48.0	15.7	11.1	13.5	15.3	11.8	12.6	14.9	12.4	11.8	14.6	13.1	11.0	14.3	13.9	10.2	13.8	14.7	9.5
50.0	16.2	11.2	13.9	15.8	11.8	13.0	15.5	12.5	12.1	15.2	13.2	11.4	14.7	14.0	10.5	14.4	14.8	9.8

YCAL0020EC

IPLV=13.6

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	18.7	15.5	12.3	18.2	16.4	11.4	17.8	17.4	10.6	17.3	18.4	9.8	16.8	19.5	9.1	16.3	20.6	8.4
42.0	19.3	15.6	12.6	18.9	16.5	11.7	18.4	17.5	10.9	17.9	18.5	10.1	17.4	19.6	9.3	16.9	20.7	8.6
44.0	20.0	15.7	13.0	19.5	16.6	12.1	19.0	17.6	11.2	18.5	18.6	10.4	18.0	19.7	9.6	17.5	20.9	8.9
45.0	20.3	15.8	13.2	19.9	16.7	12.2	19.4	17.7	11.4	18.9	18.7	10.5	18.3	19.8	9.7	17.8	20.9	9.0
46.0	20.7	15.8	13.3	20.2	16.7	12.4	19.7	17.7	11.5	19.2	18.8	10.7	18.7	19.9	9.9	18.1	21.0	9.1
48.0	21.4	15.9	13.7	20.9	16.9	12.7	20.4	17.9	11.8	19.8	18.9	11.0	19.3	20.0	10.2	18.8	21.2	9.4
50.0	22.1	16.1	14.1	21.6	17.0	13.1	21.1	18.0	12.2	20.5	19.0	11.3	20.0	20.1	10.4	19.4	21.3	9.7

YCAL0024EC

IPLV=13.6

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	23.0	19.6	12.3	22.5	20.6	11.5	22.0	21.7	10.8	21.4	22.9	10.0	20.9	24.2	9.3	20.3	25.5	8.6
42.0	23.8	19.7	12.7	23.3	20.7	11.9	22.8	21.8	11.1	22.2	23.0	10.3	21.6	24.3	9.6	21.1	25.7	8.9
44.0	24.6	19.9	13.0	24.1	20.9	12.2	23.6	22.0	11.4	23.0	23.2	10.6	22.4	24.5	9.9	21.8	25.8	9.1
45.0	25.1	19.9	13.2	24.5	21.0	12.4	24.0	22.1	11.6	23.4	23.3	10.8	22.8	24.5	10.0	22.2	25.9	9.3
46.0	25.5	20.0	13.4	24.9	21.0	12.6	24.4	22.1	11.7	23.8	23.3	10.9	23.2	24.6	10.2	22.6	26.0	9.4
48.0	26.4	20.2	13.8	25.8	21.2	12.9	25.2	22.3	12.1	24.6	23.5	11.2	24.0	24.8	10.4	23.3	26.2	9.7
50.0	27.3	20.3	14.1	26.7	21.3	13.3	26.1	22.5	12.4	25.5	23.7	11.5	24.8	24.9	10.7	24.1	26.3	9.9

YCAL0030EC

IPLV=14.1

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	29.1	24.0	13.0	28.4	25.4	12.1	27.8	26.8	11.3	27.1	28.4	10.4	26.4	30.1	9.6	25.7	31.8	8.9
42.0	30.1	24.2	13.4	29.4	25.6	12.5	28.8	27.0	11.6	28.1	28.6	10.7	27.3	30.3	9.9	26.6	32.0	9.2
44.0	31.1	24.4	13.7	30.5	25.8	12.8	29.7	27.2	11.9	29.0	28.8	11.0	28.3	30.5	10.2	27.6	32.3	9.4
45.0	31.6	24.5	13.9	31.0	25.9	13.0	30.3	27.4	12.0	29.5	28.9	11.2	28.8	30.6	10.3	28.0	32.4	9.6
46.0	32.2	24.6	14.1	31.5	26.0	13.1	30.8	27.5	12.2	30.0	29.0	11.3	29.3	30.7	10.5	28.5	32.5	9.7
48.0	33.3	24.8	14.4	32.6	26.2	13.5	31.8	27.7	12.5	31.1	29.3	11.6	30.3	31.0	10.8	29.5	32.7	10.0
50.0	34.4	25.1	14.8	33.6	26.5	13.8	32.9	27.9	12.8	32.1	29.5	11.9	31.3	31.2	11.1	30.5	33.0	10.2

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

YCAL0014EC

IPLV=13.1

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	11.7	15.3	7.8	11.3	16.2	7.2	11.0	17.1	6.6	10.6	18.2	6.1	5.3	8.6	5.6
42.0	12.1	15.3	8.0	11.8	16.3	7.4	11.4	17.2	6.8	11.0	18.2	6.3	5.5	8.7	5.8
44.0	12.6	15.4	8.3	12.2	16.3	7.6	11.8	17.3	7.0	11.4	18.3	6.5	5.7	8.7	6.0
45.0	12.8	15.5	8.4	12.4	16.4	7.8	12.0	17.3	7.2	11.6	18.4	6.6	5.9	8.7	6.1
46.0	13.0	15.5	8.5	12.6	16.4	7.9	12.2	17.4	7.3	11.8	18.4	6.7	6.0	8.7	6.3
48.0	13.5	15.6	8.8	13.1	16.5	8.1	12.7	17.5	7.5	12.2	18.5	6.9	6.1	8.7	6.4
50.0	14.0	15.7	9.1	13.6	16.6	8.4	13.1	17.6	7.7	12.7	18.6	7.1	6.5	8.7	6.8

YCAL0020EC

IPLV=13.6

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	15.8	21.8	7.7	15.3	23.0	7.1	14.9	24.3	6.6	14.3	25.7	6.0	7.3	11.9	5.9
42.0	16.4	21.9	7.9	15.9	23.2	7.3	15.4	24.5	6.8	14.9	25.8	6.2	7.7	12.0	6.3
44.0	17.0	22.1	8.2	16.4	23.3	7.5	15.9	24.6	7.0	15.4	26.0	6.4	8.0	12.0	6.5
45.0	17.3	22.1	8.3	16.7	23.4	7.6	16.2	24.7	7.1	15.7	26.1	6.5	8.2	12.0	6.6
46.0	17.6	22.2	8.4	17.0	23.5	7.7	16.5	24.8	7.2	15.9	26.2	6.6	8.3	12.1	6.7
48.0	18.2	22.4	8.7	17.5	23.6	8.0	17.0	25.0	7.4	16.5	26.4	6.8	8.6	12.1	6.9
50.0	18.8	22.5	8.9	18.2	23.8	8.2	17.5	25.1	7.5	17.1	26.5	7.0	8.9	12.2	7.2

YCAL0024EC

IPLV=13.6

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	19.7	26.9	8.0	19.1	28.5	7.3	18.4	30.1	6.7	17.7	31.7	6.1	17.0	33.5	5.6
42.0	20.4	27.1	8.2	19.8	28.6	7.6	19.1	30.2	6.9	18.4	31.9	6.3	17.6	33.7	5.8
44.0	21.2	27.3	8.4	20.5	28.8	7.8	19.8	30.4	7.2	19.1	32.1	6.6	18.3	33.9	6.0
45.0	21.5	27.3	8.6	20.9	28.9	7.9	20.2	30.5	7.3	19.4	32.2	6.7	10.1	15.1	6.7
46.0	21.9	27.4	8.7	21.2	29.0	8.0	20.5	30.6	7.4	19.8	32.3	6.8	10.2	15.2	6.8
48.0	22.7	27.6	9.0	22.0	29.2	8.3	21.3	30.8	7.6	20.5	32.5	7.0	10.6	15.2	7.1
50.0	23.5	27.8	9.2	22.8	29.3	8.5	22.0	31.0	7.8	21.2	32.7	7.2	11.0	15.3	7.3

YCAL0030EC

IPLV=14.1

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	25.0	33.6	8.2	24.2	35.5	7.6	23.5	37.5	7.0	22.7	39.6	6.4	11.7	18.7	6.5
42.0	25.9	33.9	8.5	25.1	35.8	7.8	24.3	37.8	7.2	23.6	39.9	6.6	12.1	18.7	6.8
44.0	26.8	34.1	8.7	26.0	36.0	8.0	25.2	38.1	7.4	12.9	17.8	7.5	12.5	18.8	6.9
45.0	27.3	34.2	8.8	26.5	36.2	8.1	25.6	38.2	7.5	13.1	17.8	7.6	12.7	18.8	7.0
46.0	27.7	34.4	9.0	26.9	36.3	8.3	26.1	38.3	7.6	13.4	17.9	7.8	12.9	18.9	7.2
48.0	28.7	34.6	9.2	27.8	36.6	8.5	27.0	38.6	7.8	13.9	17.9	8.0	13.4	19.0	7.4
50.0	29.7	34.9	9.4	28.8	36.8	8.7	27.9	38.9	8.0	14.4	18.0	8.3	13.9	19.1	7.6

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

Ratings - R-22 (English Units)

YCAL0034EC

IPLV=14.6

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	35.1	30.9	12.5	34.3	32.6	11.6	33.5	34.3	10.8	32.6	36.2	10.0	31.7	38.3	9.3	30.8	40.4	8.6
42.0	36.3	31.1	12.8	35.5	32.8	12.0	34.7	34.6	11.1	33.8	36.5	10.3	32.9	38.6	9.5	31.9	40.7	8.8
44.0	37.6	31.4	13.2	36.7	33.1	12.3	35.9	34.9	11.4	34.9	36.8	10.6	34.0	38.9	9.8	33.0	41.0	9.0
45.0	38.2	31.6	13.3	37.4	33.2	12.4	36.5	35.0	11.6	35.5	37.0	10.7	34.6	39.0	9.9	33.6	41.2	9.2
46.0	38.9	31.7	13.5	38.0	33.4	12.6	37.1	35.2	11.7	36.1	37.1	10.9	35.2	39.2	10.1	34.2	41.3	9.3
48.0	40.1	32.0	13.9	39.2	33.7	12.9	38.3	35.5	12.0	37.3	37.4	11.1	36.4	39.5	10.3	35.3	41.7	9.5
50.0	41.5	32.3	14.2	40.5	33.9	13.2	39.6	35.8	12.3	38.6	37.7	11.4	37.5	39.8	10.6	36.5	42.0	9.8

YCAL0040EC

IPLV=14.9

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	39.8	30.6	13.2	38.9	32.4	12.3	38.0	34.4	11.4	37.1	36.4	10.6	36.1	38.6	9.8	35.1	40.9	9.1
42.0	41.2	30.8	13.6	40.3	32.6	12.7	39.3	34.5	11.8	38.4	36.6	10.9	37.4	38.8	10.1	36.4	41.1	9.4
44.0	42.7	30.9	14.0	41.7	32.8	13.1	40.8	34.7	12.1	39.8	36.8	11.3	38.7	39.0	10.4	37.7	41.3	9.7
45.0	43.4	31.0	14.2	42.5	32.9	13.2	41.5	34.8	12.3	40.5	36.9	11.4	39.4	39.1	10.6	38.4	41.4	9.8
46.0	44.2	31.1	14.4	43.2	33.0	13.4	42.2	34.9	12.5	41.2	37.0	11.6	40.1	39.2	10.8	39.0	41.5	10.0
48.0	45.7	31.3	14.9	44.7	33.2	13.8	43.7	35.1	12.9	42.6	37.2	12.0	41.5	39.4	11.1	40.4	41.7	10.3
50.0	47.3	31.5	15.3	46.3	33.4	14.3	45.2	35.3	13.3	44.1	37.4	12.3	43.0	39.6	11.4	41.8	41.9	10.6

YCAL0042EC

IPLV=14.2

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	44.0	35.7	12.8	42.9	37.7	11.9	42.1	39.9	11.1	41.0	42.2	10.3	40.0	44.6	9.6	38.9	47.2	8.8
42.0	45.6	36.0	13.2	44.6	38.0	12.3	43.6	40.1	11.4	42.5	42.4	10.6	41.4	44.8	9.9	40.3	47.4	9.1
44.0	47.2	36.2	13.5	46.2	38.2	12.6	45.1	40.4	11.8	44.0	42.7	10.9	42.9	45.1	10.1	41.7	47.7	9.4
45.0	48.0	36.4	13.7	47.0	38.4	12.8	45.9	40.5	11.9	44.8	42.8	11.1	43.6	45.2	10.3	42.4	47.8	9.5
46.0	48.9	36.5	13.9	47.8	38.5	13.0	46.7	40.6	12.1	45.6	42.9	11.3	44.4	45.4	10.5	43.2	48.0	9.7
48.0	50.5	36.8	14.3	49.4	38.8	13.4	48.2	40.9	12.5	47.1	43.2	11.6	45.9	45.6	10.8	44.7	48.2	10.0
50.0	52.3	37.0	14.7	51.1	39.0	13.7	49.9	41.2	12.8	48.7	43.5	11.9	47.5	45.9	11.1	46.2	48.5	10.2

YCAL0044EC

IPLV=14.2

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	48.4	40.2	12.7	47.3	42.3	11.8	46.3	44.6	11.1	45.1	47.1	10.3	44.0	49.7	9.5	42.7	52.6	8.8
42.0	50.0	40.5	13.0	49.0	42.6	12.2	47.9	44.9	11.4	46.7	47.4	10.6	45.5	50.0	9.8	44.3	52.9	9.1
44.0	51.8	40.8	13.4	50.6	42.9	12.5	49.6	45.2	11.7	48.4	47.7	10.9	47.1	50.4	10.1	45.8	53.2	9.4
45.0	52.7	41.0	13.6	51.6	43.1	12.7	50.3	45.4	11.8	49.2	47.9	11.0	47.9	50.5	10.3	46.6	53.4	9.5
46.0	53.6	41.2	13.8	52.5	43.3	12.9	51.3	45.6	12.0	50.1	48.0	11.2	48.8	50.7	10.4	47.4	53.5	9.6
48.0	55.4	41.5	14.1	54.3	43.6	13.2	53.0	45.9	12.4	51.8	48.4	11.5	50.4	51.0	10.7	49.1	53.9	9.9
50.0	57.3	41.8	14.5	56.1	43.9	13.6	54.8	46.2	12.7	53.5	48.7	11.8	52.1	51.4	11.0	50.7	54.2	10.2

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

YCAL0034EC

IPLV=14.6

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	29.9	42.7	7.9	28.8	45.1	7.2	27.8	47.6	6.6	26.7	50.2	6.0	18.1	32.5	6.2
42.0	30.9	43.0	8.1	29.9	45.4	7.4	28.8	48.0	6.8	27.7	50.6	6.2	18.8	32.6	6.4
44.0	31.9	43.3	8.3	31.0	45.8	7.6	29.9	48.3	7.0	20.3	31.1	7.2	19.6	32.8	6.6
45.0	32.6	43.5	8.4	31.5	46.0	7.8	30.4	48.5	7.1	20.7	31.1	7.3	19.9	32.9	6.7
46.0	33.1	43.7	8.6	32.0	46.1	7.9	30.9	48.7	7.2	21.1	31.2	7.4	20.3	33.0	6.8
48.0	34.3	44.0	8.8	33.1	46.5	8.1	32.0	49.1	7.4	21.8	31.4	7.7	21.0	33.2	7.0
50.0	35.4	44.3	9.0	34.3	46.8	8.3	33.1	49.4	7.6	22.6	31.5	7.9	21.8	33.3	7.2

YCAL0040EC

IPLV=14.9

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	34.1	43.3	8.4	33.0	45.7	7.7	32.0	48.4	7.1	31.0	51.2	6.5	15.6	24.5	6.2
42.0	35.3	43.5	8.6	34.3	46.0	8.0	33.2	48.7	7.3	32.1	51.4	6.8	16.3	24.6	6.5
44.0	36.6	43.7	8.9	35.5	46.2	8.2	34.4	48.9	7.6	33.3	51.7	7.0	16.9	24.6	6.7
45.0	37.3	43.8	9.1	36.1	46.4	8.3	35.0	49.0	7.7	33.8	51.8	7.1	17.3	24.7	6.8
46.0	37.9	43.9	9.2	36.8	46.5	8.5	35.6	49.1	7.8	34.5	51.9	7.2	17.6	24.7	7.0
48.0	39.3	44.1	9.5	38.1	46.7	8.7	36.9	49.4	8.1	35.7	52.2	7.4	18.1	24.8	7.2
50.0	40.6	44.3	9.8	39.4	46.9	9.0	38.3	49.6	8.3	37.0	52.5	7.6	18.8	24.8	7.4

YCAL0042EC

IPLV=14.2

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	37.7	49.9	8.2	36.6	52.7	7.5	35.4	55.8	6.9	34.1	58.9	6.3	17.3	27.9	6.2
42.0	39.1	50.2	8.4	37.9	53.1	7.8	36.7	56.1	7.1	35.4	59.3	6.5	18.1	28.0	6.5
44.0	40.5	50.5	8.7	39.3	53.4	8.0	38.0	56.4	7.4	36.7	59.6	6.8	18.8	28.1	6.7
45.0	41.2	50.6	8.8	40.0	53.5	8.1	38.7	56.6	7.5	37.4	59.8	6.9	19.1	28.2	6.8
46.0	41.9	50.7	8.9	40.7	53.7	8.2	39.4	56.7	7.6	38.0	59.9	7.0	19.4	28.2	6.9
48.0	43.4	51.0	9.2	42.1	54.0	8.5	40.8	57.0	7.8	39.4	60.3	7.2	20.2	28.3	7.2
50.0	44.9	51.3	9.5	43.5	54.2	8.7	42.2	57.4	8.0	30.5	41.5	7.8	20.9	28.4	7.4

YCAL0044EC

IPLV=14.2

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	41.5	55.5	8.1	40.1	58.7	7.5	38.7	62.0	6.9	37.3	65.5	6.3	19.1	30.8	6.3
42.0	43.0	55.9	8.4	41.6	59.1	7.7	40.2	62.4	7.1	38.7	65.9	6.5	19.9	31.0	6.5
44.0	44.5	56.2	8.6	43.1	59.4	8.0	41.7	62.8	7.3	40.2	66.4	6.7	20.6	31.1	6.7
45.0	45.3	56.4	8.8	43.9	59.6	8.1	42.4	63.0	7.4	40.9	66.6	6.8	21.2	31.1	6.9
46.0	46.1	56.6	8.9	44.6	59.8	8.2	43.2	63.2	7.5	41.6	66.8	6.9	21.5	31.2	7.0
48.0	47.7	56.9	9.1	46.2	60.2	8.4	44.7	63.6	7.8	43.1	67.2	7.1	22.2	31.3	7.2
50.0	49.3	57.3	9.4	47.8	60.5	8.7	46.2	64.0	8.0	44.6	67.6	7.3	23.1	31.4	7.5

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

Ratings - R-22 (English Units)

YCAL0050EC

IPLV=14.0

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	52.5	45.7	12.3	51.6	48.3	11.5	50.2	51.0	10.6	48.9	53.9	9.9	47.7	57.0	9.1	46.4	60.2	8.5
42.0	54.4	46.1	12.6	53.1	48.7	11.7	51.9	51.4	10.9	50.7	54.3	10.2	49.4	57.4	9.4	48.0	60.6	8.7
44.0	56.2	46.6	12.9	55.0	49.1	12.1	53.7	51.8	11.2	52.4	54.7	10.4	51.1	57.8	9.7	49.7	61.1	8.9
45.0	57.2	46.8	13.1	55.9	49.3	12.2	54.6	52.0	11.4	53.3	54.9	10.6	51.9	58.0	9.8	50.5	61.3	9.1
46.0	58.1	47.0	13.3	56.9	49.5	12.4	55.6	52.2	11.5	54.2	55.2	10.7	52.8	58.3	9.9	51.4	61.6	9.2
48.0	60.1	47.4	13.6	58.8	50.0	12.7	57.4	52.7	11.8	56.0	55.6	11.0	54.6	58.7	10.2	53.1	62.0	9.4
50.0	62.1	47.9	13.9	60.7	50.4	13.0	59.3	53.1	12.1	57.9	56.1	11.3	56.4	59.2	10.4	54.9	62.5	9.7

YCAL0060EC

IPLV=14.7

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	57.7	47.7	13.0	56.4	50.4	12.1	55.1	53.3	11.2	54.1	56.5	10.5	52.4	59.7	9.6	50.6	63.0	8.9
42.0	59.7	48.1	13.3	58.4	50.8	12.4	57.0	53.7	11.5	55.7	56.9	10.7	54.3	60.1	9.9	52.9	63.6	9.2
44.0	61.7	48.5	13.7	60.4	51.3	12.7	59.0	54.2	11.8	57.6	57.3	11.0	56.2	60.6	10.2	54.7	64.1	9.4
45.0	62.7	48.8	13.8	61.4	51.5	12.9	60.0	54.4	12.0	58.6	57.5	11.1	57.1	60.8	10.3	55.7	64.3	9.6
46.0	63.8	49.0	14.0	62.4	51.7	13.1	61.0	54.6	12.2	59.6	57.8	11.3	58.1	61.1	10.5	56.6	64.6	9.7
48.0	65.9	49.4	14.4	64.5	52.2	13.4	63.1	55.1	12.5	61.6	58.2	11.6	60.1	61.6	10.7	58.5	65.1	9.9
50.0	68.2	49.9	14.7	66.6	52.7	13.7	65.1	55.6	12.8	63.6	58.7	11.9	62.1	62.1	11.0	60.5	65.6	10.2

YCAL0064EC

IPLV=14.4

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	65.2	55.6	12.5	63.6	58.7	11.6	62.1	62.1	10.8	60.5	65.7	10.0	58.8	69.5	9.3	57.1	73.5	8.5
42.0	67.5	56.0	12.9	65.8	59.2	12.0	64.3	62.6	11.1	62.6	66.2	10.3	60.9	70.0	9.5	59.2	74.0	8.8
44.0	69.8	56.5	13.2	68.2	59.6	12.3	66.4	63.0	11.4	64.8	66.7	10.6	63.1	70.5	9.8	61.2	74.5	9.0
45.0	71.0	56.7	13.4	69.3	59.9	12.5	67.6	63.3	11.6	65.9	66.9	10.7	64.1	70.7	9.9	62.3	74.8	9.2
46.0	72.2	57.0	13.6	70.5	60.1	12.6	68.8	63.5	11.7	67.0	67.1	10.9	65.2	71.0	10.1	63.4	75°F	9.3
48.0	74.6	57.4	13.9	72.9	60.6	13.0	71.1	64.0	12.0	69.3	67.6	11.2	67.4	71.5	10.3	65.5	75.6	9.5
50.0	77.1	57.9	14.3	75.3	61.1	13.3	73.5	64.5	12.4	71.6	68.2	11.5	69.7	72.0	10.6	67.7	76.1	9.8

YCAL0070EC

IPLV=14.3

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	72.2	61.4	12.7	70.6	64.7	11.9	69.0	68.3	11.0	67.3	72.2	10.2	65.5	76.3	9.5	63.7	80.6	8.7
42.0	74.8	61.9	13.1	73.0	65.2	12.2	71.5	68.8	11.3	69.7	72.6	10.5	67.8	76.8	9.7	65.9	81.2	9.0
44.0	77.4	62.4	13.4	75.7	65.8	12.5	73.9	69.3	11.7	72.1	73.2	10.8	70.2	77.3	10.0	68.2	81.7	9.3
45.0	78.7	62.7	13.6	77.0	66.0	12.7	75.2	69.6	11.8	73.3	73.4	11.0	71.4	77.6	10.2	69.4	82.0	9.4
46.0	80.0	63.0	13.8	78.3	66.3	12.9	76.4	69.9	12.0	74.6	73.7	11.1	72.6	77.8	10.3	70.6	82.3	9.5
48.0	82.7	63.5	14.1	80.9	66.8	13.2	79.0	70.4	12.3	77.1	74.2	11.4	75.1	78.4	10.6	73.0	82.9	9.8
50.0	85.5	64.0	14.5	83.6	67.3	13.5	81.6	70.9	12.6	79.6	74.8	11.7	77.6	79.0	10.9	75.5	83.4	10.0

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

YCAL0050EC

IPLV=14.0

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	45.0	63.6	7.8	43.6	67.2	7.2	42.2	71.0	6.6	30.4	51.4	6.4	29.2	54.3	5.9
42.0	46.6	64.1	8.0	45.2	67.7	7.4	43.6	71.4	6.8	31.5	51.7	6.6	21.8	35.1	6.4
44.0	48.2	64.6	8.3	46.8	68.2	7.6	33.8	49.2	7.4	32.7	52.0	6.8	22.6	35.2	6.6
45.0	49.1	64.8	8.4	47.5	68.4	7.7	34.4	49.3	7.5	33.3	52.1	6.9	23.1	35.3	6.8
46.0	49.9	65.0	8.5	48.4	68.7	7.8	35.1	49.4	7.6	33.9	52.3	7.0	23.5	35.4	6.9
48.0	51.6	65.5	8.7	50.1	69.2	8.0	36.3	49.7	7.9	35.1	52.6	7.2	24.4	35.5	7.1
50.0	53.3	66.0	8.9	51.7	69.8	8.2	37.6	50.0	8.1	36.3	52.9	7.5	25.2	35.7	7.3

YCAL0060EC

IPLV=14.7

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	49.7	66.7	8.2	48.2	70.5	7.6	46.7	74.5	7.0	45.3	78.6	6.5	23.2	37.0	6.5
42.0	51.4	67.2	8.5	49.8	71.0	7.8	48.4	75°F	7.2	46.9	79.1	6.6	24.1	37.2	6.8
44.0	53.2	67.7	8.7	51.7	71.6	8.0	50.1	75.6	7.4	48.5	79.7	6.8	25.0	37.3	7.0
45.0	54.1	68.0	8.8	52.6	71.8	8.1	50.9	75.8	7.5	37.7	57.7	7.2	25.5	37.4	7.1
46.0	54.9	68.2	8.9	53.5	72.1	8.3	51.9	76.1	7.6	26.8	35.5	7.8	25.9	37.5	7.2
48.0	56.9	68.8	9.2	55.3	72.7	8.5	53.6	76.7	7.8	27.8	35.6	8.1	26.9	37.7	7.4
50.0	58.8	69.3	9.4	57.2	73.2	8.7	55.5	77.3	8.0	28.8	35.8	8.3	27.8	37.9	7.7

YCAL0064EC

IPLV=14.4

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	55.4	77.6	7.9	53.5	82.1	7.2	51.6	86.7	6.6	41.9	71.3	6.4	40.3	75.4	5.9
42.0	57.2	78.2	8.1	55.5	82.7	7.4	53.6	87.3	6.8	43.4	71.8	6.6	41.9	75.8	6.1
44.0	59.4	78.8	8.3	57.5	83.2	7.7	55.5	87.9	7.0	45.1	72.2	6.8	43.4	76.3	6.3
45.0	60.4	79.1	8.4	58.4	83.6	7.8	56.4	88.3	7.1	45.9	72.4	6.9	44.1	76.5	6.4
46.0	61.4	79.3	8.6	59.5	83.9	7.9	57.4	88.6	7.2	46.7	72.6	7.1	44.9	76.7	6.5
48.0	63.5	79.9	8.8	61.5	84.5	8.1	59.4	89.3	7.4	48.4	73.1	7.3	39.0	60.5	7.0
50.0	65.7	80.5	9.0	63.5	85.1	8.3	61.5	89.9	7.6	50.0	73.5	7.5	40.3	60.7	7.2

YCAL0070EC

IPLV=14.3

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	61.7	85.2	8.1	59.7	90.1	7.4	57.6	95.2	6.8	55.4	100.6	6.2	37.4	65.5	6.2
42.0	63.9	85.8	8.3	61.6	90.7	7.6	59.7	95.9	7.0	57.5	101.3	6.4	38.8	65.8	6.4
44.0	66.2	86.4	8.5	64.1	91.3	7.8	61.9	96.5	7.2	50.6	82.2	6.8	40.2	66.1	6.6
45.0	67.3	86.7	8.6	65.2	91.6	7.9	62.8	96.8	7.3	42.5	62.7	7.3	41.0	66.3	6.7
46.0	68.5	87.0	8.8	66.3	91.9	8.1	64.0	97.2	7.4	43.3	62.8	7.5	41.7	66.4	6.8
48.0	70.9	87.6	9.0	68.6	92.6	8.3	66.3	97.8	7.6	44.9	63.1	7.7	43.3	66.7	7.1
50.0	73.2	88.1	9.3	71.0	93.2	8.5	68.6	98.5	7.8	46.5	63.3	8.0	44.7	67.0	7.3

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

Ratings - R-22 (English Units)

YCAL0074EC

IPLV=14.4

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	78.3	68.1	12.5	76.6	71.9	11.7	74.7	76.0	10.8	72.9	80.4	10.0	70.9	85.0	9.3	69.0	89.9	8.6
42.0	81.0	68.7	12.9	79.2	72.5	12.0	77.3	76.7	11.1	75.4	81.1	10.3	73.4	85.7	9.5	71.4	90.6	8.8
44.0	83.8	69.3	13.2	81.9	73.2	12.3	80.0	77.3	11.4	78.0	81.7	10.6	76.0	86.4	9.8	73.8	91.3	9.0
45.0	85.2	69.7	13.4	83.3	73.5	12.4	81.3	77.6	11.6	79.3	82.1	10.7	77.2	86.8	9.9	75.1	91.7	9.1
46.0	86.6	70.0	13.5	84.7	73.9	12.6	82.7	78.0	11.7	80.6	82.4	10.8	78.5	87.1	10.0	76.4	92.1	9.3
48.0	89.5	70.6	13.9	87.5	74.5	12.9	85.4	78.7	12.0	83.3	83.1	11.1	81.2	87.8	10.3	78.9	92.8	9.5
50.0	92.4	71.3	14.2	90.4	75.2	13.2	88.3	79.4	12.3	86.1	83.9	11.4	83.8	88.6	10.5	81.5	93.6	9.7

YCAL0080EC

IPLV=14.6

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	85.0	74.6	12.5	83.0	79.0	11.6	81.0	83.6	10.7	78.9	88.5	9.9	76.8	93.5	9.2	74.7	98.9	8.5
42.0	87.9	75.4	12.8	85.8	79.7	11.9	83.8	84.4	11.0	81.6	89.3	10.2	79.5	94.4	9.4	77.3	99.8	8.7
44.0	90.8	76.1	13.1	88.7	80.5	12.2	86.6	85.2	11.3	84.4	90.1	10.4	82.2	95.3	9.7	79.9	100.8	8.9
45.0	92.3	76.5	13.3	90.2	80.9	12.3	88.0	85.6	11.4	85.8	90.6	10.6	83.6	95.7	9.8	81.2	101.2	9.0
46.0	93.8	76.9	13.5	91.7	81.3	12.5	89.5	86.0	11.6	87.2	91.0	10.7	84.9	96.2	9.9	82.6	101.7	9.1
48.0	96.9	77.7	13.8	94.7	82.1	12.8	92.4	86.9	11.8	90.1	91.8	11.0	87.8	97.1	10.1	85.3	102.6	9.4
50.0	100.0	78.5	14.1	97.8	83.0	13.1	95.4	87.7	12.1	93.1	92.7	11.2	90.6	98.0	10.4	88.1	103.6	9.6

YCAL0090EC

IPLV=13.8

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	85.3	69.7	12.7	83.4	73.1	11.9	81.5	76.8	11.2	79.5	80.8	10.4	77.6	84.9	9.7	75.6	89.4	9.0
42.0	88.3	70.5	13.0	86.4	73.9	12.2	84.4	77.6	11.5	82.4	81.5	10.7	80.3	85.7	10.0	78.3	90.2	9.3
44.0	91.4	71.3	13.4	89.4	74.7	12.6	87.4	78.3	11.8	85.3	82.3	11.0	83.2	86.5	10.3	81.1	91.0	9.6
45.0	93.0	71.7	13.5	90.9	75.1	12.7	88.9	78.7	11.9	86.8	82.7	11.1	84.7	86.9	10.4	82.5	91.4	9.7
46.0	94.6	72.1	13.7	92.5	75.5	12.9	90.4	79.1	12.1	88.3	83.1	11.3	86.2	87.3	10.5	84.0	91.9	9.8
48.0	97.8	72.9	14.0	95.7	76.3	13.2	93.6	80.0	12.4	91.4	83.9	11.6	89.1	88.1	10.8	86.9	92.7	10.1
50.0	101.2	73.8	14.3	99.0	77.2	13.5	96.8	80.9	12.7	94.5	84.8	11.9	92.3	89.0	11.1	89.9	93.6	10.3

YCAL0094EC

IPLV=13.8

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	92.5	76.4	12.7	90.4	80.1	11.9	88.2	84.1	11.2	86.1	88.4	10.4	83.9	92.8	9.7	81.7	97.6	9.0
42.0	95.7	77.3	13.0	93.6	81.0	12.2	91.4	84.9	11.5	89.1	89.2	10.7	86.9	93.7	10.0	84.6	98.5	9.3
44.0	99.1	78.2	13.3	96.8	81.9	12.5	94.6	85.8	11.7	92.2	90.0	11.0	89.9	94.6	10.2	87.6	99.4	9.5
45.0	100.7	78.7	13.5	98.5	82.3	12.7	96.2	86.3	11.9	93.8	90.5	11.1	91.5	95.0	10.4	89.1	99.9	9.7
46.0	102.5	79.2	13.7	100.2	82.8	12.8	97.8	86.7	12.0	95.5	90.9	11.3	93.1	95.5	10.5	90.7	100.4	9.8
48.0	105.9	80.2	14.0	103.6	83.8	13.1	101.2	87.7	12.3	98.8	91.9	11.5	96.3	96.4	10.8	93.7	101.3	10.0
50.0	109.5	81.3	14.3	107.1	84.8	13.4	104.6	88.7	12.6	102.1	92.8	11.8	99.6	97.4	11.0	97.1	102.3	10.3

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

YCAL0074EC

IPLV=14.4

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	66.9	95.0	7.9	64.7	100.4	7.2	62.6	106.0	6.7	50.6	87.4	6.5	40.9	72.2	6.2
42.0	69.3	95.8	8.1	67.1	101.2	7.5	64.8	106.8	6.8	52.5	87.9	6.7	42.4	72.7	6.4
44.0	71.7	96.5	8.3	69.4	102.0	7.7	56.4	83.8	7.5	54.4	88.5	6.8	44.0	73.1	6.6
45.0	72.9	96.9	8.4	70.6	102.4	7.8	57.4	84.1	7.6	46.4	69.4	7.3	44.7	73.3	6.7
46.0	74.1	97.3	8.5	71.8	102.8	7.9	58.4	84.4	7.7	47.2	69.6	7.4	45.6	73.5	6.8
48.0	76.6	98.1	8.8	74.3	103.6	8.1	60.4	84.9	7.9	48.9	70.0	7.6	47.2	73.9	7.0
50.0	79.2	98.9	9.0	76.7	104.5	8.3	62.5	85.5	8.1	50.6	70.4	7.9	48.9	74.4	7.2

YCAL0080EC

IPLV=14.6

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	72.4	104.5	7.8	70.2	110.4	7.2	68.0	116.4	6.6	46.2	74.7	6.8	44.8	78.8	6.3
42.0	74.9	105.4	8.0	72.7	111.3	7.4	69.9	117.3	6.8	47.8	75.1	7.0	46.4	79.4	6.5
44.0	77.6	106.4	8.2	75.1	112.3	7.6	72.7	118.5	7.0	49.5	75.6	7.2	48.0	79.9	6.6
45.0	78.9	106.9	8.3	76.4	112.8	7.7	74.0	119.0	7.1	50.4	75.9	7.3	48.8	80.1	6.7
46.0	80.2	107.4	8.4	77.7	113.3	7.8	75.2	119.6	7.1	51.3	76.1	7.4	49.5	80.4	6.8
48.0	82.8	108.4	8.6	80.3	114.4	8.0	54.9	72.6	8.3	53.1	76.7	7.6	51.3	80.9	7.0
50.0	85.6	109.5	8.8	83.0	115.5	8.1	56.8	73.1	8.5	54.9	77.2	7.8	53.1	81.5	7.2

YCAL0090EC

IPLV=13.8

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	73.5	94.2	8.4	71.4	99.3	7.8	69.3	104.7	7.2	67.2	110.4	6.7	65.0	116.5	6.1
42.0	76.2	95.0	8.6	74.1	100.1	8.0	71.9	105.5	7.4	69.7	111.3	6.8	67.5	117.4	6.3
44.0	78.9	95.8	8.9	76.7	101.0	8.2	74.5	106.4	7.6	72.3	112.2	7.1	70.0	118.3	6.5
45.0	80.3	96.2	9.0	78.1	101.4	8.4	75.9	106.8	7.7	73.6	112.7	7.2	71.3	118.8	6.6
46.0	81.7	96.7	9.1	79.5	101.8	8.5	77.2	107.3	7.8	74.9	113.1	7.3	72.6	119.3	6.7
48.0	84.7	97.6	9.4	82.4	102.7	8.7	80.0	108.2	8.1	77.7	114.1	7.5	55.8	83.9	7.1
50.0	87.6	98.4	9.6	85.2	103.6	8.9	82.9	109.1	8.3	80.4	115.0	7.7	57.9	84.5	7.3

YCAL0094EC

IPLV=13.8

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	79.5	102.7	8.4	77.3	108.2	7.8	75°F	113.9	7.2	72.8	119.9	6.7	70.6	126.2	6.2
42.0	82.4	103.6	8.6	80.0	109.1	8.0	77.8	114.9	7.4	75.5	121.0	6.9	73.3	127.3	6.4
44.0	85.3	104.6	8.9	82.9	110.1	8.2	80.6	115.8	7.6	78.3	122.0	7.1	75.9	128.4	6.5
45.0	86.8	105.0	9.0	84.4	110.5	8.3	82.0	116.3	7.7	79.7	122.5	7.2	77.4	129.0	6.6
46.0	88.3	105.5	9.1	85.9	111.0	8.5	83.5	116.9	7.9	81.1	123.0	7.3	78.7	129.6	6.7
48.0	91.3	106.5	9.3	88.9	112.0	8.7	86.5	117.9	8.1	84.0	124.1	7.5	42.9	58.0	7.5
50.0	94.6	107.5	9.6	92.0	113.1	8.9	89.5	118.9	8.3	87.0	125.2	7.7	44.5	58.4	7.7

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

Ratings - R-22 (English Units)

YCAL0104EC

IPLV=14.0

LCWT	AIR TEMPERATURE ON CONDENSER (°F)																	
	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	102.6	88.5	12.4	100.3	93.1	11.6	97.9	97.9	10.8	95.5	103.1	10.1	93.0	108.7	9.3	90.4	114.6	8.7
42.0	106.2	89.6	12.7	103.8	94.1	11.9	101.3	99.0	11.1	98.8	104.2	10.3	96.3	109.8	9.6	93.6	115.7	8.9
44.0	109.9	90.7	13.0	107.4	95.2	12.2	104.9	100.1	11.3	102.2	105.3	10.6	99.6	110.9	9.8	96.9	116.9	9.1
45.0	111.8	91.3	13.1	109.2	95.8	12.3	106.7	100.7	11.5	104.0	105.9	10.7	101.4	111.5	9.9	98.6	117.5	9.2
46.0	113.7	91.8	13.3	111.1	96.4	12.4	108.5	101.2	11.6	105.8	106.4	10.8	103.1	112.1	10.1	100.3	118.1	9.3
48.0	117.5	93.0	13.6	114.9	97.5	12.7	112.2	102.4	11.9	109.4	107.6	11.1	106.6	113.3	10.3	103.8	119.4	9.6
50.0	121.4	94.2	13.9	118.7	98.7	13.0	115.9	103.6	12.2	113.1	108.9	11.3	110.2	114.6	10.6	107.3	120.6	9.8

YCAL0114EC

IPLV=13.7

LCWT	AIR TEMPERATURE ON CONDENSER (°F)																	
	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	113.8	96.6	12.3	111.3	101.6	11.5	108.8	107.0	10.8	106.2	112.7	10.0	103.6	118.8	9.3	100.8	125.3	8.7
42.0	117.8	97.7	12.6	115.3	102.7	11.8	112.6	108.1	11.0	110.0	113.8	10.3	107.3	119.9	9.6	104.5	126.5	8.9
44.0	121.9	98.8	12.9	119.3	103.8	12.1	116.6	109.2	11.3	113.9	114.9	10.6	111.1	121.1	9.8	108.2	127.7	9.1
45.0	124.0	99.3	13.1	121.4	104.4	12.3	118.6	109.7	11.5	115.8	115.5	10.7	113.0	121.7	10.0	110.1	128.3	9.3
46.0	126.2	99.8	13.3	123.4	104.9	12.4	120.7	110.3	11.6	117.8	116.1	10.8	115.0	122.3	10.1	112.0	128.9	9.4
48.0	130.5	101.0	13.6	127.7	106.1	12.7	124.8	111.5	11.9	121.9	117.3	11.1	118.9	123.5	10.4	115.9	130.2	9.6
50.0	135.0	102.1	13.9	132.0	107.2	13.0	129.1	112.7	12.2	126.1	118.5	11.4	123.0	124.8	10.6	119.9	131.4	9.9

YCAL0124EC

IPLV=13.5

LCWT	AIR TEMPERATURE ON CONDENSER (°F)																	
	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	124.4	107.1	12.3	121.6	112.6	11.5	118.7	118.5	10.7	115.8	124.7	10.0	112.9	131.4	9.3	109.9	138.4	8.6
42.0	128.7	108.4	12.6	125.8	113.8	11.8	122.9	119.7	11.0	119.9	126.0	10.3	116.9	132.6	9.5	113.8	139.8	8.9
44.0	133.2	109.6	12.9	130.2	115.1	12.1	127.2	121.0	11.3	124.1	127.2	10.5	121.0	134.0	9.8	117.8	141.1	9.1
45.0	135.4	110.3	13.0	132.4	115.8	12.2	129.3	121.6	11.4	126.2	127.9	10.6	123.0	134.6	9.9	119.8	141.9	9.2
46.0	137.7	110.9	13.2	134.6	116.4	12.4	131.5	122.3	11.5	128.4	128.6	10.8	125.1	135.3	10.0	121.9	142.5	9.3
48.0	142.4	112.3	13.5	139.2	117.7	12.6	136.0	123.6	11.8	132.7	129.9	11.0	129.4	136.7	10.3	126.0	143.9	9.5
50.0	147.2	113.6	13.8	143.9	119.1	12.9	140.6	125.0	12.1	137.2	131.3	11.3	133.8	138.1	10.5	130.4	145.4	9.8

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

YCAL0104EC

IPLV=14.0

LCWT (°F)	AIR TEMPERATURE ON CONDENSER (°F)														
	105°F			110°F			115°F			120°F			125°F		
	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	87.8	120.9	8.0	85.2	127.7	7.4	82.4	134.9	6.8	79.6	142.5	6.2	64.7	116.1	6.1
42.0	91.0	122.1	8.2	88.2	128.9	7.6	85.4	136.2	7.0	82.6	143.9	6.4	67.1	117.1	6.3
44.0	94.2	123.3	8.4	91.4	130.2	7.8	88.5	137.5	7.2	85.6	145.2	6.6	69.6	118.1	6.5
45.0	95.8	123.9	8.5	93.0	130.8	7.9	90.1	138.2	7.3	87.1	145.9	6.7	52.5	82.5	6.7
46.0	97.4	124.6	8.6	94.6	131.5	8.0	91.7	138.8	7.4	74.5	112.8	7.2	53.4	82.8	6.8
48.0	100.9	125.8	8.9	98.0	132.7	8.2	95.0	140.1	7.5	77.2	113.8	7.4	55.3	83.4	7.0
50.0	104.4	127.1	9.1	101.3	134.1	8.4	98.3	141.5	7.7	80.0	114.9	7.6	57.5	84.1	7.3

YCAL0114EC

IPLV=13.7

LCWT (°F)	AIR TEMPERATURE ON CONDENSER (°F)														
	105°F			110°F			115°F			120°F			125°F		
	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	98.0	132.3	8.0	95.0	139.8	7.4	92.0	147.8	6.8	88.9	156.4	6.2	85.6	165.5	5.7
42.0	101.6	133.5	8.2	98.6	141.0	7.6	95.5	149.1	7.0	92.2	157.7	6.4	88.9	166.8	5.9
44.0	105.2	134.7	8.5	102.2	142.3	7.8	99.0	150.4	7.2	95.7	159.0	6.6	92.2	168.2	6.1
45.0	107.1	135.4	8.6	104.0	142.9	7.9	100.8	151.0	7.3	97.4	159.7	6.7	94.0	168.9	6.2
46.0	109.0	136.0	8.7	105.9	143.6	8.0	102.6	151.7	7.4	99.2	160.4	6.8	66.9	104.0	6.8
48.0	112.8	137.3	8.9	109.6	144.9	8.3	106.2	153.1	7.6	102.8	161.8	7.0	69.2	104.7	7.0
50.0	116.7	138.6	9.2	113.4	146.3	8.5	110.0	154.5	7.8	106.5	163.2	7.2	71.7	105.5	7.2

YCAL0124EC

IPLV=13.5

LCWT (°F)	AIR TEMPERATURE ON CONDENSER (°F)														
	105°F			110°F			115°F			120°F			125°F		
	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	106.8	146.0	8.0	103.7	154.0	7.4	100.5	162.5	6.8	97.3	171.6	6.3	78.6	143.1	6.0
42.0	110.7	147.4	8.2	107.3	155.4	7.6	104.2	164.1	7.0	100.9	173.1	6.5	81.5	144.3	6.2
44.0	114.6	148.8	8.4	111.3	157.0	7.8	108.0	165.5	7.2	104.6	174.7	6.6	84.6	145.5	6.4
45.0	116.6	149.5	8.5	113.3	157.6	7.9	109.9	166.3	7.3	106.5	175.5	6.7	86.2	146.1	6.4
46.0	118.6	150.3	8.6	115.2	158.4	8.0	111.9	167.1	7.4	108.4	176.3	6.8	73.3	113.8	6.9
48.0	122.7	151.6	8.9	119.3	159.9	8.2	115.8	168.6	7.6	112.2	177.9	7.0	75.9	114.7	7.1
50.0	126.9	153.1	9.1	123.4	161.4	8.4	119.8	170.2	7.8	97.4	141.3	7.5	78.7	115.6	7.3

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

Ratings - R-22 (SI Units)

YCAL0014EC

COP=3.85

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	48.2	11.1	3.5	46.1	12.3	3.1	44.1	13.6	2.7	42.1	15.1	2.4	39.8	16.8	2.0	37.3	18.6	1.7
6.0	49.8	11.2	3.6	47.6	12.4	3.1	45.5	13.7	2.8	43.5	15.2	2.4	41.2	16.9	2.1	38.5	18.7	1.8
7.0	51.4	11.3	3.7	49.2	12.4	3.2	47.0	13.8	2.8	44.9	15.3	2.5	42.5	16.9	2.2	39.8	18.8	1.9
8.0	53.0	11.3	3.8	51.0	12.5	3.3	48.6	13.8	2.9	46.3	15.3	2.6	43.9	17.0	2.2	41.2	18.8	1.9
9.0	54.8	11.4	3.9	52.7	12.6	3.4	50.1	13.9	3.0	47.8	15.4	2.6	45.3	17.1	2.3	42.6	18.9	2.0
10.0	56.5	11.5	4.0	54.2	12.6	3.5	52.0	14.0	3.1	49.4	15.5	2.7	46.8	17.2	2.3	43.9	19.0	2.0
11.0	58.2	11.5	4.1	55.8	12.7	3.6	53.7	14.1	3.2	50.9	15.6	2.8	48.3	17.2	2.4	24.2	8.5	2.1

YCAL0020EC

COP=4.00

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	66.2	15.9	3.5	63.2	17.6	3.1	60.2	19.5	2.7	56.9	21.6	2.3	53.8	23.9	2.0	50.5	26.3	1.7
6.0	68.3	16.0	3.6	65.2	17.7	3.2	62.1	19.6	2.8	58.7	21.7	2.4	55.6	24.0	2.1	52.2	26.5	1.8
7.0	70.4	16.1	3.7	67.3	17.8	3.3	64.1	19.8	2.8	60.8	21.9	2.5	57.3	24.2	2.1	54.0	26.6	1.8
8.0	72.6	16.2	3.8	69.4	18.0	3.3	66.1	19.9	2.9	62.7	22.0	2.5	59.0	24.3	2.2	55.7	26.8	1.9
9.0	74.8	16.3	3.9	71.5	18.1	3.4	68.1	20.0	3.0	64.6	22.1	2.6	60.7	24.4	2.2	57.3	27.0	1.9
10.0	77.1	16.4	4.0	73.7	18.2	3.5	70.2	20.1	3.1	66.6	22.3	2.7	62.5	24.6	2.3	32.0	11.8	2.2
11.0	79.4	16.5	4.1	75.9	18.3	3.6	72.3	20.3	3.1	68.6	22.4	2.7	64.8	24.8	2.4	33.1	11.8	2.3

YCAL0024EC

COP=3.98

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	81.5	20.0	3.6	78.3	22.0	3.2	74.8	24.2	2.8	71.0	26.7	2.4	66.9	29.5	2.1	62.4	32.5	1.8
6.0	84.1	20.2	3.7	80.8	22.1	3.2	77.2	24.4	2.8	73.3	26.9	2.5	69.1	29.7	2.1	64.6	32.7	1.8
7.0	86.8	20.3	3.8	83.3	22.3	3.3	79.6	24.5	2.9	75.7	27.0	2.5	71.4	29.8	2.2	66.8	32.9	1.9
8.0	89.5	20.4	3.9	85.9	22.4	3.4	82.1	24.7	3.0	78.1	27.2	2.6	73.7	30.0	2.3	69.0	33.1	1.9
9.0	92.2	20.6	4.0	88.6	22.5	3.5	84.7	24.8	3.1	80.5	27.3	2.7	76.1	30.1	2.3	71.3	33.3	2.0
10.0	95.1	20.7	4.0	91.3	22.7	3.6	87.3	24.9	3.2	83.0	27.5	2.7	78.5	30.3	2.4	73.6	33.5	2.0
11.0	97.9	20.9	4.1	94.0	22.8	3.7	89.9	25.1	3.2	85.5	27.6	2.8	80.9	30.5	2.4	75.9	33.6	2.1

YCAL0030EC

COP=4.14

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	103.1	24.6	3.8	98.9	27.2	3.3	94.5	30.2	2.9	89.9	33.4	2.5	85.1	36.9	2.2	42.4	18.1	2.0
6.0	106.4	24.8	3.9	102.0	27.4	3.4	97.5	30.4	2.9	92.8	33.6	2.6	87.9	37.1	2.2	43.8	18.1	2.1
7.0	109.6	25.0	4.0	105.2	27.6	3.5	100.6	30.6	3.0	95.7	33.8	2.6	90.7	37.3	2.3	45.3	18.2	2.2
8.0	113.0	25.2	4.0	108.4	27.8	3.5	103.7	30.8	3.1	98.7	34.0	2.7	93.6	37.6	2.3	46.8	18.3	2.2
9.0	116.4	25.4	4.1	111.7	28.0	3.6	106.9	31.0	3.2	101.8	34.2	2.8	96.5	37.8	2.4	48.3	18.4	2.3
10.0	119.8	25.6	4.2	115.1	28.2	3.7	110.1	31.2	3.2	104.9	34.5	2.8	99.5	38.1	2.4	49.9	18.4	2.4
11.0	123.3	25.8	4.3	118.5	28.4	3.8	113.4	31.4	3.3	108.0	34.7	2.9	102.4	38.3	2.5	51.5	18.5	2.4

NOTES:

1. *kWo* = Unit kW Cooling Capacity Output
2. kW*i* = Compressor kW Input
3. COP = Coefficient of Performance (Based upon compressor and fan input kW)
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based upon 0.15L/s cooler water per kW

YCAL0034EC

COP=4.29

LCWT (°C)	AIR TEMPERATURE ON - CONDENSER (°C)																	
	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP
5.0	124.4	31.7	3.6	119.2	34.9	3.2	113.6	38.4	2.8	107.6	42.4	2.4	101.1	46.8	2.0	66.6	31.5	1.9
6.0	128.3	31.9	3.7	122.9	35.1	3.2	117.2	38.7	2.8	111.0	42.7	2.4	104.3	47.1	2.1	68.8	31.7	2.0
7.0	132.3	32.2	3.8	126.7	35.4	3.3	120.8	38.9	2.9	114.5	43.0	2.5	107.7	47.4	2.2	71.2	31.8	2.1
8.0	136.3	32.4	3.9	130.6	35.6	3.4	124.5	39.2	3.0	118.0	43.3	2.6	111.1	47.7	2.2	73.5	31.9	2.1
9.0	140.4	32.7	4.0	134.5	35.9	3.5	128.3	39.5	3.0	121.6	43.6	2.6	114.6	48.1	2.3	75.9	32.1	2.2
10.0	144.6	32.9	4.1	138.5	36.1	3.6	132.0	39.8	3.1	125.3	43.9	2.7	118.1	48.4	2.3	78.4	32.2	2.2
11.0	148.8	33.2	4.1	142.5	36.4	3.6	135.9	40.1	3.2	129.0	44.2	2.8	121.6	48.7	2.4	80.9	32.4	2.3

YCAL0040EC

COP=4.37

LCWT (°C)	AIR TEMPERATURE ON - CONDENSER (°C)																	
	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP
5.0	141.2	31.4	3.8	135.3	34.8	3.4	129.2	38.7	2.9	122.7	42.9	2.5	116.0	47.4	2.2	109.5	52.5	1.9
6.0	145.7	31.5	3.9	139.6	35.0	3.4	133.4	38.8	3.0	126.8	43.1	2.6	120.0	47.7	2.3	113.1	52.7	1.9
7.0	150.4	31.7	4.0	144.2	35.2	3.5	137.7	39.0	3.1	130.9	43.3	2.7	123.9	47.9	2.3	116.7	52.9	2.0
8.0	155.1	31.9	4.1	148.7	35.3	3.6	142.0	39.2	3.2	135.1	43.4	2.8	127.9	48.1	2.4	120.7	53.1	2.1
9.0	160.0	32.1	4.3	153.4	35.5	3.7	146.5	39.4	3.3	139.4	43.6	2.8	132.0	48.3	2.5	124.6	53.4	2.1
10.0	164.9	32.2	4.4	158.1	35.7	3.8	151.1	39.6	3.4	143.7	43.8	2.9	136.2	48.5	2.5	128.4	53.6	2.2
11.0	170.0	32.4	4.5	163.0	35.9	3.9	155.7	39.8	3.4	148.1	44.1	3.0	140.4	48.7	2.6	132.5	53.9	2.2

YCAL0042EC

COP=4.16

LCWT (°C)	AIR TEMPERATURE ON - CONDENSER (°C)																	
	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP
5.0	156.1	36.6	3.7	149.8	40.4	3.3	143.1	44.7	2.8	135.9	49.5	2.5	128.4	54.7	2.1	120.3	60.4	1.8
6.0	161.2	36.9	3.8	154.6	40.7	3.3	147.6	44.9	2.9	140.3	49.7	2.5	132.4	55.0	2.2	92.9	41.8	2.0
7.0	166.3	37.1	3.9	159.5	40.9	3.4	152.4	45.2	3.0	144.8	50.0	2.6	136.9	55.3	2.3	96.0	41.9	2.0
8.0	171.5	37.3	4.0	164.5	41.1	3.5	157.2	45.4	3.1	149.4	50.2	2.7	141.3	55.5	2.3	99.2	42.1	2.1
9.0	176.8	37.6	4.1	169.4	41.4	3.6	162.0	45.7	3.2	154.1	50.5	2.8	145.7	55.8	2.4	102.4	42.3	2.1
10.0	182.2	37.8	4.2	174.8	41.6	3.7	167.0	45.9	3.2	158.8	50.7	2.8	150.3	56.1	2.4	75°F	27.4	2.3
11.0	187.7	38.1	4.3	180.1	41.9	3.8	172.1	46.2	3.3	163.7	51.0	2.9	154.9	56.4	2.5	77.4	27.5	2.3

YCAL0044EC

COP=4.17

LCWT (°C)	AIR TEMPERATURE ON - CONDENSER (°C)																	
	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP
5.0	171.6	41.2	3.7	164.7	45.3	3.2	157.4	49.9	2.8	149.4	55.1	2.5	140.8	60.9	2.1	131.5	67.2	1.8
6.0	176.6	41.4	3.8	170.0	45.5	3.3	162.4	50.2	2.9	154.2	55.4	2.5	145.5	61.2	2.2	136.0	67.6	1.9
7.0	182.6	41.7	3.9	175.3	45.8	3.4	167.5	50.5	3.0	159.1	55.7	2.6	150.0	61.5	2.2	140.6	68.0	1.9
8.0	188.2	42.0	4.0	180.3	46.1	3.5	172.7	50.8	3.1	164.1	56.0	2.7	155.0	61.9	2.3	78.0	30.2	2.2
9.0	194.0	42.3	4.1	186.2	46.4	3.6	177.9	51.1	3.1	169.2	56.3	2.7	159.8	62.2	2.4	80.3	30.2	2.2
10.0	199.9	42.7	4.1	191.8	46.7	3.7	183.3	51.4	3.2	174.3	56.7	2.8	164.8	62.6	2.4	82.9	30.3	2.3
11.0	205.9	43.0	4.2	197.6	47.0	3.8	188.8	51.7	3.3	179.6	57.0	2.9	169.8	62.9	2.5	85.6	30.4	2.4

NOTES:

1. kW*o* = Unit kW Cooling Capacity Output
2. kW*i* = Compressor kW Input
3. COP = Coefficient of Performance (Based upon compressor and fan input kW)
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based upon 0.15L/s cooler water per kW

Ratings - R-22 (SI Units)

YCAL0050EC

COP=4.11

LCWT (°C)	AIR TEMPERATURE ON - CONDENSER (°C)																	
	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	186.1	46.9	3.5	178.6	51.8	3.1	170.6	57.2	2.7	162.1	63.1	2.4	152.6	69.7	2.0	107.1	52.7	1.8
6.0	192.0	47.3	3.6	184.1	52.1	3.2	176.0	57.6	2.8	167.2	63.6	2.4	158.0	70.2	2.1	110.8	52.9	1.9
7.0	198.0	47.7	3.7	189.9	52.5	3.3	181.3	57.9	2.9	172.5	64.0	2.5	163.0	70.6	2.1	114.5	53.2	2.0
8.0	204.0	48.1	3.8	195.7	52.9	3.4	187.0	58.4	2.9	177.8	64.4	2.5	168.0	71.1	2.2	118.3	53.5	2.0
9.0	210.1	48.5	3.9	201.6	53.3	3.4	192.6	58.8	3.0	183.2	64.9	2.6	129.8	48.7	2.4	122.1	53.8	2.1
10.0	216.4	48.9	4.0	207.6	53.7	3.5	198.4	59.2	3.1	188.4	65.3	2.7	134.0	48.9	2.5	126.0	54.1	2.1
11.0	222.7	49.3	4.1	213.7	54.1	3.6	204.3	59.6	3.1	194.3	65.8	2.7	138.2	49.2	2.5	93.5	34.6	2.3

YCAL0060EC

COP=4.32

LCWT (°C)	AIR TEMPERATURE ON - CONDENSER (°C)																	
	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	204.5	49.0	3.8	196.2	54.1	3.3	187.6	59.9	2.9	178.7	66.2	2.5	169.4	73.1	2.2	84.9	35.9	2.1
6.0	210.8	49.3	3.8	202.4	54.5	3.4	193.5	60.3	2.9	184.4	66.7	2.6	174.8	73.6	2.2	87.8	36.0	2.1
7.0	217.2	49.7	3.9	208.6	54.9	3.5	199.6	60.7	3.0	190.2	67.1	2.6	180.3	74.1	2.3	90.7	36.2	2.2
8.0	223.8	50.1	4.0	215.0	55.3	3.5	205.7	61.2	3.1	195.5	67.6	2.7	185.9	74.6	2.3	93.7	36.3	2.2
9.0	230.4	50.6	4.1	221.4	55.8	3.6	211.9	61.6	3.2	202.0	68.1	2.7	191.6	75.1	2.4	96.7	36.5	2.3
10.0	237.2	51.0	4.2	228.0	56.2	3.7	218.3	62.1	3.2	208.1	68.6	2.8	197.5	75.7	2.4	99.9	36.6	2.4
11.0	244.1	51.4	4.3	234.7	56.7	3.8	224.7	62.5	3.3	214.3	69.1	2.9	203.4	76.2	2.5	103.0	36.8	2.4

YCAL0064EC

COP=4.23

LCWT (°C)	AIR TEMPERATURE ON - CONDENSER (°C)																	
	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	230.7	57.0	3.6	221.2	63.0	3.2	210.6	69.7	2.8	199.4	77.1	2.4	187.7	85.1	2.0	147.9	73.2	1.9
6.0	238.3	57.5	3.7	228.0	63.4	3.3	217.2	70.2	2.8	205.8	77.6	2.4	193.7	85.7	2.1	152.7	73.5	1.9
7.0	245.7	57.9	3.8	234.9	63.9	3.3	224.0	70.6	2.9	212.3	78.1	2.5	199.9	86.2	2.2	157.5	73.9	2.0
8.0	253.2	58.3	3.9	242.0	64.3	3.4	230.8	71.1	3.0	218.9	78.6	2.6	206.2	86.8	2.2	163.0	74.3	2.0
9.0	260.7	58.7	4.0	249.6	64.8	3.5	237.9	71.6	3.0	225.5	79.1	2.6	212.6	87.4	2.3	168.2	74.7	2.1
10.0	268.6	59.2	4.1	257.1	65.2	3.6	245.0	72.0	3.1	232.4	79.6	2.7	218.9	87.9	2.3	173.4	75.1	2.1
11.0	276.5	59.6	4.2	264.7	65.7	3.7	252.1	72.5	3.2	239.3	80.1	2.8	225.8	88.5	2.4	178.8	75.5	2.2

YCAL0070EC

COP=4.18

LCWT (°C)	AIR TEMPERATURE ON - CONDENSER (°C)																	
	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	256.2	63.0	3.7	245.8	69.3	3.2	234.5	76.5	2.8	222.3	84.6	2.4	209.3	93.5	2.1	136.9	63.5	2.0
6.0	264.2	63.4	3.8	253.5	69.7	3.3	241.9	77.0	2.9	229.4	85.1	2.5	215.4	94.0	2.1	141.6	63.8	2.0
7.0	272.4	63.9	3.9	261.3	70.2	3.4	249.4	77.5	3.0	236.6	85.6	2.6	222.2	94.5	2.2	146.4	64.0	2.1
8.0	280.8	64.4	4.0	269.3	70.7	3.5	257.1	77.9	3.0	243.9	86.1	2.6	230.2	95.2	2.3	151.2	64.3	2.1
9.0	289.3	64.8	4.0	277.4	71.2	3.6	264.9	78.4	3.1	251.5	86.6	2.7	237.3	95.8	2.3	156.0	64.5	2.2
10.0	298.0	65.3	4.1	285.7	71.7	3.6	272.8	79.0	3.2	258.8	87.1	2.8	244.7	96.3	2.4	161.3	64.8	2.3
11.0	306.9	65.8	4.2	294.2	72.2	3.7	280.9	79.5	3.3	266.9	87.7	2.8	252.1	96.9	2.4	166.4	65.0	2.3

NOTES:

1. kW*o* = Unit kW Cooling Capacity Output
2. kW*i* = Compressor kW Input
3. COP = Coefficient of Performance (Based upon compressor and fan input kW)
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based upon 0.15L/s cooler water per kW

YCAL0074EC

COP=4.22

LCWT (°C)	AIR TEMPERATURE ON - CONDENSER (°C)																	
	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	277.7	69.9	3.6	266.1	77.2	3.2	253.7	85.4	2.8	240.9	94.3	2.4	227.0	104.1	2.1	149.8	70.1	2.0
6.0	286.2	70.5	3.7	274.3	77.8	3.2	261.7	86.0	2.8	248.5	95.0	2.4	234.3	104.8	2.1	154.7	70.5	2.0
7.0	295.0	71.0	3.8	282.8	78.4	3.3	269.8	86.6	2.9	256.1	95.7	2.5	241.8	105.6	2.2	159.8	70.8	2.1
8.0	303.9	71.6	3.9	291.2	79.0	3.4	278.0	87.3	3.0	264.0	96.4	2.6	249.3	106.4	2.2	165.0	71.2	2.1
9.0	313.0	72.2	4.0	300.0	79.6	3.5	286.3	87.9	3.0	272.0	97.1	2.6	216.1	83.1	2.4	170.3	71.6	2.2
10.0	322.2	72.9	4.0	308.8	80.3	3.6	294.8	88.6	3.1	280.1	97.8	2.7	222.8	83.6	2.5	175.7	72.0	2.2
11.0	331.6	73.5	4.1	317.8	80.9	3.6	303.4	89.3	3.2	288.3	98.6	2.7	229.5	84.1	2.5	180.8	72.3	2.3

YCAL0080EC

COP=4.28

LCWT (°C)	AIR TEMPERATURE ON - CONDENSER (°C)																	
	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	301.0	76.7	3.6	288.0	84.9	3.1	274.7	94.0	2.7	260.4	103.8	2.4	244.8	114.3	2.0	162.9	76.5	2.0
6.0	310.2	77.4	3.7	297.0	85.6	3.2	283.2	94.8	2.8	268.8	104.6	2.4	254.1	115.4	2.1	169.0	77.1	2.0
7.0	319.6	78.1	3.8	306.0	86.4	3.3	291.7	95.5	2.9	277.2	105.5	2.5	261.8	116.3	2.1	173.6	77.4	2.1
8.0	329.1	78.8	3.9	315.2	87.1	3.4	300.6	96.4	2.9	285.5	106.5	2.5	269.5	117.2	2.2	179.1	77.9	2.1
9.0	338.7	79.5	3.9	324.5	87.9	3.4	309.6	97.2	3.0	293.9	107.3	2.6	277.8	118.2	2.2	184.8	78.4	2.2
10.0	348.6	80.3	4.0	333.9	88.7	3.5	318.6	98.0	3.0	302.7	108.3	2.6	286.0	119.2	2.3	190.6	78.9	2.2
11.0	358.5	81.1	4.1	343.6	89.5	3.6	327.9	98.9	3.1	311.5	109.2	2.7	208.3	71.9	2.7	196.4	79.4	2.3

YCAL0090EC

COP=4.04

LCWT (°C)	AIR TEMPERATURE ON - CONDENSER (°C)																	
	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	302.6	71.4	3.7	290.3	78.0	3.3	277.6	85.3	2.9	264.7	93.6	2.5	251.2	102.9	2.2	237.5	113.3	1.9
6.0	312.1	72.1	3.8	299.4	78.6	3.4	286.5	86.0	3.0	273.2	94.3	2.6	259.7	103.7	2.3	245.5	114.0	2.0
7.0	321.9	72.9	3.9	308.9	79.3	3.4	295.7	86.8	3.0	282.1	95.1	2.7	268.1	104.4	2.3	253.7	114.9	2.0
8.0	331.9	73.6	3.9	318.8	80.1	3.5	305.1	87.5	3.1	291.0	95.8	2.7	276.7	105.2	2.4	262.1	115.7	2.1
9.0	342.1	74.4	4.0	328.6	80.8	3.6	314.5	88.2	3.2	300.3	96.6	2.8	285.7	106.0	2.5	270.5	116.6	2.1
10.0	352.8	75.1	4.1	338.7	81.6	3.7	324.4	89.0	3.3	309.7	97.4	2.9	294.8	106.9	2.5	279.3	117.5	2.2
11.0	363.5	76.0	4.2	349.1	82.4	3.7	334.4	89.8	3.3	319.3	98.2	2.9	303.9	107.8	2.6	288.2	118.4	2.2

YCAL0094EC

COP=4.05

LCWT (°C)	AIR TEMPERATURE ON - CONDENSER (°C)																	
	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	327.9	78.3	3.7	314.2	85.3	3.3	300.2	93.3	2.9	286.1	102.1	2.5	271.9	112.1	2.2	257.6	123.0	1.9
6.0	338.2	79.1	3.8	324.2	86.1	3.4	309.8	94.1	3.0	295.4	102.9	2.6	280.5	112.9	2.3	266.1	123.8	2.0
7.0	348.8	79.9	3.8	334.4	86.9	3.4	319.6	94.9	3.0	304.7	103.8	2.7	289.7	113.8	2.3	275°F	124.8	2.0
8.0	359.5	80.8	3.9	344.7	87.7	3.5	329.4	95.6	3.1	314.5	104.6	2.7	299.0	114.7	2.4	283.9	125.8	2.1
9.0	370.4	81.7	4.0	355.3	88.6	3.6	339.5	96.5	3.2	324.0	105.5	2.8	308.7	115.6	2.4	293.0	126.8	2.1
10.0	381.6	82.6	4.1	366.1	89.5	3.7	350.3	97.4	3.2	334.3	106.4	2.9	318.3	116.5	2.5	302.2	127.9	2.2
11.0	392.9	83.6	4.2	377.1	90.4	3.7	360.8	98.3	3.3	344.5	107.4	2.9	328.0	117.6	2.6	311.7	128.9	2.2

NOTES:

1. kW*o* = Unit kW Cooling Capacity Output
2. kW*i* = Compressor kW Input
3. COP = Coefficient of Performance (Based upon compressor and fan input kW)
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based upon 0.15L/s cooler water per kW

Ratings - R-22 (SI Units)

YCAL0104EC

COP=4.12

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT	25°C			30°C			35°C			40°C			45°C			50°C		
(°C)	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	363.3	90.8	3.6	348.5	99.5	3.2	332.7	109.2	2.8	316.2	120.2	2.4	299.1	132.6	2.1	236.5	112.9	1.9
6.0	375.3	91.8	3.7	359.4	100.4	3.2	343.2	110.2	2.8	326.3	121.3	2.5	308.7	133.7	2.1	244.3	113.7	2.0
7.0	386.8	92.8	3.7	370.7	101.4	3.3	354.0	111.2	2.9	336.6	122.4	2.5	318.7	134.9	2.2	252.5	114.6	2.0
8.0	398.7	93.8	3.8	382.1	102.5	3.4	365.0	112.3	3.0	347.2	123.5	2.6	329.0	136.0	2.2	260.5	115.5	2.1
9.0	410.9	94.9	3.9	393.8	103.5	3.4	376.2	113.4	3.0	358.1	124.6	2.6	339.3	137.3	2.3	268.9	116.4	2.1
10.0	423.2	96.0	4.0	405.7	104.6	3.5	387.6	114.6	3.1	369.1	125.8	2.7	349.9	138.5	2.3	277.8	117.4	2.2
11.0	435.8	97.1	4.0	417.8	105.8	3.6	399.3	115.7	3.2	380.3	127.0	2.8	360.7	139.7	2.4	286.6	118.3	2.2

YCAL0114EC

COP=4.01

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT	25°C			30°C			35°C			40°C			45°C			50°C		
(°C)	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP
5.0	403.7	99.1	3.6	387.4	108.6	3.2	370.7	119.4	2.8	352.9	131.5	2.4	334.0	145.1	2.1	313.8	160.6	1.8
6.0	416.4	100.1	3.6	399.7	109.6	3.2	382.5	120.4	2.8	364.4	132.5	2.5	345.1	146.3	2.2	324.4	161.8	1.8
7.0	429.5	101.1	3.7	412.3	110.6	3.3	394.6	121.4	2.9	376.1	133.6	2.5	356.4	147.5	2.2	335.4	163.0	1.9
8.0	442.8	102.1	3.8	425.2	111.7	3.4	407.0	122.5	3.0	388.0	134.8	2.6	367.9	148.6	2.3	346.5	164.3	1.9
9.0	456.5	103.1	3.9	438.3	112.7	3.5	419.7	123.6	3.0	400.2	135.9	2.7	379.6	149.9	2.3	357.8	165.6	2.0
10.0	470.4	104.1	4.0	451.8	113.8	3.5	432.6	124.8	3.1	412.7	137.1	2.7	391.7	151.1	2.4	369.3	166.9	2.0
11.0	484.8	105.2	4.1	465.6	114.9	3.6	445.9	125.9	3.2	425.4	138.4	2.8	403.9	152.4	2.4	380.9	168.4	2.1

YCAL0124EC

COP=3.96

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT	25°C			30°C			35°C			40°C			45°C			50°C		
(°C)	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP
5.0	440.9	109.9	3.6	422.7	120.3	3.1	400.6	131.7	2.7	384.5	145.1	2.4	364.5	159.8	2.1	343.9	176.1	1.8
6.0	454.7	111.0	3.6	435.9	121.4	3.2	416.7	133.1	2.8	396.8	146.4	2.5	376.2	161.2	2.1	297.3	140.1	1.9
7.0	468.8	112.2	3.7	449.5	122.6	3.3	429.7	134.4	2.9	409.3	147.7	2.5	388.1	162.4	2.2	307.2	141.1	2.0
8.0	483.2	113.3	3.8	463.4	123.8	3.4	443.0	135.6	3.0	422.1	149.0	2.6	400.9	163.8	2.3	317.4	142.2	2.0
9.0	497.8	114.5	3.9	477.5	125.0	3.4	456.6	136.9	3.0	435.3	150.2	2.6	413.5	165.2	2.3	327.7	143.2	2.1
10.0	512.8	115.8	3.9	491.9	126.2	3.5	470.6	138.1	3.1	448.8	151.5	2.7	426.4	166.6	2.4	338.1	144.4	2.1
11.0	528.2	117.0	4.0	506.7	127.5	3.6	484.9	139.3	3.2	462.4	152.9	2.8	439.5	168.0	2.4	348.8	145.5	2.2

NOTES:

1. kWo = Unit kW Cooling Capacity Output
2. kW*i* = Compressor kW Input
3. COP = Coefficient of Performance (Based upon compressor and fan input kW)
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based upon 0.15L/s cooler water per kW

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Ratings - R-407C (English Units)

YCAL0014EB

IPLV=12.6

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	13.4	11.2	11.4	13.0	11.9	10.6	12.6	12.7	9.8	12.3	13.5	9.0	11.7	14.7	8.0	11.3	15.6	7.3
42.0	13.9	11.3	11.8	13.5	12.0	11.0	13.1	12.7	10.2	12.7	13.5	9.4	12.2	14.7	8.3	11.7	15.6	7.6
44.0	14.4	11.3	12.3	14.1	12.0	11.4	13.7	12.8	10.5	13.2	13.6	9.7	12.7	14.8	8.6	12.2	15.7	7.9
45.0	14.7	11.4	12.5	14.3	12.1	11.6	13.9	12.8	10.7	13.5	13.6	9.9	12.9	14.8	8.8	12.5	15.7	8.1
46.0	15.0	11.4	12.7	14.6	12.1	11.8	14.2	12.8	10.9	13.8	13.6	10.0	13.2	14.8	9.0	12.7	15.7	8.3
48.0	15.6	11.5	13.1	15.2	12.2	12.2	14.7	12.9	11.2	14.3	13.7	10.4	13.7	14.8	9.3	13.2	15.7	8.6
50.0	16.2	11.5	13.5	15.7	12.2	12.6	15.3	13.0	11.6	14.8	13.8	10.7	14.2	14.8	9.7	13.8	15.8	8.9

YCAL0020EB

IPLV=12.9

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	18.2	16.4	11.4	17.7	17.5	10.5	17.2	18.6	9.6	16.6	19.7	8.9	16.1	21.0	8.1	15.6	22.2	7.5
42.0	18.9	16.5	11.7	18.4	17.6	10.8	17.8	18.7	10.0	17.3	19.9	9.2	16.7	21.1	8.4	16.2	22.4	7.7
44.0	19.6	16.6	12.1	19.1	17.7	11.2	18.5	18.8	10.3	17.9	20.0	9.5	17.4	21.2	8.7	16.8	22.5	8.0
45.0	20.0	16.7	12.3	19.4	17.8	11.3	18.9	18.9	10.5	18.3	20.0	9.6	17.7	21.3	8.8	17.1	22.6	8.1
46.0	20.4	16.8	12.5	19.8	17.8	11.5	19.2	18.9	10.6	18.6	20.1	9.8	18.0	21.3	9.0	17.5	22.6	8.2
48.0	21.1	16.9	12.9	20.5	17.9	11.9	19.9	19.0	10.9	19.3	20.2	10.1	18.7	21.5	9.3	18.1	22.8	8.5
50.0	21.9	17.0	13.3	21.3	18.0	12.2	20.7	19.2	11.3	20.0	20.4	10.4	19.4	21.6	9.5	18.8	22.9	8.8

YCAL0024EB

IPLV=13.2

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	22.7	20.5	11.7	22.1	21.7	10.8	21.4	23.0	10.0	20.9	24.1	9.3	20.2	25.6	8.6	19.5	27.1	7.9
42.0	23.6	20.6	12.1	22.9	21.8	11.2	22.3	23.1	10.3	21.6	24.5	9.5	20.9	26.0	8.7	20.2	27.5	8.0
44.0	24.5	20.8	12.5	23.8	22.0	11.5	23.1	23.3	10.7	22.4	24.7	9.8	21.7	26.1	9.0	21.0	27.7	8.3
45.0	24.9	20.9	12.6	24.2	22.1	11.7	23.6	23.3	10.8	22.9	24.7	10.0	22.1	26.2	9.2	21.4	27.8	8.4
46.0	25.4	21.0	12.8	24.7	22.2	11.9	24.0	23.5	11.0	23.3	24.8	10.1	22.6	26.3	9.3	21.8	27.9	8.5
48.0	26.3	21.1	13.2	25.6	22.3	12.2	24.9	23.6	11.3	24.2	25.0	10.4	23.4	26.5	9.6	22.6	28.0	8.8
50.0	27.3	21.3	13.6	26.6	22.5	12.6	25.8	23.8	11.6	25.1	25.2	10.7	24.3	26.7	9.9	23.5	28.3	9.1

YCAL0030EB

IPLV=13.6

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	27.9	24.7	12.2	27.2	26.2	11.2	26.4	27.8	10.4	25.5	29.9	9.4	24.9	31.3	8.8	24.1	33.2	8.0
42.0	28.9	25.1	12.4	28.1	26.6	11.5	27.3	28.3	10.5	26.5	30.0	9.7	25.7	31.9	8.9	24.9	33.8	8.2
44.0	30.0	25.2	12.8	29.2	26.8	11.8	28.4	28.4	10.9	27.6	30.2	10.0	26.7	32.0	9.2	25.9	33.9	8.5
45.0	30.5	25.3	13.0	29.7	26.8	12.0	28.9	28.5	11.1	28.1	30.3	10.2	27.2	32.1	9.4	26.4	34.0	8.6
46.0	31.1	25.4	13.2	30.3	26.9	12.2	29.4	28.6	11.3	28.6	30.3	10.4	27.8	32.2	9.5	26.9	34.1	8.7
48.0	32.2	25.5	13.6	31.4	27.1	12.6	30.5	28.8	11.6	29.7	30.5	10.7	28.8	32.4	9.8	27.9	34.3	9.0
50.0	33.4	25.7	14.1	32.5	27.3	13.0	31.6	29.0	12.0	30.7	30.7	11.0	29.8	32.6	10.1	28.9	34.5	9.3

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

YCAL0014EB

IPLV=12.6

	AIR TEMPERATURE ON CONDENSER (°F)														
LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	11.1	16.1	7.0	10.7	17.1	6.4	10.3	18.1	5.9	5.2	8.8	5.4	5.0	9.3	4.9
42.0	11.3	16.6	7.0	11.1	17.1	6.7	10.7	18.1	6.1	5.4	8.8	5.6	5.2	9.3	5.1
44.0	11.8	16.6	7.3	11.4	17.6	6.7	11.1	18.2	6.3	5.6	8.8	5.8	5.4	9.3	5.4
45.0	12.1	16.6	7.4	11.6	17.6	6.8	11.2	18.7	6.3	5.7	8.8	5.9	5.5	9.3	5.5
46.0	12.3	16.7	7.6	11.9	17.7	7.0	11.4	18.7	6.4	5.9	8.8	6.1	5.6	9.3	5.6
48.0	12.8	16.7	7.9	12.3	17.7	7.2	11.9	18.7	6.6	6.1	8.8	6.3	5.9	9.4	5.8
50.0	13.3	16.7	8.2	12.8	17.7	7.5	12.4	18.8	6.9	6.4	8.9	6.6	6.1	9.4	6.0

YCAL0020EB

IPLV=12.9

	AIR TEMPERATURE ON CONDENSER (°F)														
LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	15.1	23.6	6.8	14.5	25.0	6.3	14.0	26.5	5.8	7.3	12.3	5.8	7.0	13.1	5.3
42.0	15.7	23.7	7.1	15.1	25.1	6.5	14.6	26.6	6.0	7.6	12.4	6.0	7.3	13.1	5.5
44.0	16.3	23.9	7.3	15.7	25.3	6.7	15.2	26.8	6.2	7.9	12.4	6.2	7.6	13.3	5.7
45.0	16.6	23.9	7.4	16.0	25.4	6.8	15.5	26.9	6.3	8.0	12.5	6.3	7.7	13.3	5.8
46.0	16.9	24.0	7.6	16.3	25.5	6.9	15.8	27.0	6.4	8.2	12.5	6.4	7.9	13.3	5.9
48.0	17.5	24.2	7.8	16.9	25.6	7.2	8.9	11.8	7.3	8.5	12.6	6.7	8.2	13.3	6.1
50.0	18.2	24.3	8.0	17.6	25.8	7.4	9.2	11.9	7.5	8.9	12.6	6.9	8.6	13.4	6.4

YCAL0024EB

IPLV=13.2

	AIR TEMPERATURE ON CONDENSER (°F)														
LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	18.9	28.6	7.2	18.2	30.2	6.6	17.5	31.9	6.1	16.8	33.6	5.6	8.6	16.2	5.4
42.0	19.5	29.1	7.3	18.8	30.8	6.7	18.1	32.5	6.2	17.5	33.8	5.7	9.0	16.3	5.7
44.0	20.3	29.3	7.6	19.5	31.0	6.9	18.8	32.7	6.4	9.8	15.5	6.4	9.4	16.3	5.9
45.0	20.7	29.4	7.7	19.9	31.1	7.1	19.2	32.8	6.5	10.0	15.5	6.5	9.6	16.4	6.0
46.0	21.1	29.5	7.8	20.3	31.2	7.2	19.6	32.9	6.6	10.2	15.5	6.6	9.8	16.4	6.1
48.0	21.9	29.7	8.1	21.1	31.4	7.4	20.4	33.1	6.8	10.6	15.6	6.9	10.2	16.5	6.3
50.0	22.7	29.9	8.3	21.9	31.6	7.6	21.2	33.4	7.0	11.0	15.7	7.1	10.6	16.6	6.6

YCAL0030EB

IPLV=13.3

	AIR TEMPERATURE ON CONDENSER (°F)														
LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	23.4	35.2	7.4	22.6	37.3	6.7	21.8	39.6	6.2	11.1	18.9	6.2	10.7	20.0	5.6
42.0	24.1	35.8	7.5	23.3	38.0	6.9	12.1	17.8	7.0	11.6	18.9	6.4	11.2	20.1	5.9
44.0	25.1	36.0	7.8	24.2	38.1	7.1	12.5	17.9	7.3	12.1	19.0	6.7	11.6	20.1	6.1
45.0	25.5	36.1	7.9	24.7	38.2	7.2	12.8	17.9	7.4	12.3	19.0	6.8	11.9	20.2	6.2
46.0	26.0	36.2	8.0	25.1	38.4	7.3	13.0	18.0	7.5	12.6	19.1	6.9	12.1	20.2	6.3
48.0	27.0	36.4	8.3	26.1	38.6	7.6	13.6	18.0	7.8	13.1	19.1	7.2	12.6	20.3	6.5
50.0	28.0	36.6	8.5	27.1	38.8	7.8	14.1	18.1	8.1	13.6	19.2	7.4	13.1	20.4	6.8

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

Ratings - R-407C (English Units)

YCAL0034EB

IPLV=14.1

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	33.3	31.6	11.6	32.4	33.6	10.7	31.4	35.6	9.8	30.4	37.7	9.0	29.4	40.0	8.3	28.4	42.3	7.6
42.0	34.5	31.9	11.9	33.6	33.9	11.0	32.6	35.9	10.1	31.6	38.1	9.3	30.5	40.3	8.5	29.5	42.7	7.8
44.0	35.8	32.3	12.2	34.8	34.2	11.3	33.8	36.2	10.4	32.7	38.4	9.5	31.7	40.7	8.7	30.6	43.0	8.0
45.0	36.4	32.5	12.4	35.4	34.3	11.4	34.4	36.4	10.5	33.3	38.6	9.7	32.2	40.9	8.9	31.2	43.2	8.1
46.0	37.1	32.6	12.5	36.0	34.5	11.6	35.0	36.6	10.7	33.9	38.8	9.8	32.8	41.0	9.0	31.7	43.4	8.2
48.0	38.4	33.0	12.9	37.3	34.9	11.9	36.2	36.9	10.9	35.1	39.1	10.1	34.0	41.4	9.2	32.9	43.8	8.5
50.0	39.7	33.3	13.2	38.6	35.3	12.2	37.5	37.3	11.2	36.4	39.5	10.3	35.2	41.8	9.5	34.1	44.2	8.7

YCAL0040EB

IPLV=14.3

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	37.8	31.8	12.1	36.8	33.8	11.2	35.7	35.9	10.3	34.7	38.2	9.5	33.6	40.6	8.7	32.5	43.1	8.0
42.0	39.3	31.9	12.6	38.2	33.9	11.6	36.6	37.2	10.3	36.0	38.3	9.8	34.9	40.8	9.0	33.8	43.3	8.3
44.0	40.8	32.1	13.0	39.7	34.1	12.0	38.1	37.2	10.7	36.9	39.5	9.8	36.3	40.9	9.4	35.2	43.4	8.6
45.0	41.5	32.1	13.2	40.4	34.1	12.2	38.8	37.2	10.9	37.7	39.5	10.0	37.0	40.9	9.5	35.8	43.5	8.8
46.0	42.3	32.2	13.4	41.2	34.2	12.4	39.6	37.1	11.1	38.4	39.5	10.2	37.7	41.0	9.7	36.5	43.6	8.9
48.0	43.9	32.3	13.9	42.7	34.4	12.8	41.2	37.1	11.6	40.0	39.5	10.6	38.8	42.0	9.8	37.9	43.8	9.2
50.0	45.5	32.5	14.4	44.3	34.5	13.3	42.8	37.1	12.0	41.6	39.5	11.1	40.3	42.0	10.2	39.0	44.7	9.3

YCAL0042EB

IPLV=13.6

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	41.9	37.5	11.7	40.8	39.8	10.8	39.6	42.2	9.9	38.4	44.8	9.1	37.2	47.6	8.4	36.1	50.2	7.8
42.0	43.5	37.7	12.1	42.4	40.0	11.2	41.1	42.4	10.3	39.9	45.1	9.4	38.7	47.8	8.7	37.4	50.7	8.0
44.0	45.0	38.3	12.3	44.0	40.2	11.5	42.7	42.7	10.6	41.4	45.3	9.8	40.2	48.1	9.0	38.9	51.0	8.2
45.0	45.9	38.4	12.5	44.6	40.7	11.6	43.5	42.8	10.8	42.2	45.4	9.9	40.9	48.2	9.1	39.6	51.1	8.4
46.0	46.7	38.5	12.7	45.5	40.8	11.8	44.3	42.9	11.0	43.0	45.5	10.1	41.7	48.3	9.3	40.4	51.3	8.5
48.0	48.5	38.7	13.1	47.2	41.0	12.2	45.8	43.5	11.2	44.7	45.8	10.4	43.1	49.0	9.5	41.9	51.6	8.8
50.0	50.3	38.9	13.6	49.0	41.2	12.5	47.6	43.7	11.6	46.2	46.4	10.7	44.7	49.2	9.8	43.3	52.2	9.0

YCAL0044EB

IPLV=13.7

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	46.2	41.8	11.7	44.9	44.3	10.8	43.6	47.0	9.9	42.2	49.8	9.1	40.9	52.8	8.4	39.5	56.0	7.7
42.0	47.9	42.1	12.1	46.6	44.6	11.1	45.3	47.3	10.3	43.9	50.2	9.4	42.5	53.2	8.7	41.1	56.3	8.0
44.0	49.8	42.4	12.4	48.4	44.9	11.5	47.0	47.6	10.6	45.6	50.5	9.7	44.1	53.5	9.0	42.7	56.6	8.2
45.0	50.7	42.6	12.6	49.3	45.1	11.7	47.9	47.8	10.8	46.4	50.7	9.9	44.9	53.7	9.1	43.5	56.9	8.3
46.0	51.6	42.8	12.8	50.2	45.3	11.8	48.8	48.0	10.9	47.3	50.8	10.1	45.8	53.9	9.2	44.3	57.1	8.5
48.0	53.5	43.2	13.2	52.1	45.7	12.2	50.6	48.3	11.2	49.0	51.2	10.4	47.5	54.3	9.5	46.0	57.5	8.7
50.0	55.5	43.6	13.5	54.0	46.1	12.5	52.4	48.7	11.6	50.9	51.6	10.7	49.3	54.7	9.8	47.7	57.9	9.0

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

YCAL0034EB

IPLV=14.1

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	27.4	44.7	6.9	26.4	47.2	6.3	25.4	49.7	5.8	17.2	32.6	5.8	16.5	34.3	5.3
42.0	28.5	45.1	7.1	27.4	47.6	6.5	26.4	50.1	6.0	17.9	32.8	6.0	17.2	34.5	5.5
44.0	29.5	45.5	7.3	28.5	48.0	6.7	27.4	50.6	6.2	18.7	33.0	6.3	17.9	34.7	5.7
45.0	30.1	45.7	7.4	29.0	48.2	6.8	28.0	50.8	6.3	19.0	33.1	6.4	18.3	34.9	5.8
46.0	30.6	45.9	7.5	29.6	48.5	6.9	20.2	31.4	7.1	19.4	33.2	6.5	18.7	35.0	5.9
48.0	31.8	46.3	7.8	30.7	48.9	7.1	21.0	31.6	7.3	20.2	33.4	6.7	19.4	35.2	6.1
50.0	32.9	46.8	8.0	31.8	49.4	7.3	21.8	31.9	7.5	21.0	33.6	6.9	20.2	35.5	6.3

YCAL0040EB

IPLV=14.3

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	31.4	45.8	7.3	30.4	48.6	6.7	29.3	51.5	6.2	14.8	25.1	5.8	14.2	26.6	5.3
42.0	32.7	45.9	7.6	31.6	48.8	7.0	30.5	51.7	6.4	15.4	25.1	6.0	14.8	26.6	5.5
44.0	34.0	46.1	7.9	32.9	48.9	7.2	31.8	51.9	6.6	16.0	25.1	6.3	15.5	26.6	5.8
45.0	34.7	46.2	8.0	33.5	49.0	7.4	32.4	52.0	6.7	16.4	25.1	6.4	15.8	26.7	5.9
46.0	35.4	46.3	8.2	34.2	49.1	7.5	33.0	52.1	6.9	16.7	25.1	6.5	16.1	26.7	6.0
48.0	36.7	46.5	8.5	35.5	49.3	7.8	34.3	52.4	7.1	17.4	25.2	6.8	16.8	26.7	6.2
50.0	38.1	46.7	8.8	36.9	49.6	8.0	35.7	52.6	7.4	18.1	25.2	7.1	17.5	26.8	6.5

YCAL0042EB

IPLV=13.6

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	34.8	53.2	7.1	33.6	56.3	6.5	32.4	59.5	6.0	23.3	43.9	5.6	22.5	46.5	5.2
42.0	36.1	53.7	7.3	34.9	56.9	6.7	33.6	60.2	6.1	24.3	44.2	5.9	23.4	46.7	5.4
44.0	37.6	54.0	7.6	36.3	57.2	6.9	35.0	60.6	6.3	25.3	44.4	6.1	24.4	47.0	5.6
45.0	38.3	54.2	7.7	37.0	57.4	7.0	35.7	60.7	6.5	25.8	44.5	6.2	24.9	47.1	5.7
46.0	39.0	54.3	7.8	37.7	57.5	7.2	36.4	60.9	6.6	26.3	44.6	6.3	25.4	47.2	5.8
48.0	40.5	54.7	8.1	39.2	57.9	7.4	28.3	42.2	7.1	27.4	44.8	6.5	26.4	47.4	6.0
50.0	42.1	55.0	8.3	40.7	58.3	7.6	29.5	42.5	7.4	28.4	45.0	6.7	27.4	47.6	6.2

YCAL0044EB

IPLV=13.7

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	38.1	59.2	7.1	36.9	61.9	6.6	35.6	65.3	6.0	18.3	31.3	5.9	17.5	33.1	5.4
42.0	39.6	59.6	7.3	38.2	63.0	6.7	36.8	66.4	6.1	19.0	31.5	6.2	18.3	33.3	5.6
44.0	41.2	59.9	7.5	39.7	63.4	6.9	38.3	66.9	6.3	19.8	31.7	6.4	19.1	33.4	5.9
45.0	42.0	60.1	7.7	40.5	63.6	7.0	39.1	67.1	6.4	20.2	31.7	6.5	19.5	33.5	6.0
46.0	42.8	60.4	7.8	41.3	63.8	7.1	39.8	67.4	6.5	20.7	31.8	6.6	19.9	33.6	6.1
48.0	44.4	60.9	8.0	42.9	64.2	7.4	41.4	67.9	6.8	21.5	32.0	6.9	20.7	33.8	6.3
50.0	46.1	61.3	8.3	44.5	64.8	7.6	23.2	30.3	7.8	22.4	32.1	7.1	21.6	34.0	6.5

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

Ratings - R-407C (English Units)

YCAL0050EB

IPLV=13.7

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	50.3	47.4	11.4	48.9	50.3	10.5	47.5	53.3	9.7	46.1	56.5	8.9	44.7	59.9	8.2	43.2	63.5	7.5
42.0	52.2	47.8	11.7	50.8	50.7	10.8	49.3	53.7	10.0	47.9	57.0	9.2	46.4	60.4	8.5	44.9	63.9	7.7
44.0	54.1	48.2	12.1	52.7	51.1	11.2	51.2	54.2	10.3	49.7	57.4	9.5	48.1	60.8	8.7	46.6	64.4	8.0
45.0	55.1	48.4	12.2	53.6	51.3	11.3	52.1	54.3	10.4	50.6	57.6	9.6	49.0	61.1	8.8	47.4	64.7	8.1
46.0	56.1	48.6	12.4	54.6	51.5	11.5	53.1	54.6	10.6	51.5	57.8	9.7	49.9	61.3	9.0	48.3	64.9	8.2
48.0	58.1	49.0	12.8	56.6	51.9	11.8	55.0	55.0	10.9	53.4	58.3	10.0	51.7	61.8	9.2	50.1	65.4	8.5
50.0	60.2	49.5	13.1	58.6	52.4	12.1	57.0	55.5	11.2	55.3	58.8	10.3	53.6	62.3	9.5	51.9	66.0	8.7

YCAL0060EB

IPLV=14.5

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	55.5	49.1	12.2	54.1	52.1	11.3	52.6	55.3	10.4	51.2	58.6	9.6	49.7	62.2	8.8	48.2	65.9	8.1
42.0	57.4	49.8	12.4	56.0	52.8	11.5	54.5	56.1	10.6	52.9	59.5	9.8	51.4	63.1	9.0	49.8	66.8	8.3
44.0	59.6	50.1	12.9	58.1	53.1	11.9	56.5	56.4	10.9	55.0	59.8	10.1	53.3	63.4	9.3	51.7	67.2	8.5
45.0	60.7	50.2	13.1	59.2	53.3	12.1	57.6	56.5	11.1	56.0	60.0	10.2	54.3	63.6	9.4	52.7	67.4	8.7
46.0	61.8	50.4	13.2	60.2	53.5	12.2	58.6	56.7	11.3	57.0	60.1	10.4	55.3	63.8	9.6	53.7	67.6	8.8
48.0	64.1	50.7	13.6	62.4	53.8	12.6	60.8	57.1	11.6	59.1	60.6	10.7	57.4	64.2	9.9	55.6	68.1	9.1
50.0	66.3	51.1	14.0	64.7	54.2	13.0	63.0	57.5	12.0	61.2	61.0	11.0	59.5	64.7	10.2	57.7	68.5	9.3

YCAL0064EB

IPLV=13.7

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	61.9	58.0	11.5	60.1	61.6	10.5	58.3	65.4	9.7	56.5	69.4	8.9	54.6	73.6	8.2	52.8	78.0	7.5
42.0	64.2	58.5	11.8	62.4	62.1	10.9	60.5	65.9	10.0	58.6	69.9	9.2	56.7	74.1	8.4	54.8	78.5	7.7
44.0	66.5	59.0	12.1	64.7	62.5	11.2	62.8	66.4	10.3	60.8	70.4	9.4	58.9	74.7	8.7	56.9	79.1	8.0
45.0	67.8	59.2	12.3	65.9	62.8	11.4	63.9	66.6	10.4	61.9	70.7	9.6	60.0	75°F	8.8	58.0	79.4	8.1
46.0	69.0	59.5	12.5	67.0	63.1	11.5	65.1	66.9	10.6	63.1	71.0	9.7	61.1	75.3	8.9	59.0	79.8	8.2
48.0	71.5	60.0	12.8	69.5	63.6	11.8	67.4	67.4	10.9	65.4	71.5	10.0	63.3	75.9	9.2	61.2	80.4	8.4
50.0	74.0	60.5	13.2	71.9	64.2	12.2	69.9	68.0	11.2	67.7	72.1	10.3	65.6	76.5	9.5	63.5	81.1	8.7

YCAL0070EB

IPLV=13.8

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	69.0	63.5	11.8	67.1	67.3	10.9	65.1	71.4	10.0	63.0	75.8	9.2	61.0	80.4	8.4	58.9	85.3	7.7
42.0	71.6	63.9	12.1	69.6	67.8	11.2	67.5	72.0	10.3	65.5	76.3	9.4	63.3	81.0	8.7	61.2	85.8	7.9
44.0	74.3	64.5	12.5	72.2	68.3	11.5	70.1	72.5	10.6	67.9	76.9	9.7	65.7	81.6	8.9	63.5	86.5	8.2
45.0	75.6	64.8	12.7	73.5	68.6	11.7	71.4	72.8	10.8	69.2	77.2	9.9	67.0	81.9	9.1	64.7	86.8	8.3
46.0	77.0	65.1	12.9	74.9	68.9	11.9	72.7	73.1	10.9	70.5	77.5	10.0	68.2	82.2	9.2	65.9	87.1	8.4
48.0	79.8	65.7	13.2	77.6	69.5	12.2	75.3	73.7	11.2	73.0	78.2	10.3	70.7	82.9	9.5	68.4	87.8	8.7
50.0	82.7	66.3	13.6	80.4	70.2	12.5	78.1	74.4	11.5	75.7	78.8	10.6	73.3	83.6	9.7	70.9	88.5	8.9

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

YCAL0050EB

IPLV=13.7

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	41.7	67.3	6.9	40.2	71.2	6.3	29.2	51.4	6.1	20.2	35.3	5.9	19.4	37.4	5.4
42.0	43.4	67.7	7.1	41.8	71.7	6.5	30.2	52.1	6.3	21.0	35.6	6.1	20.1	37.7	5.6
44.0	45.0	68.2	7.3	32.6	49.5	7.1	31.4	52.4	6.5	21.9	35.7	6.3	21.0	37.8	5.8
45.0	45.9	68.5	7.4	33.2	49.7	7.2	32.0	52.5	6.6	22.3	35.8	6.5	21.4	37.9	5.9
46.0	46.7	68.7	7.5	33.9	49.8	7.3	32.7	52.7	6.7	22.7	35.9	6.6	21.9	38.0	6.0
48.0	48.4	69.3	7.8	35.2	50.1	7.6	34.0	53.0	7.0	23.7	36.1	6.8	22.8	38.2	6.2
50.0	50.2	69.9	8.0	36.5	50.5	7.8	35.3	53.3	7.2	24.6	36.2	7.1	23.7	38.3	6.5

YCAL0060EB

IPLV=14.5

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	46.7	69.7	7.4	45.1	73.9	6.8	43.5	78.3	6.2	22.4	37.3	6.3	21.5	39.6	5.7
42.0	48.5	70.2	7.7	46.8	74.4	7.0	45.2	78.8	6.4	23.3	37.5	6.5	22.4	39.7	5.9
44.0	50.1	71.2	7.8	48.4	75.4	7.2	46.7	79.9	6.5	24.3	37.6	6.7	23.4	39.9	6.2
45.0	51.0	71.4	8.0	49.3	75.6	7.3	25.7	35.5	7.5	24.8	37.7	6.9	23.8	39.9	6.3
46.0	51.9	71.7	8.1	50.2	75.9	7.4	26.2	35.6	7.6	25.3	37.7	7.0	24.3	40.0	6.4
48.0	53.9	72.1	8.3	52.1	76.4	7.6	27.3	35.7	7.9	26.3	37.9	7.3	25.3	40.2	6.6
50.0	55.8	72.6	8.6	54.0	76.9	7.9	28.3	35.8	8.2	27.3	38.0	7.5	26.3	40.3	6.9

YCAL0064EB

IPLV=13.7

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	50.9	82.5	6.8	49.1	87.3	6.3	39.8	72.7	6.0	32.0	60.1	5.7	30.7	63.8	5.2
42.0	52.9	83.1	7.1	51.1	87.9	6.5	41.4	73.1	6.2	33.3	60.4	5.9	32.0	64.1	5.4
44.0	55.0	83.8	7.3	53.1	88.6	6.7	43.1	73.5	6.4	34.6	61.0	6.1	33.3	64.4	5.6
45.0	56.0	84.1	7.4	54.1	88.9	6.8	43.9	73.7	6.5	35.3	61.2	6.2	34.0	64.6	5.7
46.0	57.1	84.4	7.5	55.1	89.3	6.9	44.8	74.0	6.7	36.0	61.3	6.3	34.7	64.8	5.8
48.0	59.2	85.1	7.7	57.2	90.0	7.1	46.5	74.4	6.9	37.5	61.7	6.6	36.1	65.2	6.0
50.0	61.4	85.8	8.0	59.3	90.8	7.3	48.3	74.9	7.1	39.0	62.0	6.8	37.5	65.5	6.2

YCAL0070EB

IPLV=13.8

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	56.8	90.3	7.0	54.7	95.4	6.4	52.7	100.6	5.9	35.7	65.6	5.9	34.2	69.2	5.4
42.0	59.0	90.9	7.3	56.9	96.1	6.6	54.8	101.4	6.1	37.1	66.1	6.1	35.7	69.7	5.6
44.0	61.3	91.5	7.5	59.1	96.8	6.9	40.2	62.9	6.9	38.7	66.5	6.3	36.9	70.9	5.7
45.0	62.5	91.9	7.6	60.3	97.1	7.0	41.0	63.1	7.0	39.4	66.7	6.4	37.6	71.1	5.8
46.0	63.7	92.2	7.7	61.4	97.5	7.1	41.8	63.3	7.1	40.2	67.0	6.5	38.4	71.3	5.9
48.0	66.1	93.0	7.9	63.8	98.3	7.3	43.2	64.2	7.3	41.6	67.9	6.7	40.0	71.7	6.1
50.0	68.5	93.8	8.2	66.2	99.1	7.5	45.0	64.5	7.6	43.3	68.2	6.9	41.7	72.1	6.3

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

Ratings - R-407C (English Units)

YCAL0074EB

IPLV=14.2

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	75°F	70.1	11.7	72.9	74.4	10.8	70.8	79.0	9.9	68.7	83.8	9.1	66.5	88.9	8.3	64.3	94.3	7.6
42.0	77.7	70.8	12.0	75.7	75°F	11.1	73.5	79.6	10.2	71.3	84.5	9.4	69.0	89.6	8.6	66.8	95.0	7.9
44.0	80.6	71.4	12.4	78.4	75.7	11.4	76.2	80.3	10.5	73.9	85.2	9.6	71.6	90.3	8.8	69.3	95.8	8.1
45.0	82.0	71.8	12.5	79.8	76.0	11.6	77.6	80.6	10.6	75.3	85.5	9.8	72.9	90.7	9.0	70.5	96.2	8.2
46.0	83.5	72.1	12.7	81.3	76.4	11.7	79.0	81.0	10.8	76.6	85.9	9.9	74.2	91.1	9.1	71.8	96.6	8.3
48.0	86.5	72.7	13.0	84.2	77.1	12.0	81.8	81.7	11.1	79.4	86.7	10.2	76.9	91.9	9.4	74.4	97.4	8.6
50.0	89.5	73.5	13.4	87.1	77.9	12.3	84.7	82.5	11.4	82.2	87.5	10.5	79.7	92.7	9.6	77.1	98.3	8.8

YCAL0080EB

IPLV=14.4

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	81.6	77.5	11.6	79.4	82.3	10.7	77.2	87.3	9.8	74.9	92.7	9.0	72.6	98.2	8.3	70.2	104.2	7.6
42.0	84.6	78.3	11.9	82.4	83.0	11.0	80.0	88.1	10.1	77.7	93.4	9.3	75.3	99.1	8.5	72.8	105.1	7.8
44.0	87.7	79.0	12.3	85.3	83.8	11.3	82.9	88.9	10.4	80.5	94.3	9.6	78.0	100.0	8.8	75.5	106.0	8.0
45.0	89.2	79.4	12.4	86.8	84.2	11.4	84.4	89.3	10.5	81.9	94.7	9.7	79.4	100.4	8.9	76.8	106.5	8.1
46.0	90.8	79.8	12.6	88.3	84.7	11.6	85.9	89.7	10.7	83.4	95.2	9.8	80.8	100.9	9.0	78.2	107.0	8.3
48.0	93.9	80.6	12.9	91.4	85.5	11.9	88.9	90.6	11.0	86.3	96.1	10.1	83.7	101.8	9.2	81.0	107.9	8.5
50.0	97.2	81.4	13.2	94.6	86.3	12.2	92.0	91.6	11.2	89.3	97.0	10.3	86.6	102.8	9.5	83.8	109.0	8.7

YCAL0090EB

IPLV=13.6

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	82.5	72.8	11.8	80.4	76.8	11.0	78.2	80.9	10.2	76.0	85.4	9.5	73.6	90.2	8.7	71.2	95.4	8.0
42.0	85.7	73.4	12.2	83.6	77.4	11.4	81.3	81.6	10.6	79.0	86.0	9.8	76.6	90.8	9.0	74.1	96.0	8.3
44.0	89.1	74.0	12.6	86.8	78.0	11.7	84.5	82.2	10.9	82.1	86.7	10.1	79.6	91.5	9.3	77.0	96.7	8.6
45.0	90.8	74.3	12.8	88.5	78.3	11.9	86.1	82.6	11.1	83.7	87.1	10.3	81.2	91.9	9.5	78.6	97.0	8.7
46.0	92.5	74.6	13.0	90.1	78.7	12.1	87.7	82.9	11.2	85.3	87.4	10.4	82.7	92.2	9.6	80.1	97.4	8.9
48.0	96.0	75.3	13.4	93.5	79.4	12.4	91.1	83.6	11.6	88.5	88.2	10.7	85.9	93.0	9.9	83.2	98.1	9.2
50.0	99.4	76.0	13.7	97.0	80.1	12.8	94.5	84.4	11.9	91.8	88.9	11.0	89.1	93.8	10.2	86.3	98.9	9.4

YCAL0094EB

IPLV=13.4

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	88.8	80.0	11.7	86.5	84.4	10.9	84.3	88.8	10.2	82.0	93.6	9.4	79.6	98.6	8.7	77.1	104.0	8.1
42.0	92.2	80.8	12.1	89.9	85.1	11.2	87.5	89.7	10.5	85.1	94.4	9.7	82.7	99.5	9.0	80.1	104.8	8.3
44.0	95.7	81.5	12.4	93.3	85.9	11.6	90.9	90.5	10.8	88.4	95.3	10.0	85.8	100.3	9.3	83.2	105.7	8.6
45.0	97.4	81.9	12.6	95.0	86.3	11.7	92.5	90.9	10.9	90.0	95.7	10.1	87.4	100.8	9.4	84.8	106.2	8.7
46.0	99.2	82.2	12.8	96.8	86.7	11.9	94.3	91.3	11.1	91.7	96.2	10.3	89.1	101.3	9.5	86.4	106.7	8.8
48.0	102.9	83.0	13.2	100.3	87.5	12.2	97.7	92.2	11.4	95.1	97.1	10.6	92.4	102.2	9.8	89.6	107.6	9.1
50.0	106.6	83.9	13.5	104.0	88.3	12.6	101.3	93.1	11.7	98.6	98.0	10.9	95.8	103.2	10.1	92.9	108.6	9.3

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

YCAL0074EB

IPLV=14.2

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	62.1	99.8	7.0	59.9	105.7	6.4	48.4	87.4	6.2	39.2	72.5	5.9	37.6	76.7	5.4
42.0	64.5	100.6	7.2	62.2	106.5	6.6	50.4	88.0	6.4	40.7	73.0	6.1	39.1	77.2	5.6
44.0	66.9	101.4	7.4	64.5	107.4	6.8	44.1	69.3	6.9	42.4	73.4	6.3	40.6	78.0	5.7
45.0	68.1	101.9	7.5	55.4	84.1	7.3	44.9	69.6	7.1	43.2	73.7	6.4	41.4	78.2	5.8
46.0	69.4	102.3	7.6	56.4	84.4	7.4	45.8	69.8	7.2	44.0	73.9	6.5	42.2	78.4	5.9
48.0	71.9	103.2	7.8	58.6	85.0	7.7	47.4	70.5	7.4	45.7	74.6	6.7	43.9	78.9	6.1
50.0	74.5	104.1	8.1	60.8	85.6	7.9	49.3	70.9	7.6	47.5	75.1	7.0	45.6	79.4	6.4

YCAL0080EB

IPLV=14.4

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	67.8	110.4	6.9	65.4	117.0	6.3	44.5	75.5	6.5	42.8	80.0	5.9	41.1	84.7	5.4
42.0	70.4	111.3	7.1	67.8	118.0	6.5	46.3	75.9	6.7	44.5	80.5	6.1	42.7	85.3	5.6
44.0	72.9	112.3	7.3	70.3	119.0	6.7	48.1	76.4	6.9	46.3	81.0	6.3	44.4	85.7	5.8
45.0	74.2	112.8	7.4	71.6	119.5	6.8	49.0	76.6	7.1	47.2	81.2	6.4	45.3	86.0	5.9
46.0	75.6	113.3	7.5	62.3	96.2	7.3	50.0	76.8	7.2	48.1	81.4	6.5	46.2	86.3	6.0
48.0	78.3	114.4	7.8	53.8	73.0	8.1	51.9	77.4	7.4	49.9	82.0	6.7	47.9	86.8	6.1
50.0	81.0	115.4	8.0	55.8	73.4	8.3	53.8	77.8	7.6	51.8	82.5	7.0	49.8	87.4	6.3

YCAL0090EB

IPLV=13.6

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	68.7	101.0	7.4	66.5	106.0	6.8	63.8	112.5	6.2	60.4	121.0	5.5	57.4	128.9	4.9
42.0	71.5	101.6	7.6	69.2	106.7	7.1	66.4	113.2	6.4	63.0	121.5	5.7	45.5	89.6	5.4
44.0	74.4	102.3	7.9	72.0	107.5	7.3	68.7	114.9	6.6	65.7	122.0	5.9	47.4	90.0	5.6
45.0	75.8	102.6	8.0	73.4	107.9	7.4	70.1	115.2	6.7	67.0	122.3	6.0	48.4	90.2	5.7
46.0	77.3	103.0	8.2	74.8	108.3	7.5	71.5	115.5	6.8	68.4	122.5	6.2	49.4	90.4	5.9
48.0	80.3	103.7	8.4	77.4	109.7	7.7	74.4	116.2	7.0	71.2	123.2	6.4	51.1	91.7	6.0
50.0	83.4	104.5	8.7	80.4	110.5	8.0	77.3	116.9	7.3	74.0	123.9	6.6	53.1	92.3	6.2

YCAL0094EB

IPLV=13.4

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	74.5	109.8	7.4	71.9	115.9	6.8	69.0	122.6	6.2	66.1	129.8	5.6	33.9	61.8	5.6
42.0	77.5	110.6	7.7	74.7	116.8	7.0	71.8	123.4	6.4	68.8	130.5	5.8	35.6	62.0	5.9
44.0	80.5	111.5	7.9	77.6	117.7	7.3	74.7	124.3	6.6	71.6	131.3	6.0	37.3	61.8	6.2
45.0	82.0	112.0	8.0	79.1	118.1	7.4	76.1	124.7	6.7	73.0	131.8	6.1	38.0	62.0	6.3
46.0	83.5	112.4	8.1	80.6	118.6	7.5	77.6	125.2	6.8	74.4	132.2	6.2	38.8	62.2	6.4
48.0	86.7	113.4	8.4	83.7	119.5	7.7	80.6	126.1	7.1	77.3	133.1	6.4	40.4	62.6	6.6
50.0	89.9	114.4	8.6	86.8	120.5	7.9	83.6	127.1	7.3	80.2	134.1	6.6	41.8	63.4	6.8

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

Ratings - R-407C (English Units)

YCAL0104EB

IPLV=14.0

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	99.3	91.7	11.6	96.6	96.8	10.8	93.8	102.2	10.0	91.0	108.1	9.2	88.0	114.4	8.4	85.0	121.3	7.7
42.0	103.0	92.6	12.0	100.3	97.8	11.1	97.4	103.3	10.2	94.5	109.2	9.4	91.4	115.6	8.7	88.2	122.5	7.9
44.0	106.9	93.7	12.3	104.0	98.9	11.4	101.1	104.4	10.5	98.0	110.3	9.7	94.9	116.7	8.9	91.6	123.6	8.2
45.0	108.8	94.2	12.4	105.9	99.4	11.5	102.9	105.0	10.7	99.8	110.9	9.8	96.7	117.3	9.1	93.3	124.2	8.3
46.0	110.8	94.7	12.6	107.9	100.0	11.7	104.8	105.5	10.8	101.7	111.5	10.0	98.4	117.9	9.2	95.0	124.9	8.4
48.0	114.8	95.8	12.9	111.8	101.1	12.0	108.6	106.7	11.1	105.4	112.8	10.2	102.0	119.2	9.4	98.6	126.1	8.6
50.0	119.0	96.9	13.3	115.8	102.3	12.3	112.5	108.0	11.4	109.2	113.9	10.5	105.8	120.4	9.7	102.2	127.3	8.9

YCAL0114EB

IPLV=13.9

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	111.4	99.4	11.7	108.4	105.0	10.9	105.3	111.0	10.1	102.0	117.5	9.3	98.6	124.6	8.5	95.1	132.4	7.8
42.0	115.7	100.4	12.1	112.6	106.0	11.2	109.4	112.0	10.4	106.0	118.5	9.6	102.5	125.6	8.8	98.9	133.4	8.0
44.0	120.0	101.4	12.4	116.9	107.0	11.5	113.6	113.1	10.7	110.1	119.6	9.9	106.5	126.7	9.1	102.8	134.5	8.3
45.0	122.3	101.9	12.6	119.1	107.6	11.7	115.7	113.6	10.8	112.2	120.2	10.0	108.5	127.3	9.2	104.8	135.0	8.4
46.0	124.5	102.5	12.8	121.3	108.2	11.9	117.8	114.3	11.0	114.3	120.7	10.2	110.6	127.8	9.3	106.8	135.6	8.5
48.0	129.1	103.6	13.1	125.7	109.3	12.2	122.2	115.4	11.3	118.6	121.9	10.4	114.8	129.0	9.6	110.9	136.8	8.8
50.0	133.8	104.8	13.5	130.3	110.5	12.5	126.7	116.6	11.6	123.0	123.2	10.7	119.1	130.3	9.9	115.0	138.0	9.1

YCAL0124EB

IPLV=13.3

AIR TEMPERATURE ON CONDENSER (°F)

LCWT	75°F			80°F			85°F			90°F			95°F			100°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	119.9	111.2	11.5	116.8	117.4	10.6	113.6	123.9	9.9	110.2	130.8	9.1	106.7	138.3	8.4	103.1	146.5	7.7
42.0	124.4	112.4	11.8	121.2	118.6	10.9	117.9	125.1	10.1	114.4	132.1	9.4	110.9	139.6	8.6	107.1	147.7	7.9
44.0	129.1	113.6	12.1	125.7	119.8	11.2	122.3	126.4	10.4	118.8	133.4	9.6	115.1	140.9	8.9	111.2	149.1	8.2
45.0	131.4	114.2	12.3	128.1	120.5	11.4	124.6	127.1	10.6	120.9	134.1	9.8	117.2	141.6	9.0	113.3	149.7	8.3
46.0	133.8	114.8	12.4	130.4	121.1	11.5	126.8	127.8	10.7	123.2	134.8	9.9	119.4	142.3	9.1	115.4	150.4	8.4
48.0	138.7	116.1	12.8	135.2	122.4	11.9	131.5	129.1	11.0	127.7	136.1	10.2	123.8	143.7	9.4	119.7	151.8	8.6
50.0	143.7	117.3	13.1	140.0	123.7	12.2	136.2	130.5	11.3	132.3	137.6	10.4	128.3	145.2	9.7	124.1	153.3	8.9

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

YCAL0104EB

IPLV=14.0

AIR TEMPERATURE ON CONDENSER (°F)															
LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	81.7	128.9	7.0	78.4	137.1	6.4	74.9	146.1	5.7	71.1	156.0	5.1	43.1	89.2	5.2
42.0	84.9	130.0	7.2	81.5	138.2	6.6	77.9	147.2	5.9	74.1	156.9	5.3	45.0	89.6	5.4
44.0	88.2	131.2	7.5	84.7	139.3	6.8	80.9	148.2	6.1	65.8	120.9	6.0	47.1	89.6	5.6
45.0	89.9	131.7	7.6	86.3	139.9	6.9	82.5	148.8	6.2	67.1	121.3	6.1	47.9	90.2	5.7
46.0	91.5	132.4	7.7	87.9	140.5	7.0	84.1	149.3	6.3	68.4	121.7	6.2	49.1	90.0	5.8
48.0	95.0	133.6	7.9	91.2	141.7	7.2	87.4	150.5	6.5	71.1	122.5	6.4	51.1	90.5	6.1
50.0	98.5	134.8	8.1	94.7	142.9	7.4	90.7	151.7	6.7	73.9	123.4	6.6	53.2	91.0	6.3

YCAL0114EB

IPLV=13.9

AIR TEMPERATURE ON CONDENSER (°F)															
LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	91.4	141.0	7.1	87.6	150.5	6.4	83.6	160.9	5.7	79.4	172.3	5.1	53.4	113.3	5.0
42.0	95.1	141.9	7.3	91.2	151.3	6.6	87.0	161.8	5.9	82.8	173.1	5.3	55.8	113.4	5.2
44.0	98.9	143.0	7.5	94.9	152.3	6.8	90.6	162.6	6.1	86.2	174.0	5.5	58.3	113.6	5.5
45.0	100.8	143.5	7.7	96.7	152.9	6.9	92.4	163.1	6.2	88.0	174.4	5.6	59.6	113.8	5.6
46.0	102.8	144.1	7.8	98.6	153.4	7.1	94.3	163.6	6.4	89.7	174.9	5.7	60.9	114.0	5.7
48.0	106.7	145.2	8.0	102.5	154.5	7.3	98.0	164.7	6.6	93.4	175.8	5.9	63.5	114.3	5.9
50.0	110.8	146.5	8.3	106.4	155.7	7.5	101.9	165.8	6.8	97.2	176.8	6.1	66.2	114.8	6.2

YCAL0124EB

IPLV=13.3

AIR TEMPERATURE ON CONDENSER (°F)															
LCWT	105°F			110°F			115°F			120°F			125°F		
(°F)	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
40.0	99.4	155.3	7.0	95.4	164.9	6.4	91.3	175.4	5.8	87.0	186.8	5.2	58.9	122.1	5.2
42.0	103.3	156.6	7.2	99.2	166.1	6.6	95.0	176.6	6.0	90.5	187.9	5.4	61.5	122.5	5.4
44.0	107.2	157.9	7.5	103.1	167.4	6.8	98.7	177.8	6.2	94.2	189.0	5.6	64.1	123.0	5.6
45.0	109.3	158.6	7.6	105.0	168.1	6.9	100.7	178.4	6.3	96.1	189.6	5.6	65.5	123.3	5.7
46.0	111.3	159.3	7.7	107.1	168.7	7.0	102.6	179.1	6.4	97.9	190.2	5.7	66.8	123.6	5.8
48.0	115.5	160.6	7.9	111.1	170.1	7.2	106.6	180.4	6.6	101.8	191.5	5.9	69.6	124.2	6.0
50.0	119.8	162.1	8.1	115.3	171.5	7.4	110.6	181.8	6.8	89.6	152.3	6.4	72.4	124.9	6.2

NOTES:

1. kW = Compressor Input Power
2. EER = Chiller EER (includes power from compressors, fans, and the control panels 0.8 kW)
3. LCWT = Leaving Chilled Water Temperature
4. Ratings are based upon 2.4 GPM cooler water per ton and 0.0001 fouling factor
5. Rated in accordance with ARI Standard 550/590-98
6. The shaded points are certified in accordance with ARI Standard 550/590-98

Ratings - R-407C (SI Units)

YCAL0014EB

COP=3.69

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	47.5	11.5	3.3	45.1	12.9	2.9	41.9	14.7	2.4	39.3	16.4	2.1	37.4	17.7	1.8	18.3	9.0	1.6
6.0	49.1	11.6	3.4	46.6	12.9	3.0	43.4	14.8	2.5	40.8	16.4	2.1	38.8	17.8	1.9	19.0	9.0	1.6
7.0	50.8	11.6	3.5	48.3	13.0	3.1	45.0	14.8	2.6	42.3	16.4	2.2	39.7	18.2	1.9	19.7	9.0	1.7
8.0	52.6	11.7	3.6	49.9	13.0	3.2	46.7	14.8	2.7	43.9	16.5	2.3	41.1	18.3	2.0	20.5	9.0	1.7
9.0	54.4	11.7	3.7	51.6	13.1	3.3	48.4	14.8	2.8	45.5	16.5	2.4	42.7	18.3	2.0	21.3	9.0	1.8
10.0	56.2	11.8	3.9	53.4	13.1	3.4	50.1	14.8	2.8	47.1	16.5	2.4	44.2	18.4	2.1	22.1	9.1	1.9
11.0	57.8	12.0	3.9	54.9	13.3	3.4	51.8	14.9	2.9	48.8	16.6	2.5	45.8	18.4	2.2	22.9	9.1	1.9

YCAL0020EB

COP=3.79

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	64.6	16.9	3.3	61.2	18.9	2.8	57.7	21.0	2.4	54.4	23.4	2.1	51.1	25.9	1.8	25.8	12.6	1.7
6.0	66.8	17.0	3.4	63.3	19.0	2.9	59.8	21.1	2.5	56.3	23.5	2.1	52.9	26.1	1.8	26.8	12.7	1.7
7.0	69.0	17.1	3.5	65.4	19.1	3.0	61.8	21.2	2.6	58.2	23.6	2.2	54.8	26.2	1.9	27.6	12.8	1.8
8.0	71.3	17.2	3.6	67.6	19.2	3.1	63.9	21.4	2.7	60.2	23.8	2.3	56.7	26.4	1.9	28.7	12.8	1.8
9.0	73.7	17.3	3.7	69.9	19.3	3.2	66.0	21.5	2.7	62.3	23.9	2.3	58.6	26.6	2.0	29.7	12.9	1.9
10.0	76.1	17.4	3.8	72.2	19.4	3.3	68.3	21.6	2.8	64.4	24.1	2.4	60.6	26.7	2.1	30.8	12.9	2.0
11.0	78.6	17.5	3.9	74.5	19.5	3.3	70.5	21.8	2.9	66.5	24.2	2.5	62.6	26.9	2.1	31.9	12.9	2.0

YCAL0024EB

COP=3.86

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	80.5	21.0	3.4	76.4	23.3	2.9	72.1	25.9	2.5	67.9	28.4	2.2	63.8	31.4	1.9	31.7	15.7	1.7
6.0	83.2	21.2	3.5	79.1	23.4	3.0	74.6	26.0	2.6	70.1	28.9	2.2	65.6	31.9	1.9	32.9	15.8	1.8
7.0	86.1	21.3	3.6	81.8	23.6	3.1	77.2	26.2	2.7	72.6	29.0	2.3	68.0	32.0	2.0	34.2	15.8	1.8
8.0	89.0	21.5	3.7	84.5	23.7	3.2	79.9	26.3	2.7	75.2	29.2	2.4	70.5	32.2	2.0	35.5	15.9	1.9
9.0	91.9	21.6	3.8	87.3	23.9	3.3	82.6	26.5	2.8	77.8	29.4	2.4	73.0	32.4	2.1	36.8	16.0	2.0
10.0	94.9	21.8	3.9	90.2	24.1	3.4	85.4	26.7	2.9	80.4	29.6	2.5	75.5	32.7	2.1	38.2	16.1	2.0
11.0	98.0	22.0	4.0	93.2	24.3	3.4	88.2	26.9	3.0	83.1	29.8	2.6	78.1	32.9	2.2	39.5	16.1	2.1

YCAL0030EB

COP=3.98

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	98.5	25.6	3.5	93.7	28.6	3.0	88.8	31.8	2.6	83.8	35.3	2.2	78.6	39.2	1.9	39.4	19.3	1.8
6.0	101.9	25.7	3.6	97.0	28.7	3.1	91.9	31.9	2.7	86.7	35.5	2.3	81.4	39.4	1.9	40.9	19.4	1.8
7.0	105.4	25.9	3.7	100.3	28.8	3.2	95.1	32.1	2.7	89.7	35.6	2.3	84.2	39.6	2.0	42.4	19.5	1.9
8.0	108.9	26.0	3.8	103.7	29.0	3.3	98.3	32.2	2.8	92.8	35.8	2.4	87.1	39.7	2.1	43.9	19.5	2.0
9.0	112.5	26.2	3.9	107.1	29.1	3.4	101.6	32.4	2.9	95.9	36.0	2.5	90.1	40.0	2.1	45.5	19.6	2.0
10.0	116.1	26.3	4.0	110.6	29.3	3.5	105.0	32.6	3.0	99.1	36.2	2.5	50.4	17.7	2.5	47.1	19.6	2.1
11.0	119.9	26.5	4.1	114.2	29.5	3.5	108.4	32.8	3.1	102.4	36.4	2.6	52.1	17.7	2.5	48.8	19.7	2.2

NOTES:

1. kW*o* = Unit kW Cooling Capacity Output
2. kW*i* = Compressor kW Input
3. COP = Coefficient of Performance (Based upon compressor and fan input kW)
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based upon 0.15L/s cooler water per kW

YCAL0034EB

COP=4.13

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT	25°C			30°C			35°C			40°C			45°C			50°C		
(°C)	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	118.0	32.5	3.3	111.8	36.2	2.9	105.4	40.1	2.5	98.9	44.4	2.1	92.5	48.9	1.8	60.8	33.4	1.7
6.0	121.8	32.8	3.4	115.5	36.5	2.9	108.9	40.5	2.5	102.3	44.8	2.2	95.7	49.3	1.8	63.0	33.5	1.7
7.0	125.8	33.1	3.5	119.3	36.8	3.0	112.5	40.8	2.6	105.7	45.1	2.2	99.0	49.7	1.9	65.4	33.7	1.8
8.0	129.8	33.5	3.6	123.1	37.1	3.1	116.2	41.1	2.7	109.3	45.5	2.3	102.4	50.1	1.9	67.8	33.9	1.8
9.0	133.9	33.8	3.7	127.1	37.4	3.2	120.0	41.5	2.7	112.9	45.9	2.3	105.9	50.5	2.0	70.2	34.2	1.9
10.0	138.1	34.1	3.7	131.1	37.7	3.2	123.9	41.8	2.8	116.6	46.3	2.4	109.4	51.0	2.0	72.8	34.4	2.0
11.0	142.5	34.4	3.8	135.2	38.1	3.3	127.8	42.2	2.8	120.4	46.7	2.4	80.4	31.4	2.4	75.3	34.6	2.0

YCAL0040EB

COP=4.18

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT	25°C			30°C			35°C			40°C			45°C			50°C		
(°C)	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	134.1	32.6	3.5	125.2	37.7	2.9	120.4	40.7	2.6	113.5	45.3	2.2	106.7	50.4	1.9	52.2	25.7	1.7
6.0	138.7	32.8	3.6	129.9	37.6	3.0	124.7	40.8	2.7	117.6	45.5	2.3	110.7	50.6	2.0	53.4	25.7	1.7
7.0	143.4	32.9	3.7	134.7	37.6	3.1	129.1	40.9	2.8	121.8	45.6	2.4	114.6	50.8	2.0	56.3	25.7	1.8
8.0	148.3	33.0	3.8	139.6	37.6	3.2	133.6	41.1	2.9	126.1	45.8	2.5	118.7	51.0	2.1	58.5	25.8	1.9
9.0	153.3	33.2	4.0	144.6	37.6	3.4	136.8	42.0	2.9	130.5	45.9	2.5	122.9	51.2	2.2	60.7	25.8	1.9
10.0	158.4	33.3	4.1	149.8	37.6	3.5	141.8	42.0	3.0	133.8	46.9	2.6	127.2	51.4	2.2	62.9	25.8	2.0
11.0	163.7	33.4	4.2	155.0	37.6	3.6	146.7	42.1	3.1	138.6	47.0	2.6	130.5	52.3	2.3	65.3	25.9	2.1

YCAL0042EB

COP=3.99

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT	25°C			30°C			35°C			40°C			45°C			50°C		
(°C)	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	148.6	38.5	3.4	141.1	42.8	2.9	133.3	47.7	2.5	125.4	53.0	2.1	117.6	58.7	1.8	82.4	45.1	1.6
6.0	153.0	39.1	3.4	146.0	43.1	3.0	138.0	47.9	2.6	129.9	53.2	2.2	121.9	59.0	1.9	85.5	45.3	1.7
7.0	158.3	39.3	3.5	151.1	43.3	3.1	142.8	48.2	2.7	134.6	53.5	2.3	126.3	59.3	1.9	88.7	45.4	1.7
8.0	163.8	39.4	3.6	156.2	43.5	3.2	147.7	48.4	2.7	139.2	53.8	2.4	130.8	59.6	2.0	91.9	45.7	1.8
9.0	169.4	39.6	3.8	160.9	44.0	3.2	152.1	49.0	2.8	144.0	54.1	2.4	135.4	59.9	2.1	95.2	45.8	1.9
10.0	175.1	39.8	3.9	166.3	44.2	3.3	157.4	49.2	2.9	148.9	54.4	2.5	140.0	60.3	2.1	98.6	46.0	1.9
11.0	180.9	40.0	4.0	171.9	44.5	3.4	162.7	49.5	3.0	153.5	55.0	2.5	108.3	42.0	2.3	101.6	46.6	2.0

YCAL0044EB

COP=4.02

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT	25°C			30°C			35°C			40°C			45°C			50°C		
(°C)	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	163.6	42.9	3.4	155.3	47.7	2.9	146.6	52.9	2.5	137.7	58.7	2.1	128.8	64.8	1.8	64.5	32.1	1.7
6.0	169.3	43.2	3.5	160.6	48.0	3.0	151.6	53.3	2.6	142.6	59.0	2.2	133.5	65.2	1.9	66.9	32.3	1.8
7.0	175°F	43.5	3.6	166.1	48.3	3.1	156.9	53.6	2.7	147.7	59.4	2.3	138.3	65.6	1.9	69.5	32.4	1.8
8.0	180.8	43.8	3.7	171.7	48.6	3.2	162.2	54.0	2.7	152.7	59.8	2.3	143.2	66.0	2.0	72.2	32.6	1.9
9.0	186.8	44.2	3.8	177.4	48.9	3.3	167.7	54.3	2.8	157.9	60.2	2.4	148.2	66.4	2.1	74.8	32.7	2.0
10.0	192.9	44.5	3.9	183.2	49.3	3.3	173.2	54.7	2.9	163.2	60.6	2.5	153.2	67.0	2.1	77.6	32.9	2.0
11.0	199.1	44.9	3.9	189.2	49.7	3.4	179.0	55.1	3.0	168.6	61.1	2.5	158.4	67.5	2.2	80.4	33.0	2.1

NOTES:

1. kW*o* = Unit kW Cooling Capacity Output
2. kW*i* = Compressor kW Input
3. COP = Coefficient of Performance (Based upon compressor and fan input kW)
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based upon 0.15L/s cooler water per kW

Ratings - *R-407C (SI Units)*

YCAL0050EB

COP=4.03

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT	25°C			30°C			35°C			40°C			45°C			50°C		
(°C)	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	178.1	48.7	3.3	169.3	54.2	2.8	160.1	60.1	2.4	150.7	66.7	2.1	105.8	50.7	1.9	71.2	36.2	1.7
6.0	184.2	49.1	3.4	175°F	54.5	2.9	165.5	60.6	2.5	155.9	67.1	2.1	109.5	51.0	1.9	73.7	36.5	1.8
7.0	190.3	49.4	3.5	180.9	54.9	3.0	171.1	61.0	2.6	161.2	67.6	2.2	113.4	51.3	2.0	76.6	36.6	1.8
8.0	196.5	49.8	3.6	186.8	55.3	3.1	176.8	61.4	2.6	166.6	68.1	2.3	117.5	51.6	2.1	79.4	36.7	1.9
9.0	202.9	50.2	3.6	192.9	55.7	3.2	182.6	61.8	2.7	172.1	68.6	2.3	121.6	51.9	2.1	82.3	36.9	1.9
10.0	209.3	50.6	3.7	199.1	56.1	3.2	188.5	62.3	2.8	177.7	69.1	2.4	125.8	52.2	2.2	85.2	37.1	2.0
11.0	216.0	51.1	3.8	205.4	56.6	3.3	194.6	62.8	2.9	183.5	69.6	2.4	130.1	52.5	2.2	88.3	37.2	2.1

YCAL0060EB

COP=4.26

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT	25°C			30°C			35°C			40°C			45°C			50°C		
(°C)	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	196.2	50.8	3.5	187.6	56.1	3.0	178.0	62.4	2.6	168.4	69.1	2.3	158.1	76.8	1.9	79.2	38.3	1.8
6.0	202.9	51.1	3.6	193.3	56.8	3.1	183.4	63.2	2.7	173.3	70.1	2.3	162.7	77.9	2.0	82.2	38.4	1.9
7.0	209.8	51.4	3.7	199.9	57.1	3.2	189.7	63.5	2.7	179.2	70.5	2.4	168.4	78.2	2.0	85.2	38.5	1.9
8.0	216.7	51.7	3.8	206.5	57.5	3.3	196.0	63.9	2.8	185.2	70.9	2.4	174.2	78.6	2.1	88.2	38.7	2.0
9.0	223.8	52.0	3.9	213.3	57.8	3.4	202.5	64.2	2.9	191.4	71.4	2.5	180.0	79.1	2.1	91.4	38.8	2.1
10.0	230.9	52.4	4.0	220.2	58.2	3.5	209.1	64.7	3.0	197.7	71.8	2.6	185.9	79.7	2.2	94.7	38.9	2.1
11.0	238.2	52.7	4.1	227.2	58.6	3.5	215.8	65.1	3.1	204.1	72.3	2.6	104.5	35.1	2.6	98.0	39.1	2.2

YCAL0064EB

COP=4.01

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT	25°C			30°C			35°C			40°C			45°C			50°C		
(°C)	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	219.1	59.7	3.3	207.5	66.4	2.8	195.8	73.8	2.4	183.9	81.9	2.1	172.3	90.5	1.8	113.0	61.6	1.7
6.0	226.5	60.1	3.4	214.6	66.9	2.9	202.5	74.3	2.5	190.4	82.4	2.1	178.4	91.2	1.8	116.9	62.2	1.7
7.0	233.9	60.5	3.5	221.7	67.3	3.0	209.3	74.9	2.6	196.9	83.0	2.2	155.5	72.0	2.0	121.2	62.5	1.8
8.0	241.5	61.0	3.6	229.1	67.8	3.1	216.3	75.4	2.6	203.6	83.6	2.3	161.0	72.4	2.0	125.7	62.8	1.8
9.0	249.4	61.5	3.7	236.6	68.3	3.2	223.4	76.0	2.7	210.3	84.2	2.3	166.6	72.8	2.1	130.3	63.1	1.9
10.0	257.4	61.9	3.7	244.1	68.8	3.2	230.7	76.5	2.8	217.3	84.9	2.4	172.4	73.2	2.2	135.0	63.4	1.9
11.0	265.5	62.5	3.8	251.9	69.4	3.3	238.2	77.1	2.8	224.4	85.5	2.4	178.3	73.7	2.2	139.8	63.7	2.0

YCAL0070EB

COP=4.05

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT	25°C			30°C			35°C			40°C			45°C			50°C		
(°C)	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	244.4	65.2	3.4	231.7	72.5	2.9	218.6	80.7	2.5	205.2	89.5	2.1	191.8	98.9	1.8	125.9	67.3	1.7
6.0	252.6	65.7	3.5	239.6	73.0	3.0	226.1	81.2	2.6	212.3	90.1	2.2	198.7	99.5	1.9	130.6	67.7	1.8
7.0	261.1	66.2	3.6	247.6	73.5	3.1	233.7	81.8	2.6	219.7	90.7	2.3	205.7	100.2	1.9	135.4	68.1	1.8
8.0	269.7	66.7	3.7	255.8	74.1	3.2	241.6	82.3	2.7	227.2	91.3	2.3	212.9	100.9	2.0	139.5	69.1	1.8
9.0	278.5	67.2	3.8	264.2	74.6	3.2	249.6	82.9	2.8	234.8	92.0	2.4	220.2	101.7	2.0	144.7	69.4	1.9
10.0	287.5	67.8	3.9	272.8	75.2	3.3	257.8	83.6	2.9	242.6	92.7	2.4	160.5	63.1	2.3	150.0	69.8	2.0
11.0	296.7	68.4	3.9	281.6	75.8	3.4	266.2	84.2	2.9	250.7	93.4	2.5	166.2	63.4	2.4	155.5	70.1	2.0

NOTES:

1. kW*o* = Unit kW Cooling Capacity Output
2. kW*i* = Compressor kW Input
3. COP = Coefficient of Performance (Based upon compressor and fan input kW)
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based upon 0.15L/s cooler water per kW

YCAL0074EB

COP=4.17

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP
5.0	265.6	72.1	3.4	252.2	80.2	2.9	238.3	89.2	2.5	224.1	99.1	2.1	176.4	85.8	1.9	138.2	74.4	1.7
6.0	274.4	72.7	3.5	260.6	80.9	3.0	246.3	89.9	2.6	231.7	99.8	2.2	182.7	86.3	2.0	143.3	74.8	1.8
7.0	283.4	73.3	3.5	269.2	81.5	3.1	254.5	90.6	2.6	239.5	100.5	2.2	189.1	86.8	2.0	148.4	75.2	1.8
8.0	292.6	73.9	3.6	278.0	82.1	3.1	262.9	91.3	2.7	247.4	101.3	2.3	195.7	87.4	2.1	153.3	76.0	1.9
9.0	301.9	74.5	3.7	286.9	82.8	3.2	271.4	92.0	2.8	255.5	102.1	2.4	202.3	87.9	2.1	158.8	76.3	1.9
10.0	311.5	75.2	3.8	296.0	83.5	3.3	280.1	92.7	2.8	263.8	102.9	2.4	175.8	69.3	2.3	164.3	76.8	2.0
11.0	321.2	75.9	3.9	305.3	84.2	3.4	288.9	93.5	2.9	272.3	103.7	2.5	181.8	69.7	2.4	170.0	77.2	2.0

YCAL0080EB

COP=4.22

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP
5.0	289.2	79.7	3.3	274.8	88.8	2.9	260.0	98.7	2.5	244.7	109.6	2.1	162.1	74.0	2.0	151.1	82.1	1.7
6.0	298.5	80.5	3.4	283.8	89.5	3.0	268.5	99.4	2.5	252.8	110.4	2.2	167.8	74.3	2.1	156.5	82.5	1.8
7.0	308.2	81.2	3.5	293.0	90.2	3.0	277.3	100.3	2.6	261.1	111.3	2.2	173.7	74.8	2.1	162.0	83.0	1.8
8.0	317.9	81.9	3.6	302.4	91.0	3.1	286.2	101.1	2.7	269.5	112.2	2.3	179.7	75.2	2.2	167.7	83.4	1.9
9.0	328.0	82.6	3.7	312.0	91.7	3.2	295.3	101.9	2.7	278.1	113.2	2.3	185.8	75.6	2.3	173.4	83.9	1.9
10.0	338.2	83.3	3.8	321.7	92.5	3.2	304.6	102.8	2.8	286.9	114.1	2.4	192.1	76.1	2.3	179.3	84.4	2.0
11.0	348.6	84.1	3.8	331.5	93.5	3.3	314.0	103.7	2.8	295.9	115.1	2.4	198.5	76.5	2.4	185.4	84.9	2.0

YCAL0090EB

COP=3.98

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP
5.0	292.8	74.6	3.4	278.8	82.1	3.0	264.1	90.5	2.6	248.3	100.2	2.2	232.8	110.2	1.9	212.8	124.3	1.6
6.0	303.1	75.2	3.5	288.7	82.7	3.1	273.6	91.1	2.7	257.3	100.7	2.3	241.3	110.9	2.0	221.0	124.7	1.6
7.0	313.6	75.7	3.6	298.8	83.3	3.2	283.2	91.7	2.8	266.6	101.3	2.4	250.0	111.5	2.0	229.4	125.1	1.7
8.0	324.3	76.3	3.7	309.1	83.9	3.3	293.1	92.4	2.8	276.0	102.0	2.5	257.7	113.0	2.1	238.0	125.6	1.7
9.0	335.2	76.9	3.8	319.6	84.6	3.4	303.1	93.1	2.9	285.6	102.6	2.5	266.9	113.6	2.2	246.8	126.2	1.8
10.0	346.2	77.7	3.9	330.3	85.3	3.4	313.4	93.8	3.0	295.4	103.3	2.6	276.2	114.3	2.2	255.6	126.8	1.9

YCAL0094EB

COP=3.92

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25°C			30°C			35°C			40°C			45°C			50°C		
	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP	kWo	kW*i*	COP
5.0	314.9	82.1	3.4	300.3	90.2	3.0	285.2	99.0	2.6	269.1	109.0	2.3	251.7	120.3	1.9	232.8	133.1	1.6
6.0	325.7	82.8	3.5	310.7	90.9	3.1	295.1	99.8	2.7	278.6	109.8	2.3	260.7	121.0	2.0	241.4	133.8	1.7
7.0	336.8	83.5	3.6	321.3	91.7	3.1	305.2	100.6	2.7	288.2	110.6	2.4	269.9	121.8	2.0	250.1	134.6	1.7
8.0	348.1	84.2	3.7	332.1	92.4	3.2	315.5	101.4	2.8	298.0	111.4	2.4	279.2	122.7	2.1	259.0	135.3	1.8
9.0	359.6	84.9	3.8	343.1	93.2	3.3	326.0	102.3	2.9	308.0	112.3	2.5	288.8	123.5	2.2	268.1	136.1	1.8
10.0	371.1	85.7	3.9	354.4	94.0	3.4	336.8	103.2	3.0	318.3	113.2	2.6	298.5	124.4	2.2	277.3	137.1	1.9
11.0	383.1	86.4	3.9	365.9	94.8	3.5	347.8	104.0	3.0	328.7	114.1	2.6	308.4	125.4	2.3	286.9	137.9	1.9

NOTES:

1. kW*o* = Unit kW Cooling Capacity Output
2. kW*i* = Compressor kW Input
3. COP = Coefficient of Performance (Based upon compressor and fan input kW)
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based upon 0.15L/s cooler water per kW

Ratings - R-407C (SI Units)

YCAL0104EB

COP=4.10

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	351.9	94.2	3.4	334.3	103.9	2.9	315.5	115.0	2.5	295.4	127.9	2.1	273.6	142.9	1.8	213.4	122.9	1.6
6.0	363.8	95.1	3.4	345.6	104.9	3.0	326.3	116.0	2.6	305.6	128.9	2.2	283.3	143.9	1.8	221.4	123.5	1.7
7.0	375.9	96.0	3.5	357.2	105.9	3.1	337.4	117.0	2.6	316.1	130.0	2.2	293.2	144.9	1.9	229.6	124.2	1.7
8.0	388.3	97.0	3.6	369.1	106.9	3.1	348.6	118.2	2.7	326.8	131.0	2.3	303.5	145.9	1.9	237.9	124.9	1.8
9.0	401.0	98.0	3.7	381.1	108.0	3.2	360.1	119.3	2.8	337.8	132.1	2.4	313.9	147.0	2.0	246.4	125.6	1.8
10.0	413.9	99.0	3.8	393.5	109.1	3.3	371.9	120.4	2.8	349.0	133.3	2.4	324.6	148.1	2.0	255.1	126.4	1.9
11.0	427.0	100.1	3.9	406.1	110.2	3.4	384.0	121.5	2.9	360.5	134.4	2.5	335.5	149.2	2.1	198.9	88.4	2.0

YCAL0114EB

COP=4.06

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	394.9	102.1	3.4	375°F	112.8	3.0	353.7	125.1	2.5	330.6	139.7	2.2	305.8	157.0	1.8	278.8	177.7	1.5
6.0	408.5	103.0	3.5	388.1	113.7	3.0	366.2	126.1	2.6	342.6	140.6	2.2	317.0	157.9	1.8	289.5	178.3	1.5
7.0	422.4	103.9	3.6	401.4	114.7	3.1	378.9	127.1	2.7	354.7	141.5	2.3	328.5	158.7	1.9	300.4	179.0	1.6
8.0	436.5	104.9	3.7	415.0	115.7	3.2	392.0	128.1	2.8	367.1	142.5	2.3	340.3	159.6	2.0	311.6	179.8	1.6
9.0	450.9	106.0	3.8	428.9	116.8	3.3	405.2	129.2	2.8	379.7	143.6	2.4	352.4	160.6	2.0	323.1	180.6	1.7
10.0	465.6	107.1	3.8	443.0	117.9	3.4	418.7	130.3	2.9	392.7	144.7	2.5	364.7	161.6	2.1	334.9	181.4	1.7
11.0	480.7	108.2	3.9	457.5	119.1	3.4	432.6	131.4	3.0	405.9	145.8	2.5	377.4	162.6	2.1	347.0	182.3	1.8

YCAL0124EB

COP=3.91

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP	kWo	kWi	COP
5.0	425.1	114.2	3.3	404.5	125.8	2.9	382.5	139.0	2.5	358.9	154.1	2.1	333.4	171.7	1.8	258.3	152.3	1.6
6.0	439.5	115.3	3.4	418.3	127.0	3.0	395.7	140.1	2.6	371.5	155.2	2.2	345.3	172.8	1.8	268.1	152.9	1.6
7.0	454.2	116.4	3.5	432.3	128.1	3.0	409.2	141.4	2.6	384.3	156.4	2.3	357.5	173.9	1.9	278.0	153.7	1.7
8.0	469.2	117.6	3.6	446.7	129.4	3.1	422.9	142.6	2.7	397.2	157.7	2.3	369.9	175.1	2.0	288.2	154.4	1.7
9.0	484.5	118.7	3.6	461.4	130.6	3.2	436.8	143.9	2.8	410.7	159.0	2.4	382.6	176.3	2.0	298.6	155.2	1.8
10.0	500.2	119.9	3.7	476.3	131.9	3.3	451.2	145.1	2.8	424.4	160.3	2.4	395.6	177.6	2.1	309.2	156.1	1.8
11.0	516.1	121.1	3.8	491.7	133.1	3.3	465.8	146.5	2.9	438.4	161.6	2.5	408.9	178.9	2.1	320.1	156.9	1.9

Part Load Ratings - R-22 (English Units)

YCAL0014EC

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	13.2	13.7	9.6
50.0	69.0	7.5	4.9	14.2
IPLV:13.1 EER				

YCAL0020EC

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	18.0	19.7	9.6
50.0	69.0	10.2	6.9	14.8
IPLV:13.6 EER				

YCAL0024EC

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	22.4	24.5	9.9
50.0	68.6	12.5	8.8	14.7
IPLV: 13.6EER				

YCAL0030EC

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	28.3	30.5	10.2
50.0	68.0	15.5	10.7	15.4
IPLV:14.1 EER				

YCAL0034EC

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	34.0	38.9	9.8
66.7	79.4	25.1	19.9	13.3
33.3	58.1	13.1	7.9	16.9
IPLV:14.6 EER				

YCAL0040EC

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	38.7	39.0	10.4
75°F	82.6	30.7	24.3	12.3
50.0	68.0	21.3	13.5	15.7
25.0	55.0	10.7	5.8	17.9
IPLV:14.9 EER				

YCAL0042EC

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	42.9	45.1	10.1
78.2	83.7	34.8	30.1	11.7
50.0	67.9	23.5	15.9	15.1
28.2	55.0	13.0	8.1	16.5
IPLV:14.2 EER				

YCAL0044EC

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	47.1	50.4	10.1
75°F	82.8	37.5	31.8	12.0
50.0	68.0	25.9	18.1	14.9
25.0	55.0	13.1	8.0	16.7
IPLV:14.2 EER				

YCAL0050EC

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	51.1	57.8	9.7
76.5	83.9	41.6	38.5	11.3
50.0	68.3	28.3	20.4	14.6
26.5	55.0	15.9	9.8	17.0
IPLV:14.0 EER				

YCAL0060EC

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	56.2	60.6	10.2
75°F	82.9	44.8	38.0	12.3
50.0	68.2	31.1	21.5	15.4
25.0	55.0	15.8	9.3	17.7
IPLV:14.7 EER				

YCAL0064EC

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	63.1	70.5	9.8
85.5	88.0	55.7	54.0	11.0
66.7	79.2	46.4	35.7	13.1
52.2	69.3	36.0	27.1	14.2
33.3	58.6	24.8	13.9	17.2
18.8	55.0	12.9	7.7	16.5
IPLV:14.4 EER				

YCAL0070EC

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	70.2	77.3	10.0
83.3	87.3	61.3	57.2	11.5
66.7	79.0	51.5	39.8	13.2
50.0	67.7	38.2	28.5	14.4
33.3	57.6	26.4	15.9	16.4
16.7	55.0	13.0	7.8	16.5
IPLV:14.3 EER				

YCAL0074EC				
% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	76.0	86.4	9.8
84.3	88.0	67.1	66.2	11.0
66.7	79.3	56.1	43.9	13.3
51.0	68.6	42.5	33.5	13.8
33.3	58.1	29.2	17.3	17.0
17.7	55.0	15.8	9.0	17.7
IPLV:14.4 EER				

YCAL0080EC				
% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	82.2	95.3	9.7
83.3	87.5	71.9	69.9	11.3
66.7	79.4	60.8	47.8	13.4
50.0	67.9	45.0	34.4	14.3
33.3	58.0	31.6	18.3	17.4
16.7	55.0	15.6	8.9	17.7
IPLV:14.6 EER				

YCAL0090EC				
% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	83.2	86.5	10.3
77.8	83.3	67.0	58.2	12.0
50.0	66.9	44.2	33.4	14.4
27..8	55.0	24.5	16.5	16.1
IPLV:13.8 EER				

YCAL0094EC				
% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	89.9	94.6	10.2
75°F	82.5	71.2	61.1	12.2
50.0	67.3	48.4	37.1	14.3
25.0	55.0	24.4	16.4	16.1
IPLV:13.8 EER				

YCAL0104EC				
% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	99.6	110.9	9.8
81.8	86.7	85.9	78.7	11.5
59.1	74.4	65.4	49.0	13.5
40.9	61.9	44.6	31.3	15.4
18.2	55.0	20.2	12.9	16.5
IPLV:14.0 EER				

YCAL0114EC				
% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	111.1	121.1	9.8
83.3	87.2	96.6	90.1	11.1
66.7	77.2	78.1	67.9	12.5
50.0	67.4	59.9	45.5	14.1
33.3	56.9	40.5	26.6	16.1
16.7	55.0	20.0	13.0	16.3
IPLV:13.7 EER				

YCAL0124EC				
% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	121.0	134.0	9.8
85.2	87.8	106.4	102.6	10.9
66.7	77.3	85.3	75.8	12.3
51.9	68.3	67.2	53.2	13.8
33.3	57.1	44.6	30.0	15.9
18.5	55.0	23.9	16.2	16.0
IPLV:13.5 EER				

Part Load Ratings - R-22 (SI Units)

YCAL0014EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	46.5	13.7	2.81
50.0	20.6	26.4	4.9	4.17
IPLV:3.85 COP				

YCAL0020EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	63.4	19.7	2.82
50.0	20.6	36.0	6.9	4.35
IPLV:4.00 COP				

YCAL0024EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	78.8	24.5	2.89
50.0	20.3	44.1	8.8	4.31
IPLV:3.98 COP				

YCAL0030EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	99.6	30.5	2.99
50.0	20.0	54.7	10.7	4.50
IPLV:4.14 COP				

YCAL0034EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	119.6	38.9	2.87
66.7	26.3	88.4	19.9	3.90
33.3	14.5	46.0	7.9	4.96
IPLV:4.29 COP				

YCAL0040EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	136.2	39.0	3.06
75°F	28.1	108.1	24.3	3.61
50.0	20.0	75°F	13.5	4.60
25.0	12.8	37.6	5.8	5.24
IPLV:4.37 COP				

YCAL0042EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	150.7	45.1	2.97
78.2	28.7	122.4	30.1	3.43
50.0	20.0	82.7	15.9	4.42
28.2	12.8	45.8	8.1	4.83
IPLV:4.16 COP				

YCAL0044EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	165.8	50.4	2.96
75°F	28.2	132.0	31.8	3.53
50.0	20.0	91.2	18.1	4.37
25.0	12.8	46.1	8.0	4.91
IPLV:4.17 COP				

YCAL0050EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	179.6	57.8	2.83
76.5	28.8	146.4	38.5	3.32
50.0	20.2	99.7	20.4	4.29
26.5	12.8	55.8	9.8	4.99
IPLV:4.11 COP				

YCAL0060EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	197.6	60.6	2.98
75°F	28.3	157.6	38.0	3.62
50.0	20.1	109.3	21.5	4.50
25.0	12.8	55.6	9.3	5.18
IPLV:4.32 COP				

YCAL0064EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	221.8	70.5	2.87
85.5	31.1	195.9	54.0	3.22
66.7	26.2	163.2	35.7	3.84
52.2	20.7	126.6	27.1	4.15
33.3	14.8	87.1	13.9	5.04
18.8	12.8	45.5	7.7	4.83
IPLV:4.23 COP				

YCAL0070EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	247.0	77.3	2.94
83.3	30.7	215.5	57.2	3.37
66.7	26.1	181.0	39.8	3.88
50.0	19.8	134.5	28.5	4.22
33.3	14.2	92.9	15.9	4.81
16.7	12.8	45.7	7.8	4.83
IPLV:4.18 COP				

YCAL0074EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	267.1	86.4	2.87
84.3	31.1	235.9	66.2	3.23
66.7	26.3	197.2	43.9	3.89
51.0	20.3	149.3	33.5	4.05
33.3	14.5	102.9	17.3	4.98
17.7	12.8	55.6	9.0	5.17
IPLV:4.22 COP				

YCAL0080EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	289.0	95.3	2.83
83.3	30.8	253.0	69.9	3.30
66.7	26.3	213.9	47.8	3.92
50.0	19.9	158.4	34.4	4.19
33.3	14.5	111.0	18.3	5.10
16.7	12.8	54.9	8.9	5.19
IPLV:4.28 COP				

YCAL0090EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	292.7	86.5	3.01
77.8	28.5	235.7	58.2	3.51
50.0	19.4	155.6	33.4	4.21
27..8	12.8	86.2	16.5	4.72
IPLV:4.04 COP				

YCAL0094EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	316.3	94.6	3.00
75°F	28.1	250.4	61.1	3.57
50.0	19.6	170.2	37.1	4.18
25.0	12.8	85.9	16.4	4.71
IPLV: 4.05 COP				

YCAL0104EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	350.4	110.9	2.88
81.8	30.4	302.1	78.7	3.37
59.1	23.5	229.9	49.0	3.96
40.9	16.6	157.0	31.3	4.50
18.2	12.8	70.9	12.9	4.83
IPLV:4.12 COP				

YCAL0114EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	390.6	121.1	2.88
83.3	30.7	339.9	90.1	3.25
66.7	25.1	274.6	67.9	3.66
50.0	19.6	210.6	45.5	4.13
33.3	13.8	142.6	26.6	4.72
16.7	12.8	70.5	13.0	4.77
IPLV:4.01 COP				

YCAL0124EC				
% DISPL.	AMBIENT DEG C	UNIT kW*o*	COMPR kW*i*	COP
100.0	35.0	425.4	134.0	2.87
85.2	31.0	374.1	102.6	3.20
66.7	25.2	300.1	75.8	3.62
51.9	20.2	236.3	53.2	4.03
33.3	14.0	156.9	30.0	4.67
18.5	12.8	84.1	16.2	4.68
IPLV:3.96 COP				

Part Load Ratings - R-407C (English Units)

YCAL0014EB

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	12.7	14.8	8.6
50.0	69.7	7.3	5.0	13.7
IPLV:12.6 EER				

YCAL0020EB

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	17.4	21.2	8.7
50.0	70.1	10.2	7.2	14.1
IPLV:12.9 EER				

YCAL0024EB

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	21.7	26.1	9.0
50.0	69.9	12.6	9.2	14.4
IPLV:13.2 EER				

YCAL0030EB

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	26.7	32.0	9.2
50.0	69.5	15.4	11.0	14.9
IPLV:13.6 EER				

YCAL0034EB

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	31.7	40.7	8.7
66.7	80.5	24.0	20.9	12.2
33.3	59.9	13.1	8.1	16.6
IPLV:14.1 EER				

YCAL0040EB

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	36.3	40.9	9.4
75°F	83.2	29.2	25.7	11.2
50.0	69.4	20.8	14.0	14.9
25.0	55.0	10.7	5.9	17.7
IPLV:14.3 EER				

YCAL0042EB

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	40.2	48.1	9.0
75°F	84.4	33.1	32.1	10.5
50.0	69.6	23.2	16.6	14.3
25.0	55.0	13.1	8.2	16.3
IPLV:13.6 EER				

YCAL0044EB

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	44.1	53.5	9.0
75°F	83.7	35.8	33.7	10.9
50.0	69.8	25.6	18.7	14.3
25.0	55.0	13.2	8.1	16.6
IPLV:13.7 EER				

YCAL0050EB

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	48.1	60.8	8.7
76.5	84.6	39.8	40.4	10.4
50.0	69.9	28.0	21.1	14.0
26.5	54.9	15.9	9.6	17.3
IPLV:13.7 EER				

YCAL0060EB

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	53.3	63.4	9.3
75°F	83.5	43.1	39.8	11.4
50.0	69.6	30.8	22.0	14.9
25.0	55.0	16.0	9.1	18.3
IPLV:14.5 EER				

YCAL0064EB

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	58.9	74.7	8.7
85.5	88.5	52.5	57.2	9.8
66.7	80.3	44.4	38.0	11.9
52.2	70.2	34.5	28.1	13.2
33.3	59.6	24.1	14.3	16.4
18.8	55.0	13.1	7.9	16.4
IPLV:13.7 EER				

YCAL0070EB

% DISPL.	AMBIENT DEG F	TONS	COMPR kW	EER
100.0	95.0	65.7	81.6	8.9
83.3	88.0	58.0	60.3	10.4
66.7	80.1	49.5	42.0	12.2
50.0	69.4	37.6	29.4	13.8
33.3	59.4	26.7	16.4	16.2
16.7	55.0	13.1	7.9	16.4
IPLV:13.8 EER				

YCAL0074EB				
% DISPL.	**AMBIENT DEG F**	**TONS**	**COMPR kW**	**EER**
100.0	95.0	71.6	90.3	8.8
84.3	88.6	63.9	69.1	10.1
66.7	80.3	54.1	45.9	12.3
51.0	70.0	41.7	34.6	13.2
33.3	59.6	29.4	17.4	17.0
17.7	55.0	16.1	8.7	18.6
IPLV:14.2 EER				

YCAL0080EB				
% DISPL.	**AMBIENT DEG F**	TONS	COMPR kW	EER
100.0	**95.0**	78.0	100.0	8.8
83.3	88.0	68.9	73.6	10.3
66.7	80.3	58.9	50.4	12.4
50.0	69.2	44.4	35.8	13.6
33.3	59.7	32.1	18.4	17.7
16.7	55.0	15.9	8.6	18.5
IPLV:14.4 EER				

YCAL0090EB				
% DISPL.	**AMBIENT DEG F**	**TONS**	**COMPR kW**	**EER**
100.0	95.0	79.6	91.5	9.3
77.8	84.1	65.1	61.3	11.1
50.0	68.4	44.3	34.2	14.0
27.8	55.0	24.6	16.1	16.5
IPLV:13.6 EER				

YCAL0094EB				
% DISPL.	**AMBIENT DEG F**	**TONS**	**COMPR kW**	**EER**
100.0	95.0	85.8	100.3	9.3
75°F	83.1	68.8	64.5	11.2
50.0	68.2	47.5	38.0	13.7
25.0	55.0	24.5	16.1	16.5
IPLV:13.4 EER				

YCAL0104EB				
% DISPL.	**AMBIENT DEG F**	**TONS**	**COMPR kW**	**EER**
100.0	95.0	94.9	116.7	8.9
81.8	87.4	82.9	83.2	10.6
59.1	75.8	64.5	51.0	12.9
40.9	63.5	45.0	31.7	15.3
18.2	55.0	20.8	12.4	17.5
IPLV:14.0 EER				

YCAL0114EB				
% DISPL.	**AMBIENT DEG F**	**TONS**	**COMPR kW**	**EER**
100.0	95.0	106.5	126.7	9.1
83.3	87.8	93.9	94.5	10.3
66.7	78.6	77.5	70.1	12.0
50.0	69.1	60.5	46.5	14.0
33.3	58.6	41.8	26.5	16.7
16.7	55.0	20.7	12.5	17.3
IPLV:13.9 EER				

YCAL0124EB				
% DISPL.	**AMBIENT DEG F**	**TONS**	**COMPR kW**	**EER**
100.0	95.0	115.1	140.9	8.9
85.2	88.3	102.2	108.5	10.0
66.7	78.5	83.3	78.8	11.6
51.9	69.6	66.3	54.9	13.2
33.3	58.6	45.2	29.9	16.2
18.5	55.0	24.2	15.7	16.5
IPLV:13.3 EER				

Part Load Ratings - R-407C (SI Units)

YCAL0014EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	44.5	14.8	2.53
50.0	21.0	25.8	5.0	4.03
IPLV:3.69 COP				

YCAL0020EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	61.1	21.2	2.55
50.0	21.2	35.8	7.2	4.14
IPLV:3.79 COP				

YCAL0024EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	76.4	26.1	2.64
50.0	21.1	44.5	9.2	4.21
IPLV:3.86 COP				

YCAL0030EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	94.0	32.0	2.70
50.0	20.9	54.1	11.0	4.36
IPLV:3.98 COP				

YCAL0034EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	111.3	40.7	2.56
66.7	27.0	84.5	20.9	3.57
33.3	15.5	46.2	8.1	4.86
IPLV:4.13 COP				

YCAL0040EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	127.6	40.9	2.75
75°F	28.5	102.6	25.7	3.28
50.0	20.8	73.1	14.0	4.36
25.0	12.8	37.6	5.9	5.19
IPLV:4.18 COP				

YCAL0042EB				
% DISPL.	AMBIENT DEG C	KW	COMPR kW	COP
100.0	35.0	141.2	48.1	2.63
75°F	29.1	116.2	32.1	3.08
50.0	20.9	81.5	16.6	4.19
25.0	12.8	46.0	8.2	4.79
IPLV:3.99 COP				

YCAL0044EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	155.1	53.5	2.62
75°F	28.7	125.9	33.7	3.20
50.0	21.0	90.1	18.7	4.18
25.0	12.8	46.3	8.1	4.86
IPLV:4.02 COP				

YCAL0050EB				
% DISPL.	AMBIENT DEG C	KW	COMPR kW	COP
100.0	35.0	169.3	60.8	2.55
76.5	29.2	140.1	40.4	3.04
50.0	21.0	98.3	21.1	4.11
26.5	12.7	56.1	9.6	5.08
	IPLV:	4.03	COP	

YCAL0060EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	187.5	63.4	2.72
75°F	28.6	151.6	39.8	3.34
50.0	20.9	108.2	22.0	4.37
25.0	12.8	56.1	9.1	5.35
IPLV:4.26 COP				

YCAL0064EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	207.0	74.7	2.54
85.5	31.4	184.5	57.2	2.88
66.7	26.8	156.3	38.0	3.49
52.2	21.2	121.4	28.1	3.85
33.3	15.3	84.8	14.3	4.79
18.8	12.8	46.0	7.9	4.80
IPLV:4.01 COP				

YCAL0070EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	231.2	81.6	2.62
83.3	31.1	204.1	60.3	3.04
66.7	26.7	173.9	42.0	3.56
50.0	20.8	132.4	29.4	4.04
33.3	15.2	93.9	16.4	4.73
16.7	12.8	46.2	7.9	4.80
IPLV:4.05 COP				

YCAL0074EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	251.8	90.3	2.59
84.3	31.4	224.8	69.1	2.96
66.7	26.9	190.3	45.9	3.61
51.0	21.1	146.8	34.6	3.86
33.3	15.3	103.3	17.4	4.98
17.7	12.8	56.7	8.7	5.45
IPLV:4.17 COP				

YCAL0080EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	274.4	100.0	2.57
83.3	31.1	242.2	73.6	3.01
66.7	26.8	207.2	50.4	3.62
50.0	20.6	156.2	35.8	3.99
33.3	15.4	112.8	18.4	5.17
16.7	12.8	56.0	8.6	5.43
IPLV:4.22 COP				

YCAL0090EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	280.0	91.5	2.74
77.8	28.9	229.1	61.3	3.26
50.0	20.2	155.7	34.2	4.12
27.8	12.8	86.6	16.1	4.84
IPLV:3.98 COP				

YCAL0094EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	301.8	100.3	2.72
75°F	28.4	241.9	64.5	3.29
50.0	20.1	167.1	38.0	4.01
25.0	12.8	86.3	16.1	4.83
IPLV:3.92 COP				

YCAL0104EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	333.7	116.7	2.62
81.8	30.8	291.5	83.2	3.10
59.1	24.3	226.8	51.0	3.78
40.9	17.5	158.4	31.7	4.49
18.2	12.8	73.1	12.4	5.13
IPLV:4.10 COP				

YCAL0114EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	374.7	126.7	2.66
83.3	31.0	330.1	94.5	3.03
66.7	25.9	272.5	70.1	3.53
50.0	20.6	212.7	46.5	4.10
33.3	14.8	147.1	26.5	4.88
16.7	12.8	72.6	12.5	5.07
IPLV:4.06 COP				

YCAL0124EB				
% DISPL.	AMBIENT DEG C	UNIT kWo	COMPR kWi	COP
100.0	35.0	404.7	140.9	2.61
85.2	31.3	359.5	108.5	2.92
66.7	25.8	293.1	78.8	3.41
51.9	20.9	233.3	54.9	3.87
33.3	14.8	159.1	29.9	4.75
18.5	12.8	84.9	15.7	4.84
IPLV:3.91 COP				

Physical Data - *(English Units)*

	Model Number YCAL							
	0014	**0020**	**0024**	**0030**	**0034**	**0040**	**0042**	**0044**
General Unit Data								
Nominal Tons, R-22	13.2	18.0	22.4	28.3	34.0	38.7	42.9	47.1
Nominal Tons, R-407C	12.7	17.4	21.7	26.7	31.7	36.3	40.2	44.1
Number of Refrigerant Circuits	1	1	1	1	1	2	2	2
Refrigerant Charge								
R-22, ckt1 / ckt2, lbs	32	38	58	65	69	45/45	54/45	54/54
R-407C, ckt1 / ckt2, lbs	32	38	58	65	69	45/45	54/45	52/52
Oil Charge, ckt1 / ckt2, gallons	2.2	2.2	2.2	2.2	3.3	2.2/2.2	2.2/2.2	2.2/2.2
Shipping Weight								
Aluminum Fin Coils, lbs	2472	2488	2857	2933	3279	4689	4752	4822
Copper Fin Coils, lbs	2622	2638	3007	3083	3429	4989	5052	5122
Operating Weight								
Aluminum Fin Coils, lbs	2548	2564	2940	3036	3381	4931	4994	5064
Copper Fin Coils, lbs	2762	2778	3275	3371	3717	5300	5363	5433
Compressors, scroll type								
Compressors per circuit	2	2	2	2	3	2	2	2
Compressors per unit	2	2	2	2	3	4	4	4
Nominal Tons per compressor	7.5	10	13	15	13	10/10	13/10	13/13
Condenser								
Total Face Area ft2	47.2	47.2	66.1	66.1	66.1	128.0	128.0	128.0
Number of Rows	2	2	2	3	3	2	2	2
Fins per Inch	13	13	13	13	13	13	13	13
Condenser Fans								
Number of Fans total	2	2	2	2	2	4	4	4
Fan hp/kw	2 / 1.4	2 / 1.4	2 / 1.4	2 / 1.4	2 / 1.4	2 / 1.4	2 / 1.4	2 / 1.4
Fan RPM	1140	1140	1140	1140	1140	1140	1140	1140
Number of Blades	3	3	3	3	3	3	3	3
Total Chiller CFM	16257	16257	23500	23500	23500	47360	47360	47360
Evaporator, Direct Expansion								
Diameter x Length	8”x6’	8”x6’	8”x6.5’	8”x7’	8”x7’	10”x8’	10”x8’	10”x8’
Water Volume, gallons	9.2	9.2	10.0	12.3	12.3	29.1	29.1	29.1
Maximum Water Side Pressure, PSIG	150	150	150	150	150	150	150	150
Maximum Refrigerant Side Pressure, PSIG	350	350	350	350	350	350	350	350
Minimum Chiller Water Flow Rate, gpm	25	25	30	35	60	60	60	60
Maximum Chiller Water Flow Rate, gpm	60	60	70	170	170	300	300	300
Water Connections, inches	3	3	3	4	4	6	6	6

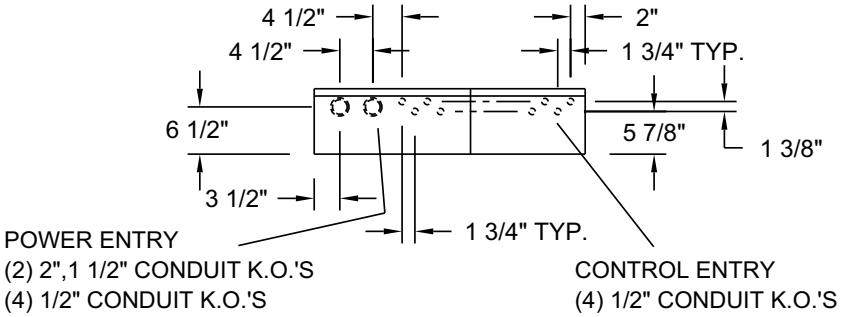
Model Number YCAL										
0050	**0060**	**0064**	**0070**	**0074**	**0080**	**0090**	**0094**	**0104**	**0114**	**0124**
51.1	56.2	63.1	70.2	76.0	82.2	83.2	89.9	99.6	111.1	121.0
48.1	53.3	58.9	65.7	71.6	78.0	79.6	85.8	94.9	106.5	115.1
2	2	2	2	2	2	2	2	2	2	2
60/54	72/72	75/62	75/75	92/83	100/100	94/77	94/94	112/94	112/112	137/112
60/54	57/57	67/57	67/67	88/67	88/88	90/74	90/90	108/90	108/108	132/108
2.2/2.2	2.2/2.2	3.3/3.3	3.3/3.3	3.3/3.3	3.3/3.3	4.2/4.2	4.2/4.2	6.3/4.2	6.3/6.3	6.3/6.3
4906	4994	5866	6045	6217	6448	6541	6619	7434	8824	8842
5206	5294	6166	6425	6597	6828	7369	7448	8378	10083	10107
5148	5236	6208	6386	6558	6779	6981	7059	7923	9313	9331
5517	5605	6651	6829	7001	7222	7809	7888	8867	10572	10596
2	2	3	3	3	3	2	2	3/2	3	3
4	4	6	6	6	6	4	4	5	6	6
15/13	15/15	13/10	13/13	15/13	15/15	25/20	25/25	20/25	20/20	25/20
128.0	128.0	149.3	149.3	149.3	149.3	168.0	168.0	192.0	222.0	222.0
2	3	2	3	3	3	3	3	3	3	3
13	13	13	13	13	13	13	13	13	13	13
4	4	4	4	4	4	6	6	6	8	8
2 / 1.4	2 / 1.4	2 / 1.7	2 / 1.7	2 / 1.7	2 / 1.7	2/1.8	2/1.8	2/1.8	2/1.8	2/1.8
1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
3	3	3	3	3	3	3	3	3	3	3
47360	46080	55253	55253	54550	53760	79800	79800	85800	106400	106400
10”x8’	10”x8’	12”x8’	12”x8’	12”x8’	12”x8’	14”x8’	14”x8’	15”x8’	15”x8’	15”x8’
29.1	29.1	41.2	41.2	41.2	39.9	53.0	53.0	58.9	58.9	58.9
150	150	150	150	150	150	150	150	150	150	150
350	350	350	350	350	350	350	350	350	350	350
60	60	100	100	100	100	125	138	150	165	180
300	300	350	350	350	385	525	525	625	625	625
6	6	6	6	6	6	8	8	8	8	8

Physical Data - *(SI Units)*

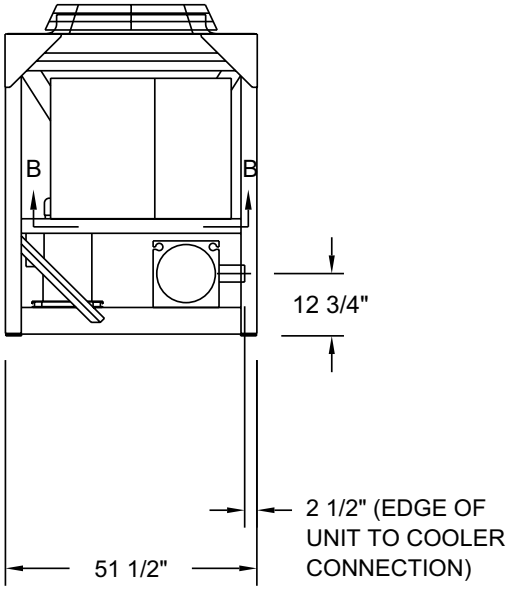
	Model Number YCAL							
	0014	**0020**	**0024**	**0030**	**0034**	**0040**	**0042**	**0044**
General Unit Data								
Nominal kW, R-22	46.4	63.3	78.8	99.5	119.6	136.1	150.9	165.7
Nominal kW, R-407C	44.7	61.2	76.3	93.9	111.5	127.7	141.4	155.1
Number of Refrigerant Circuits	1	1	1	1	1	2	2	2
Refrigerant Charge								
R-22, ckt1 / ckt2, kg	14.5	17.3	24.4	29.5	31.4	20.5/20.5	24.5/20.5	24.5/24.5
R-407C, ckt1 / ckt2, kg	14.5	17.3	24.4	29.5	31.4	20.5/20.5	24.5/20.5	23.5/23.5
Oil Charge, ckt1 / ckt2, liters	8.3	8.3	8.3	8.3	12.5	8.3/8.3	8.3/8.3	8.3/8.3
Shipping Weight								
Aluminum Fin Coils, kg	1121	1129	1296	1330	1487	2127	2155	2187
Copper Fin Coils, kg	1189	1197	1364	1398	1555	2263	2292	2323
Operating Weight								
Aluminum Fin Coils, kg	1156	1163	1334	1377	1534	2237	2265	2297
Copper Fin Coils, kg	1224	1231	1402	1445	1602	2373	2401	2433
Compressors, scroll type								
Compressors per circuit	2	2	2	2	3	2	2	2
Compressors per unit	2	2	2	2	3	4	4	4
Nominal kWo per compressor	26	35	46	53	46	35/35	46/35	46/46
Condenser								
Total Face Area meters²	4	4	6	6	6	12	12	12
Number of Rows	2	2	2	3	3	2	2	2
Fins per m	512	512	512	512	512	512	512	512
Condenser Fans								
Number of Fans total	2	2	2	2	2	4	4	4
Fan hp/kw	2 / 1.4	2 / 1.4	2 / 1.4	2 / 1.4	2 / 1.4	2 / 1.4	2 / 1.4	2 / 1.4
Fan RPM	1140	1140	1140	1140	1140	1140	1140	1140
Number of Blades	3	3	3	3	3	3	3	3
Total Chiller Airflow l/s	7672	7672	11091	11091	11091	22351	22351	22351
Evaporator, Direct Expansion								
Diameter x Length	203x1829	203x1830	203x1981	210x2134	210x2134	248x2438	248x2438	248x2438
Water Volume, liters	34.9	34.9	37.7	46.7	46.7	110.3	110.3	110.3
Maximum Water Side Pressure, bar	10	10	10	10	10	10	10	10
Maximum Refrigerant Side Pressure, bar	24	24	24	24	24	24	24	24
Minimum Chiller Water Flow Rate, l/s	1.6	1.6	1.9	2.2	3.8	3.8	3.8	3.8
Maximum Chiller Water Flow Rate, l/s	3.8	3.8	4.4	10.7	10.7	18.9	18.9	18.9
Water Connections, inches	3	3	3	4	4	6	6	6

Model Number YCAL										
0050	**0060**	**0064**	**0070**	**0074**	**0080**	**0090**	**0094**	**0104**	**0114**	**0124**
179.7	197.7	221.9	246.9	267.3	289.1	292.6	316.2	350.3	390.7	425.6
169.2	187.5	207.2	231.1	251.8	274.3	280.0	301.8	333.8	374.6	404.8
2	2	2	2	2	2	2	2	2	2	2
27.3/24.5	32.7/32.7	34.1/28.2	34.1/34.1	41.8/37.7	45.5/45.5	43/35	43/43	51/43	51/51	62/51
27.3/24.5	26/26	30/26	30/30	40/30	40/40	41/34	41/41	49/41	49/49	60/49
8.3/8.3	8.3/8.3	12.5/12.5	12.5/12.5	12.5/12.5	12.5/12.5	16/16	16/16	24/16	24/24	24/24
2225	2265	2661	2742	2820	2925	2967	3002	3372	4003	4011
2361	2401	2797	2914	2992	3097	3343	3378	3800	4574	4585
2335	2375	2816	2897	2975	3075	3167	3202	3594	4224	4233
2471	2511	2952	3069	3147	3247	3542	3578	4022	4795	4806
2	2	3	3	3	3	2	2	3/2	3	3
4	4	6	6	6	6	4	4	5	6	6
53/46	53/53	46/35	46/46	53/46	53/53	88/70	88/88	70/88	70/70	88/70
12	12	14	14	14	14	16.0	16.0	18.0	21.0	21.0
2	3	2	2	3	3	3	3	3	3	3
512	512	512	512	512	512	512	512	512	512	512
4	4	4	4	4	4	6	6	6	8	8
2 / 1.4	2 / 1.4	2 / 1.7	2 / 1.7	2 / 1.7	2 / 1.7	2 / 1.8	2 / 1.8	2 / 1.8	2 / 1.8	2 / 1.8
1140	1140	1140	1140	1140	1140	1140	1140	1140	1140	1140
3	3	3	3	3	3	3	3	3	3	3
22351	21747	26076	26076	25744	25371	37660	37660	39784	50214	50214
248x2438	248x2438	309x2438	309x2438	309x2438	315x2438	356x2438	356x2438	381x2438	381x2438	381x2438
110.3	110.3	156.1	156.1	156.1	151.1	200.6	200.6	222.9	222.9	222.9
10	10	10	10	10	10	10	10	10	10	10
24	24	24	24	24	24	24	24	24	24	24
3.8	3.8	6.3	6.3	6.3	6.3	7.9	8.7	9.5	10.4	11.4
18.9	18.9	22.1	22.1	22.1	24.3	33.1	33.1	39.4	39.4	39.4
6	6	6	6	6	6	8	8	8	8	8

Dimensions - YCAL0014-YCAL0020 (English)



VIEW B-B



VIEW A-A

LD04868

NOTE:

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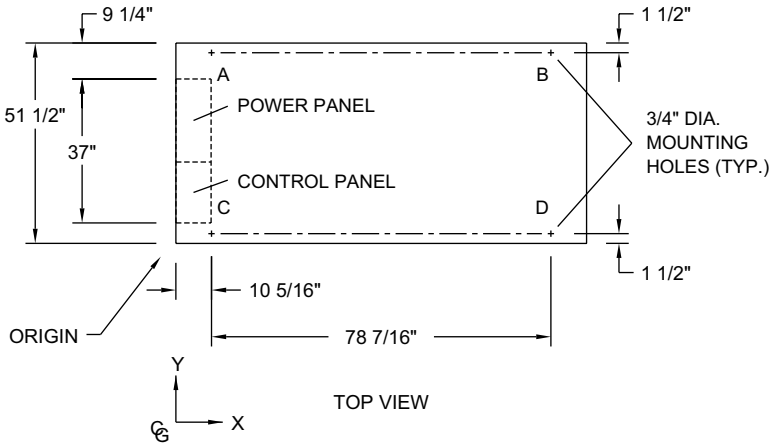
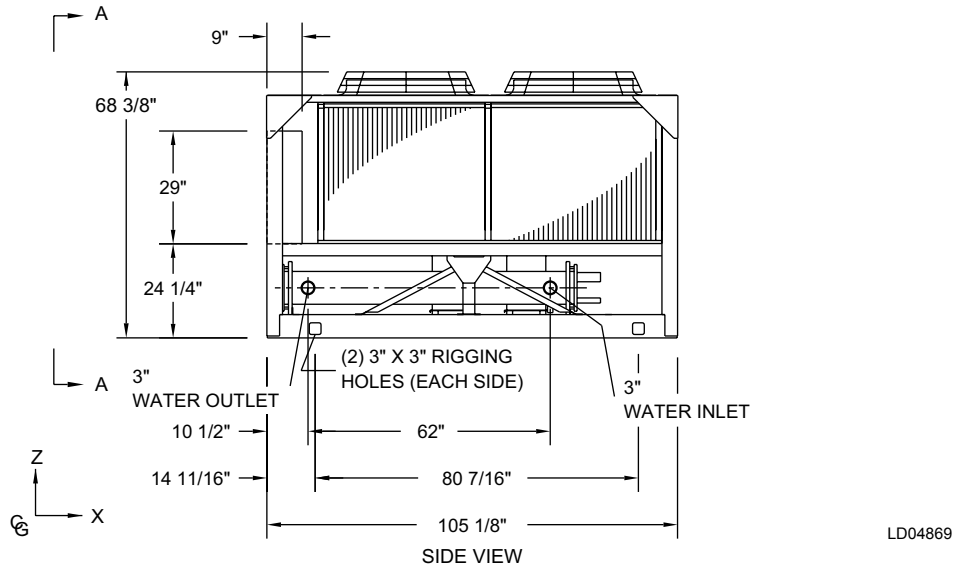




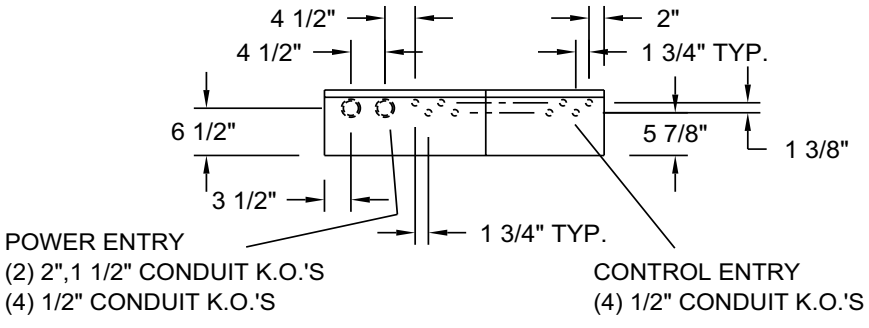
ALUMINUM

YCAL	Center of Gravity (in.)		
	X	Y	Z
0014	44.8	24.1	28.3
0020	44.8	24.1	28.3

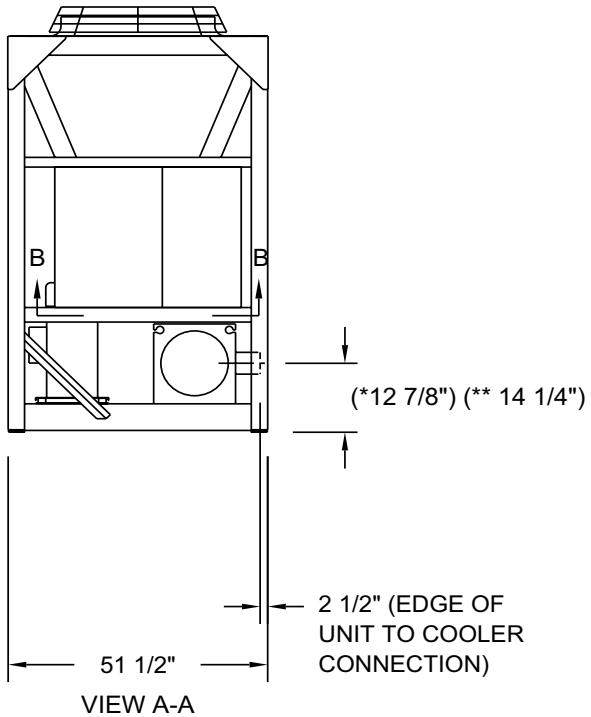
COPPER

YCAL	Center of Gravity (in.)		
	X	Y	Z
0014	45.4	24.2	28.8
0020	45.4	24.2	28.8

Dimensions - YCAL0024-YCAL0034 (English)



VIEW B-B



VIEW A-A

LD04857

* Refers to Model YCAL0024
** Refers to Model YCAL0030 and YCAL0034

NOTE:

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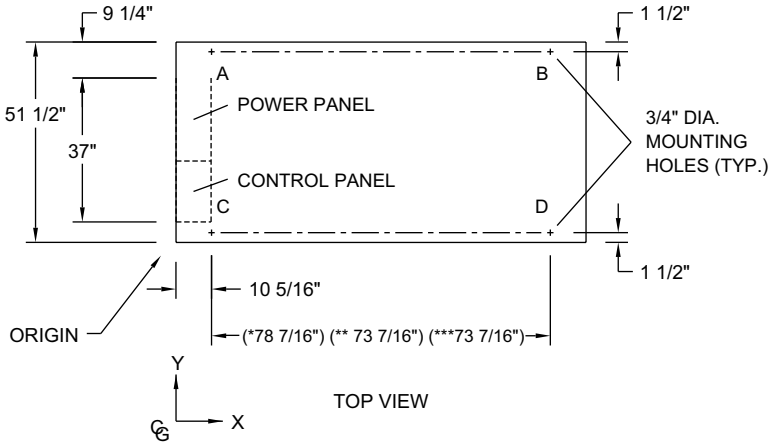
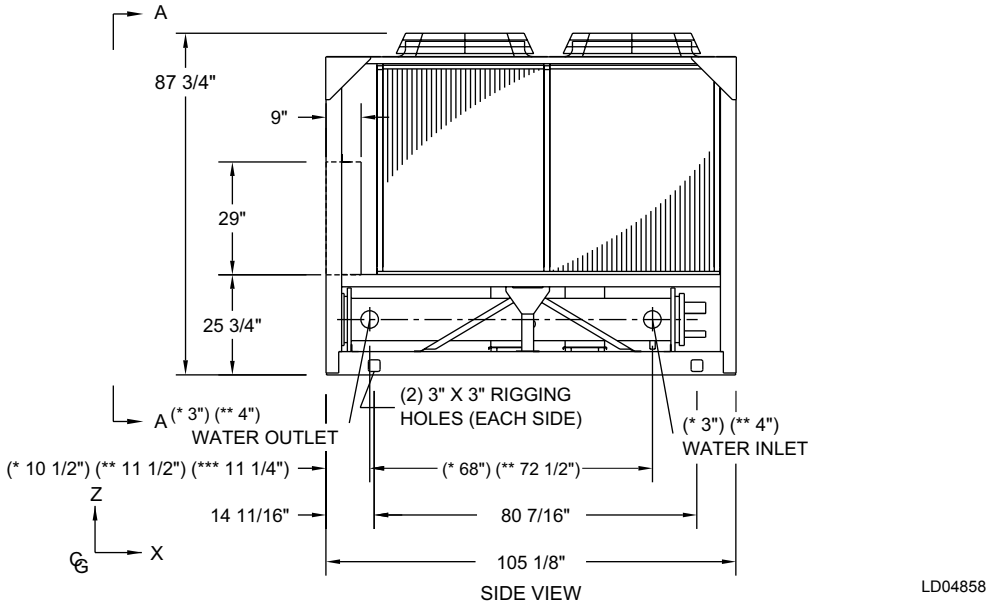




* Refers to Model YCAL0024
** Refers to Model YCAL0030 and YCAL0034

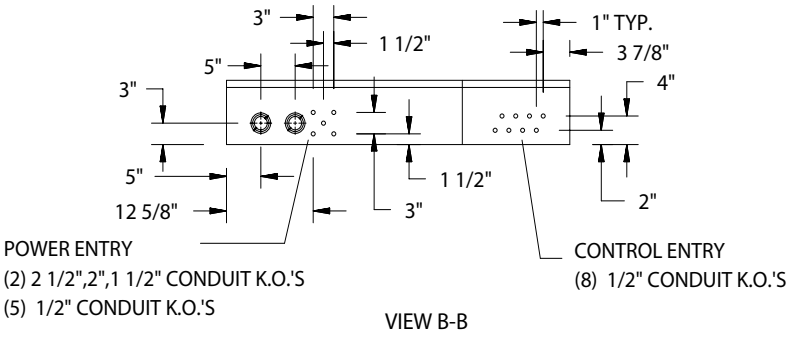
ALUMINUM

YCAL	Center of Gravity (in.)		
	X	Y	Z
0024	45.0	24.4	35.3
0030	45.0	24.4	34.9
0034	45.0	25.5	33.8

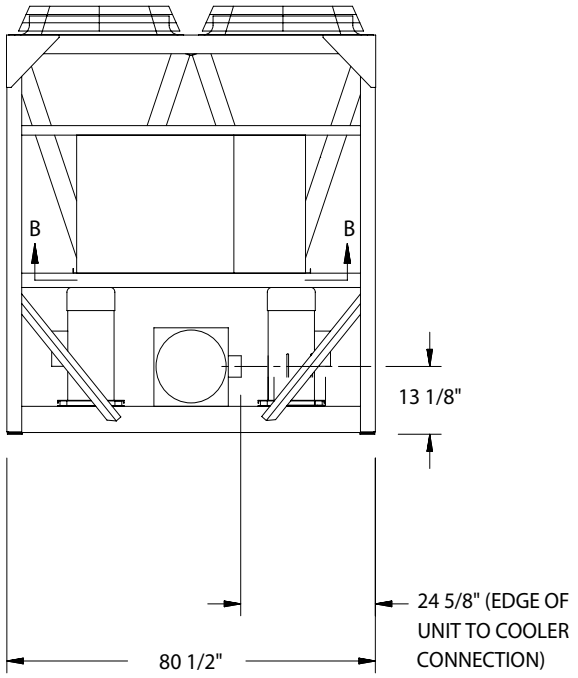
COPPER

YCAL	Center of Gravity (in.)		
	X	Y	Z
0024	45.8	24.5	36.2
0030	45.8	24.5	35.8
0034	45.7	25.5	34.7

Dimensions - YCAL0040-YCAL0060 (English)



VIEW B-B



VIEW A-A

LD04872

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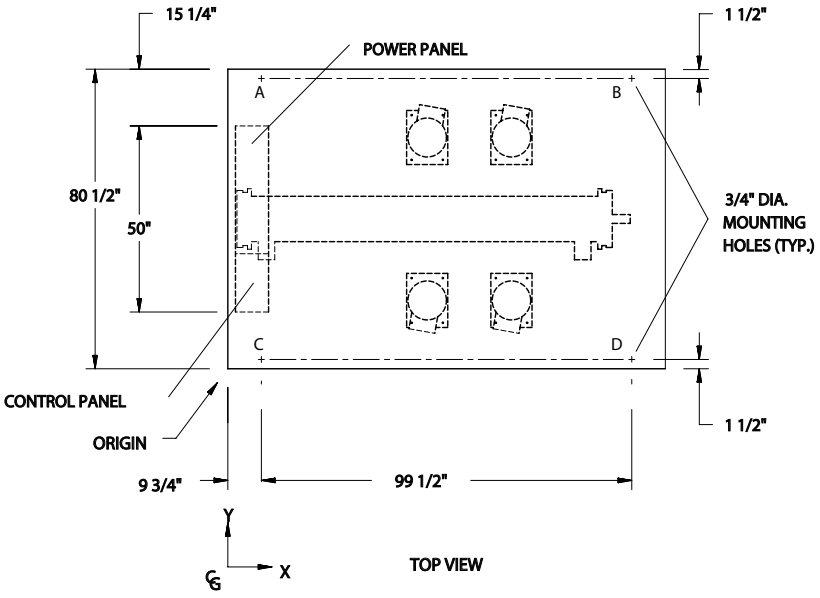
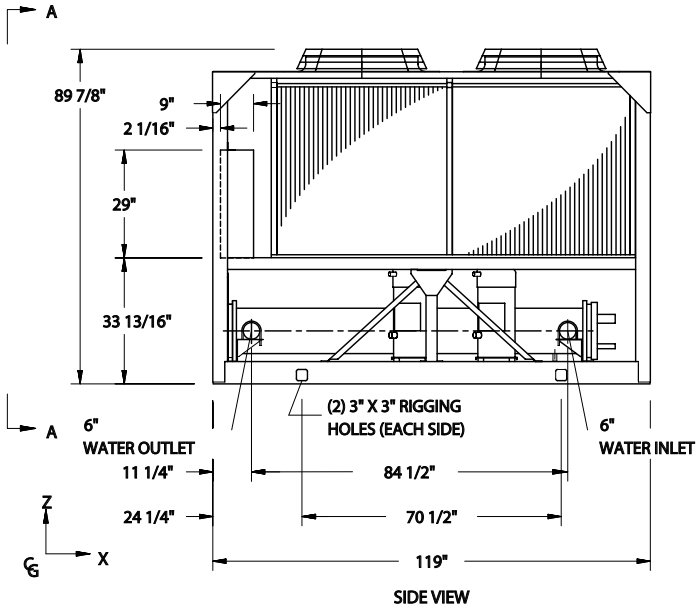




LD04873

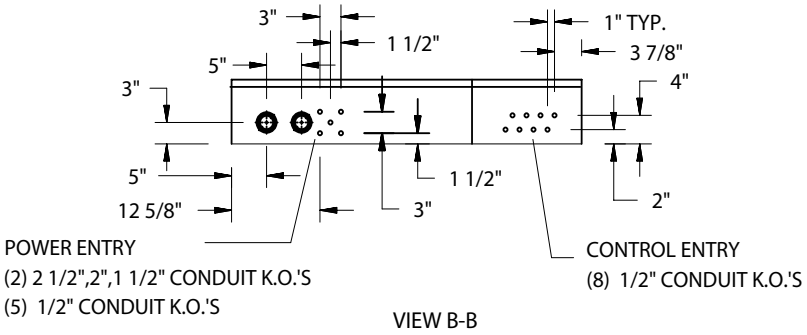
ALUMINUM

YCAL	Center of Gravity (in.)		
	X	Y	Z
0040	58.7	40.2	41.2
0042	58.3	40.4	39.7
0044	58.4	40.2	39.5
0050	58.4	40.4	39.5

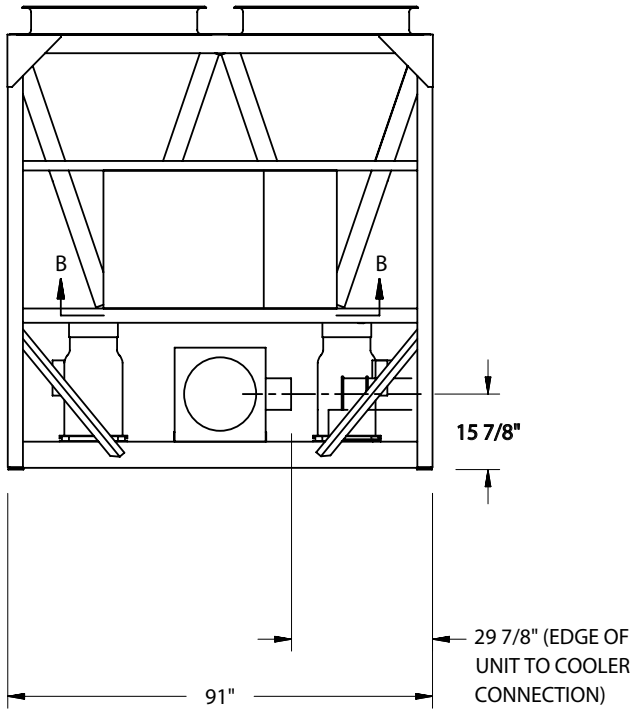
COPPER

YCAL	Center of Gravity (in.)		
	X	Y	Z
0040	58.3	40.2	40.3
0042	58.4	40.4	40.1
0044	58.5	40.2	39.9
0050	58.5	40.4	39.9

Dimensions - YCAL0064-YCAL0080 (English)



VIEW B-B



VIEW A-A

LD04876

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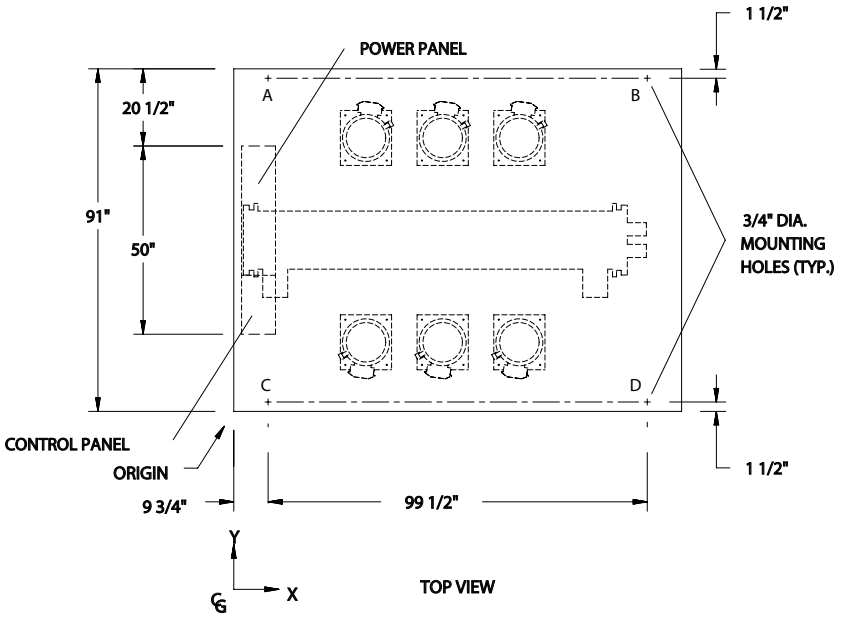
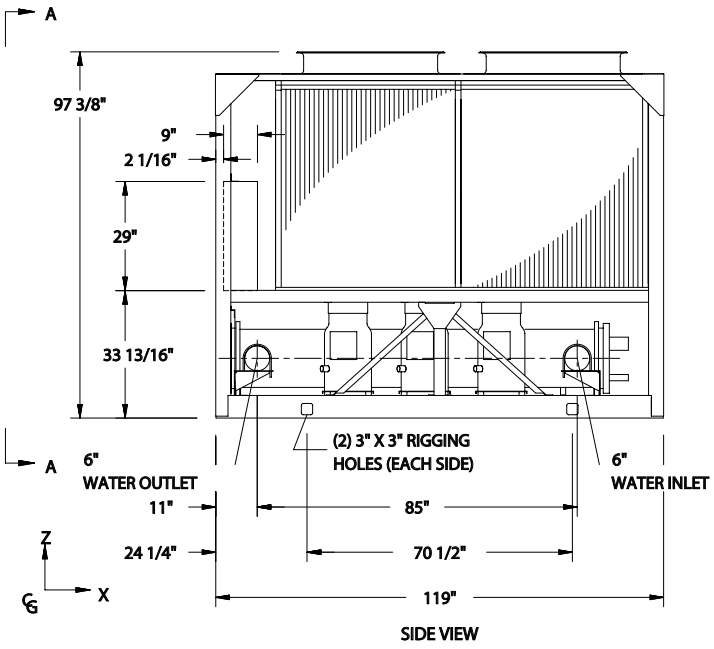




LD04877

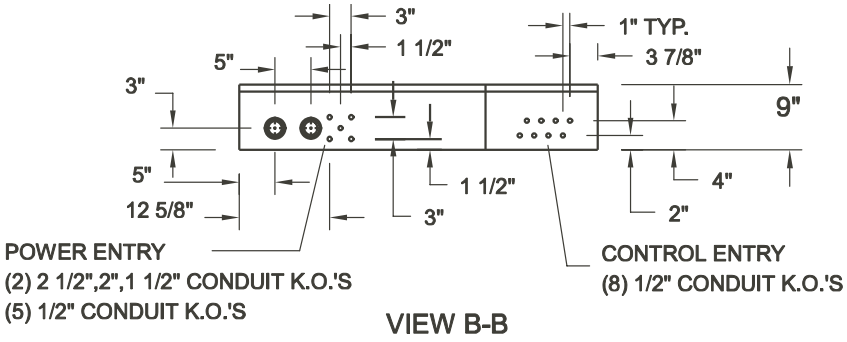
ALUMINUM

YCAL	Center of Gravity (in.)		
	X	Y	Z
0060	58.5	40.2	39.4
0064	56.5	45.8	39.4
0070	56.6	45.4	39.4
0074	56.6	45.7	39.5
0080	56.6	45.4	39.0

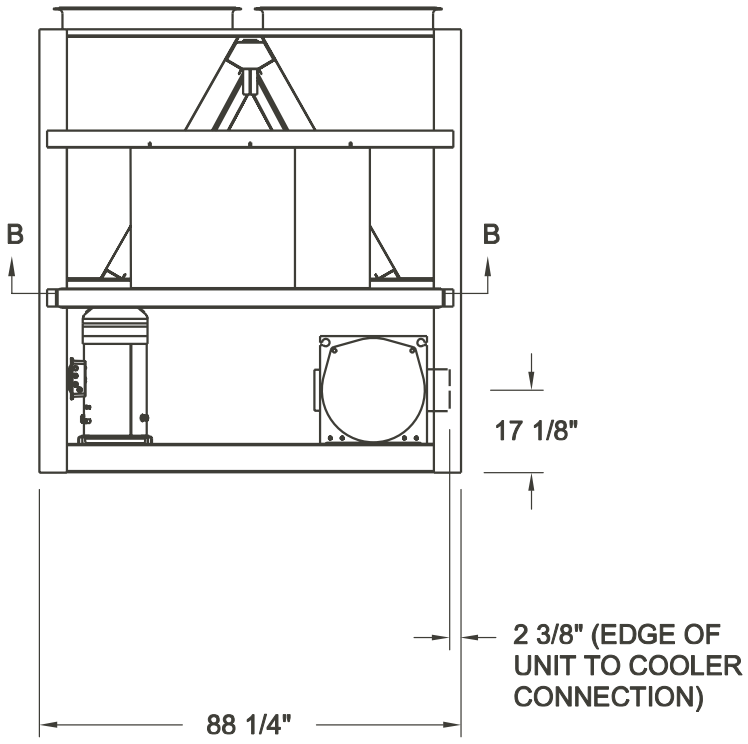
COPPER

YCAL	Center of Gravity (in.)		
	X	Y	Z
0060	58.6	40.2	39.8
0064	56.7	45.7	40.0
0070	56.8	45.5	40.0
0074	56.8	45.7	40.1
0080	56.8	45.5	39.6

Dimensions - YCAL0090-YCAL0094 (English)



VIEW B-B



VIEW A-A

NOTE:

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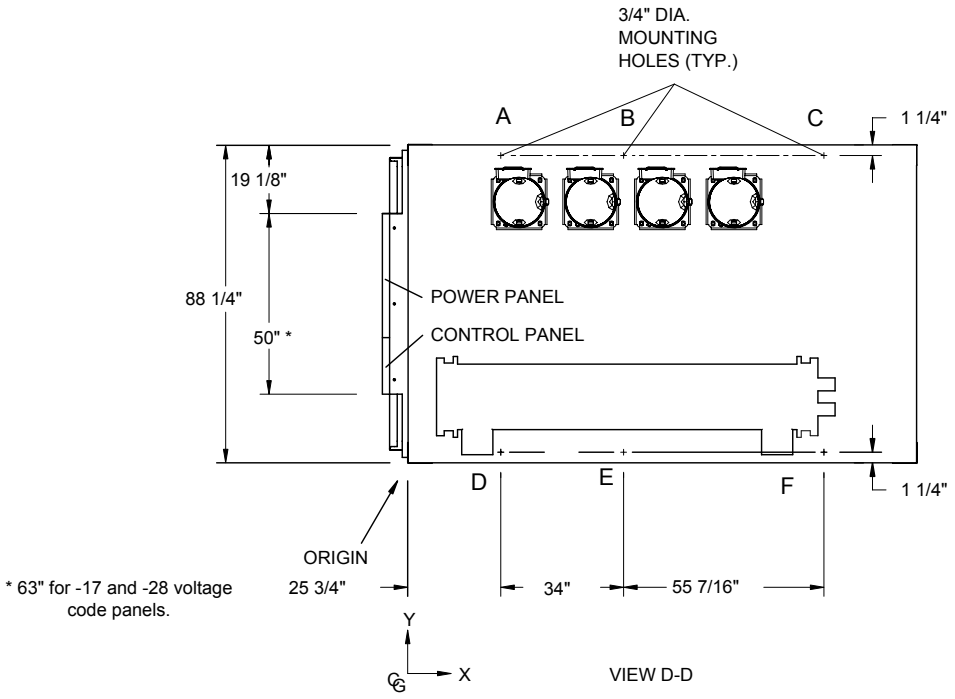
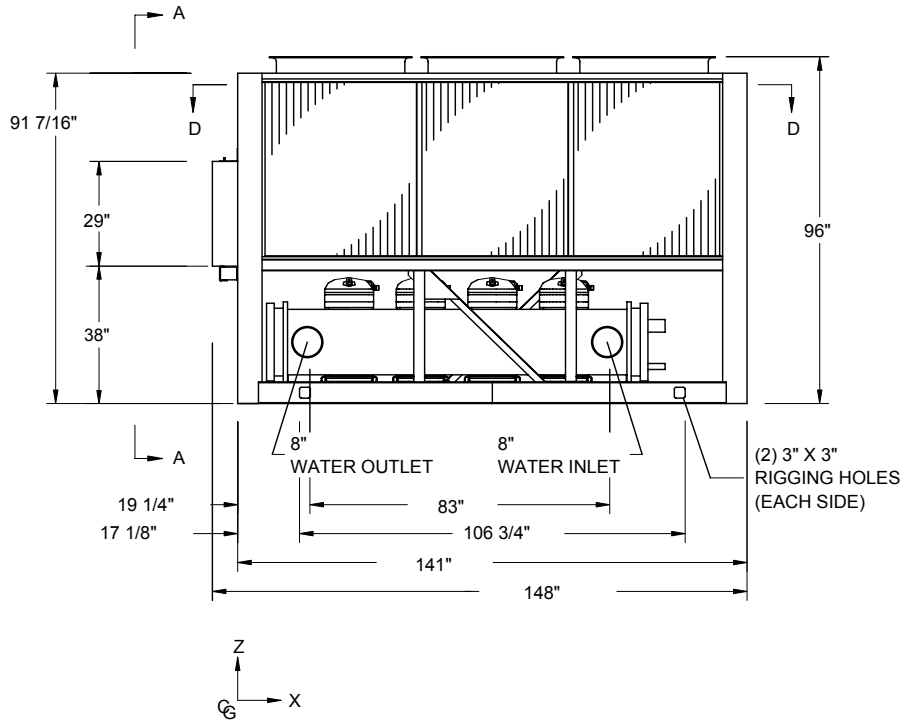




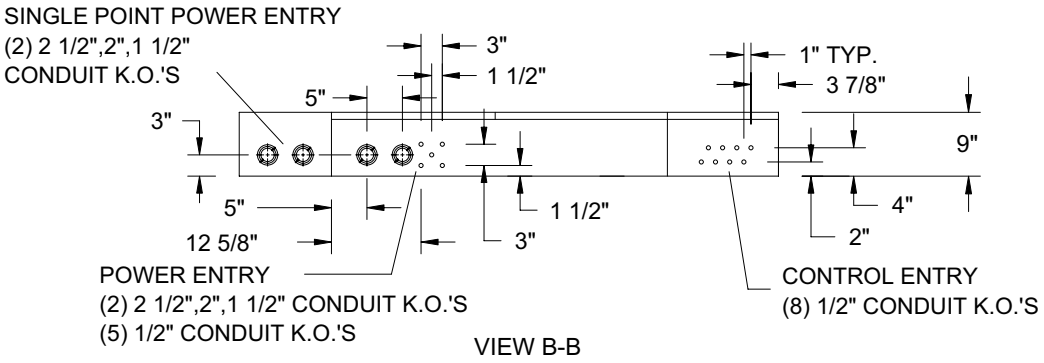
ALUMINUM

YCAL	Center of Gravity (in.)		
	X	Y	Z
0090	63.4	44.3	42.1
0094	64.3	44.4	41.9

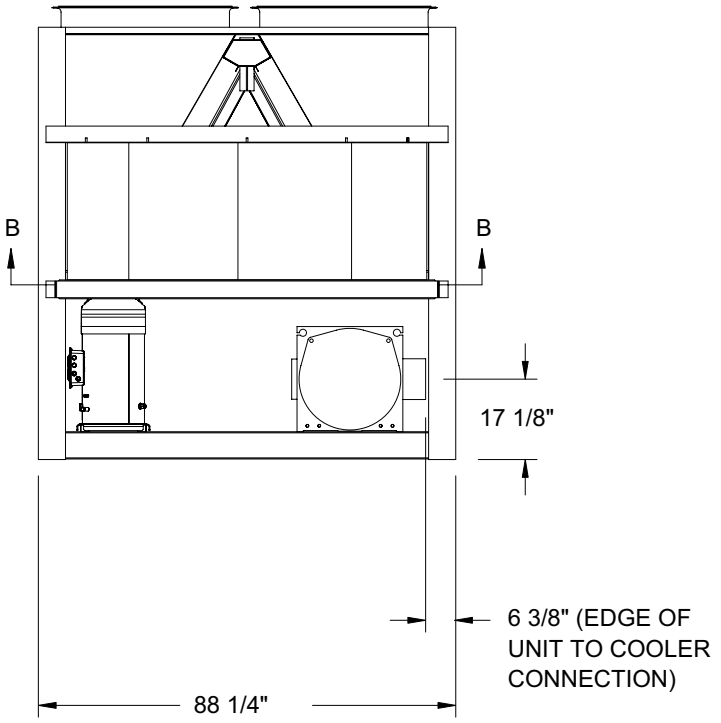
COPPER

YCAL	Center of Gravity (in.)		
	X	Y	Z
0090	64.1	44.3	44.5
0094	64.8	44.4	44.2

Dimensions - YCAL0104 (English)



VIEW B-B



VIEW A-A

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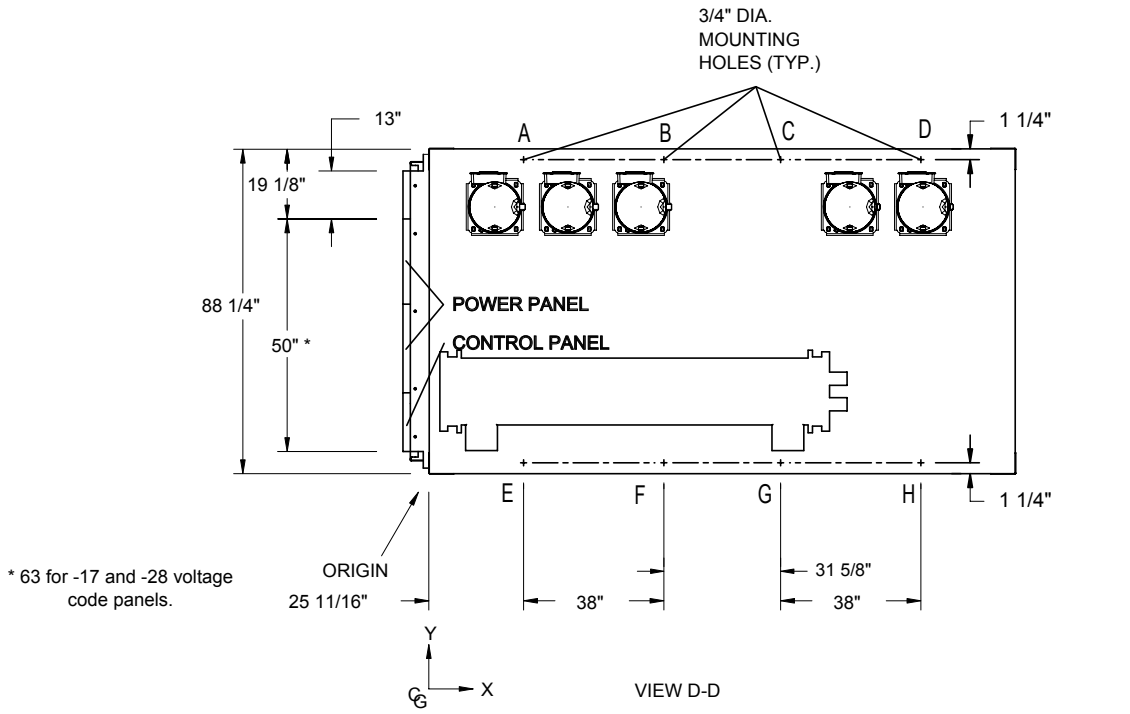
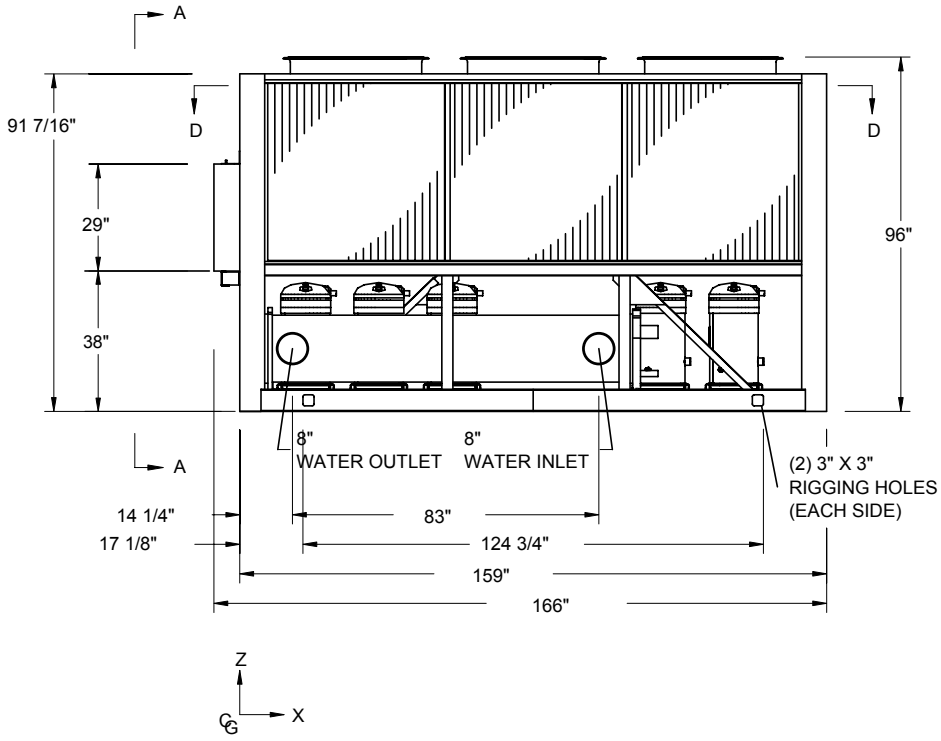




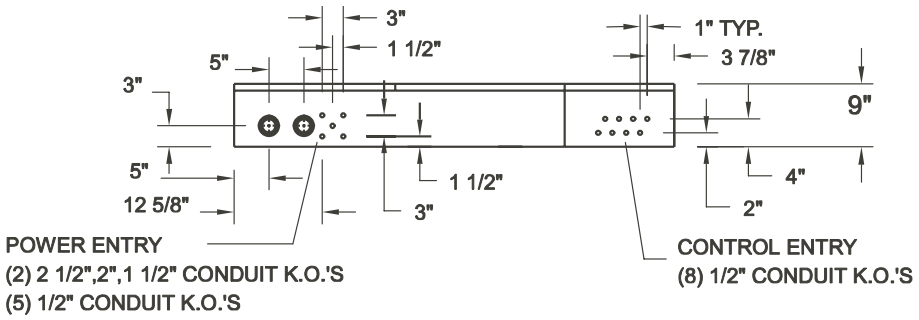
ALUMINUM

YCAL	Center of Gravity (in.)		
	X	Y	Z
0104	70.3	45.7	40.8

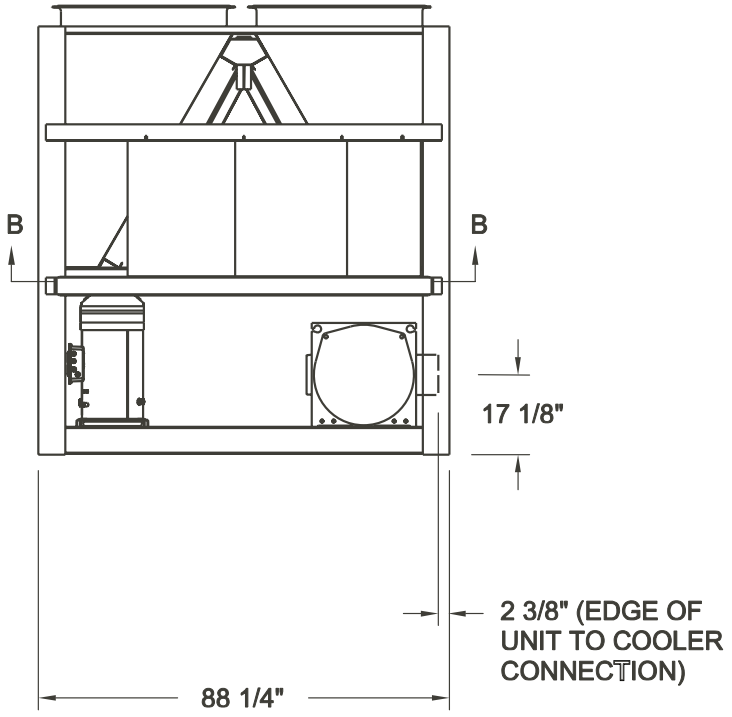
COPPER

YCAL	Center of Gravity (in.)		
	X	Y	Z
0104	71.3	45.5	42.7

Dimensions - YCAL0114 - YCAL0124 (English)



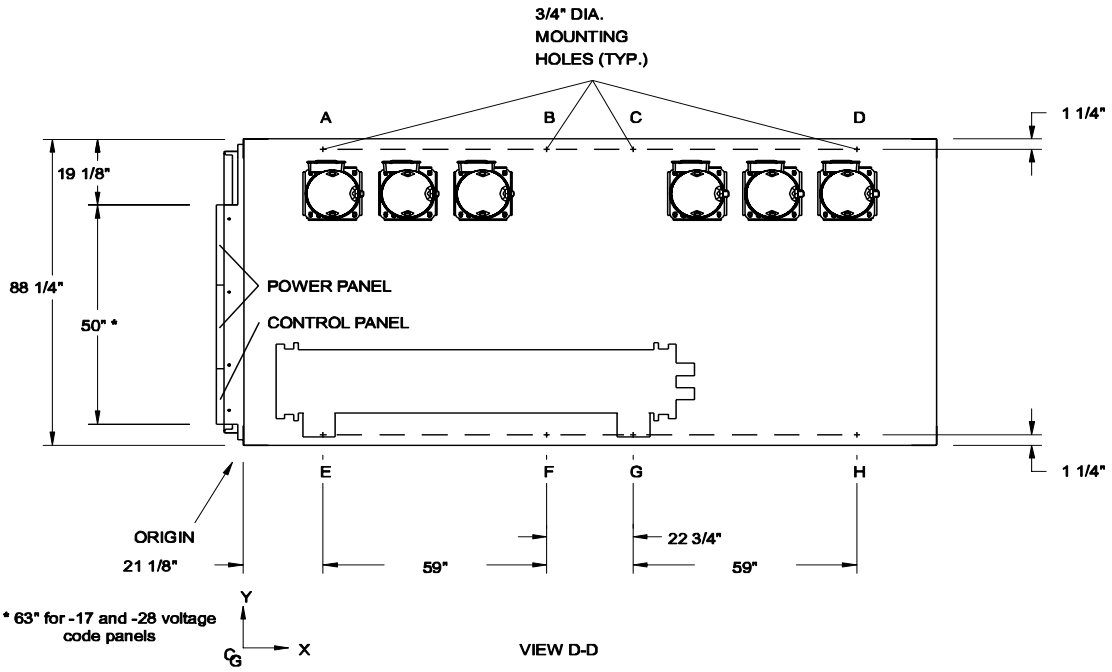
VIEW B-B

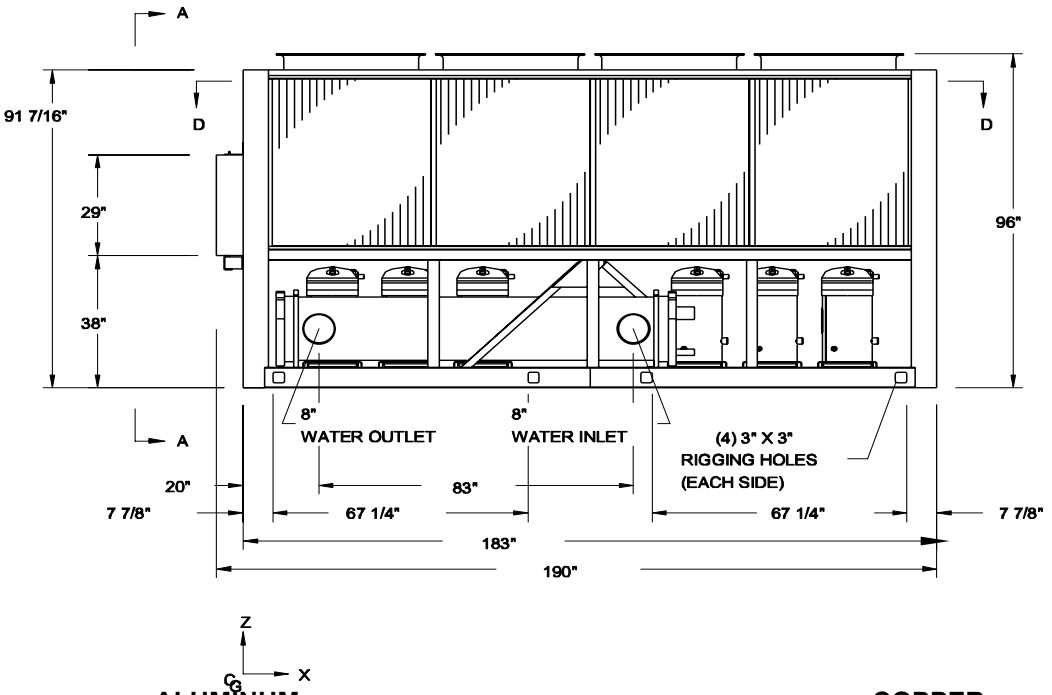


VIEW A-A

NOTE:

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





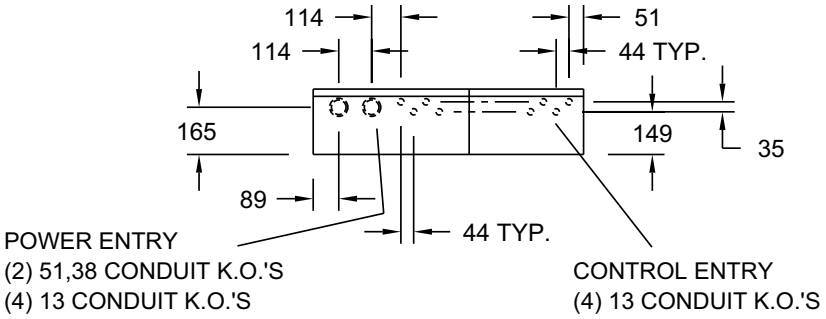
ALUMINUM

YCAL	Center of Gravity (in.)		
	X	Y	Z
0114	79.4	45.0	41.4
0124	79.4	45.0	41.5

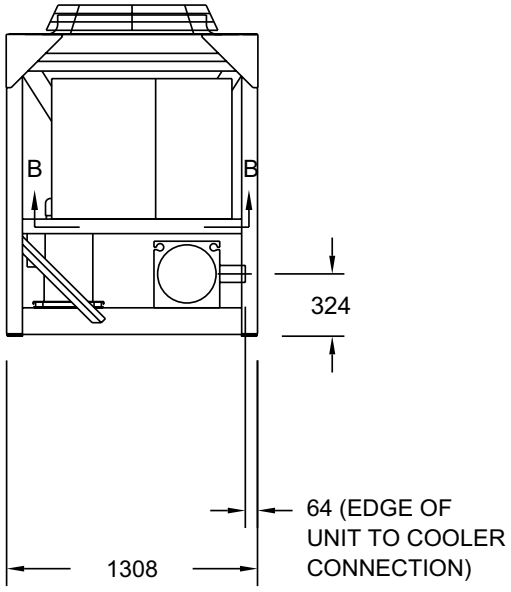
COPPER

YCAL	Center of Gravity (in.)		
	X	Y	Z
0114	80.9	44.9	43.5
0124	80.9	44.9	43.5

Dimensions - YCAL0014-YCAL0020 (SI)



VIEW B-B



VIEW A-A

LD04870

NOTE: *All dimensions are in mm unless specified otherwise.*

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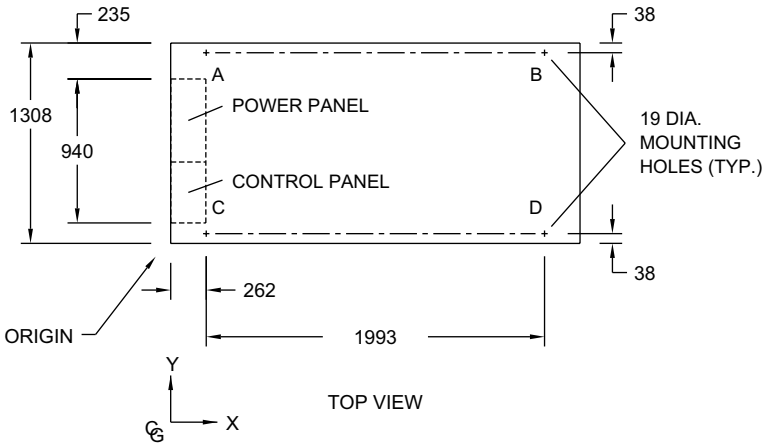
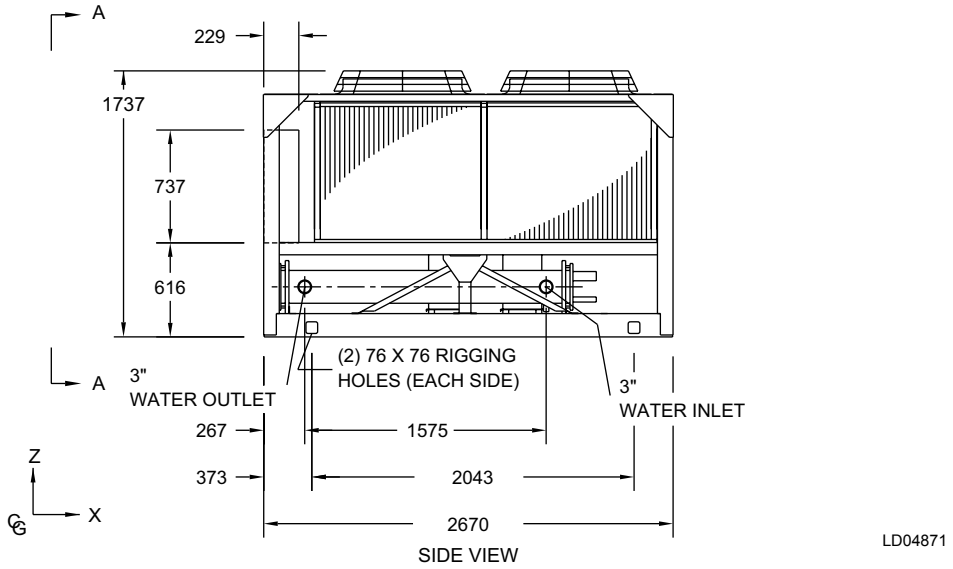




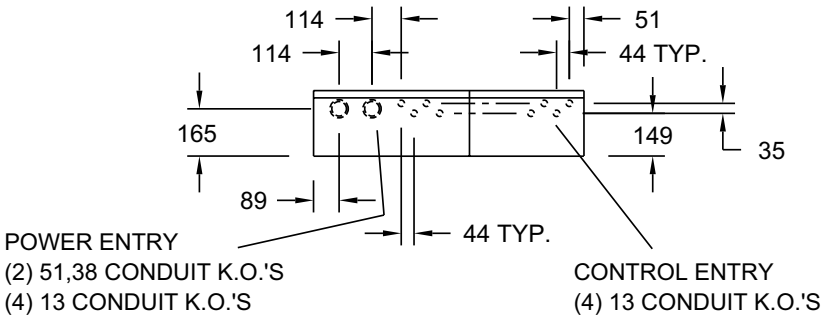
ALUMINUM

YCAL	Center of Gravity (mm)		
	X	Y	Z
0014	1138	612	719
0020	1138	611	719

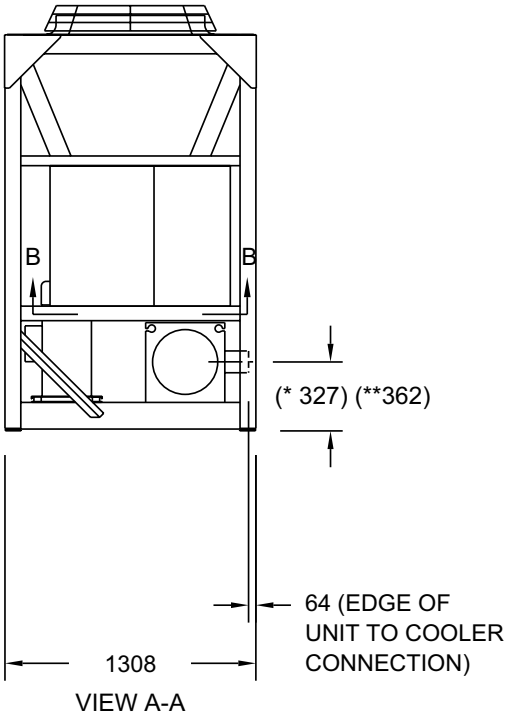
COPPER

YCAL	Center of Gravity (mm)		
	X	Y	Z
0014	1153	615	731
0020	1153	615	731

Dimensions - YCAL0024-YCAL0034 (SI)



VIEW B-B



VIEW A-A

LD04859

* Refers to Model YCAL0024
** Refers to Model YCAL0030 and YCAL0034

NOTE: *All dimensions are in mm unless specified otherwise.*

NOTE:

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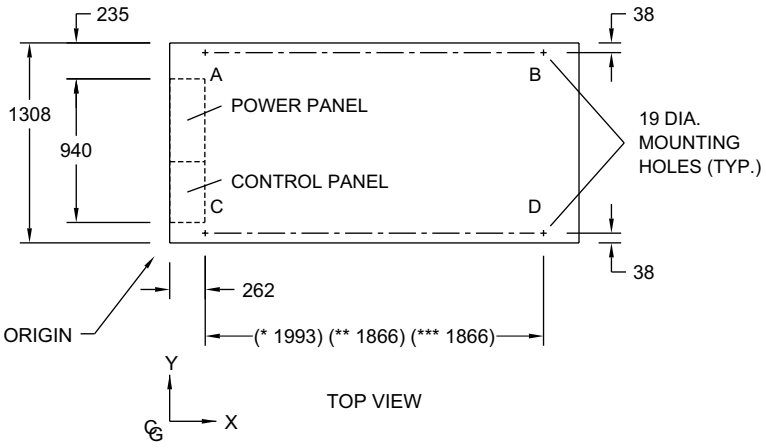
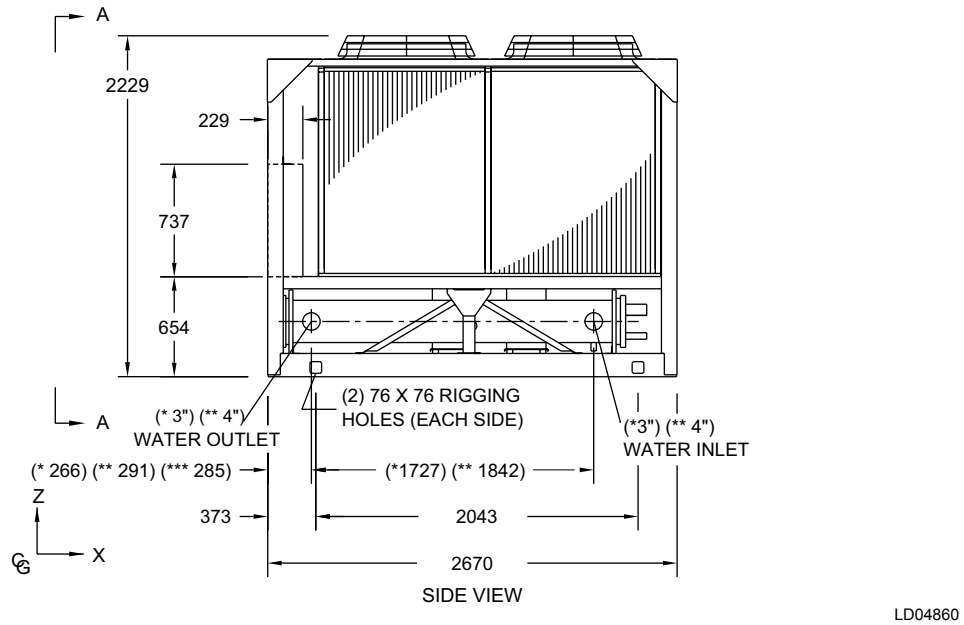




LD04860

* Refers to Model YCAL0024
** Refers to Model YCAL0030 and YCAL0034

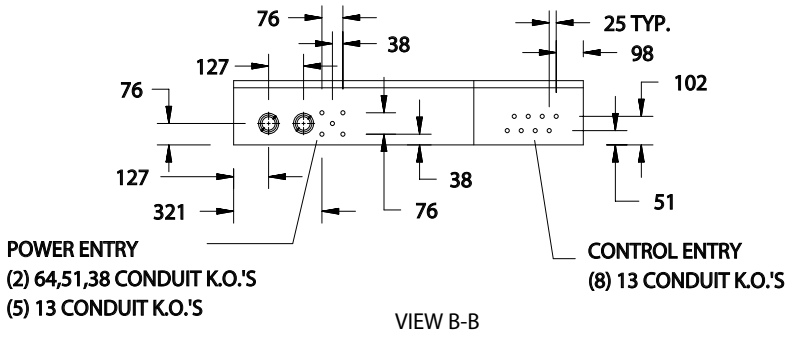
ALUMINUM

YCAL	Center of Gravity (mm)		
	X	Y	Z
0024	1142	619	897
0030	1144	620	887
0034	1142	646	860

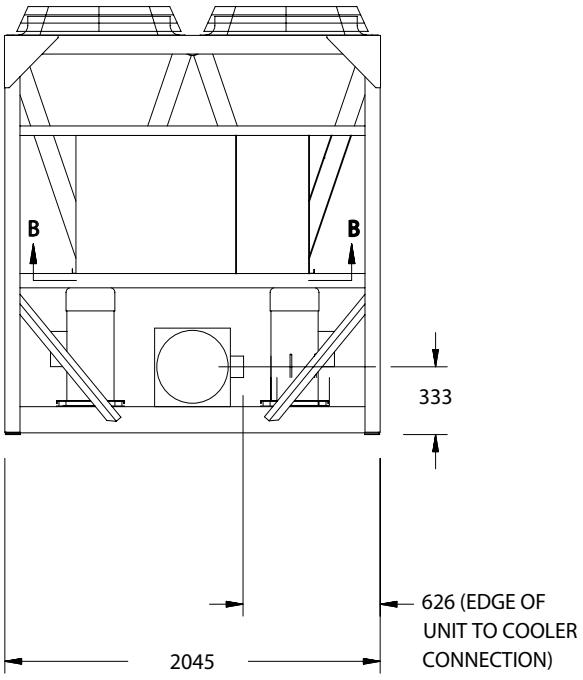
COPPER

YCAL	Center of Gravity (mm)		
	X	Y	Z
0024	1162	623	919
0030	1163	623	909
0034	1160	647	882

Dimensions - YCAL0040-YCAL0060 (SI)



VIEW B-B



VIEW A-A

LD04874

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NOTE:

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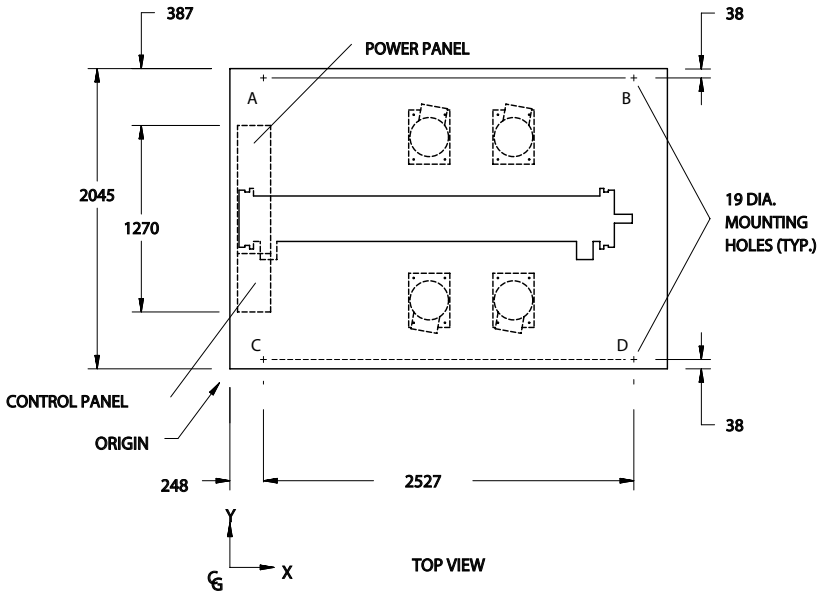
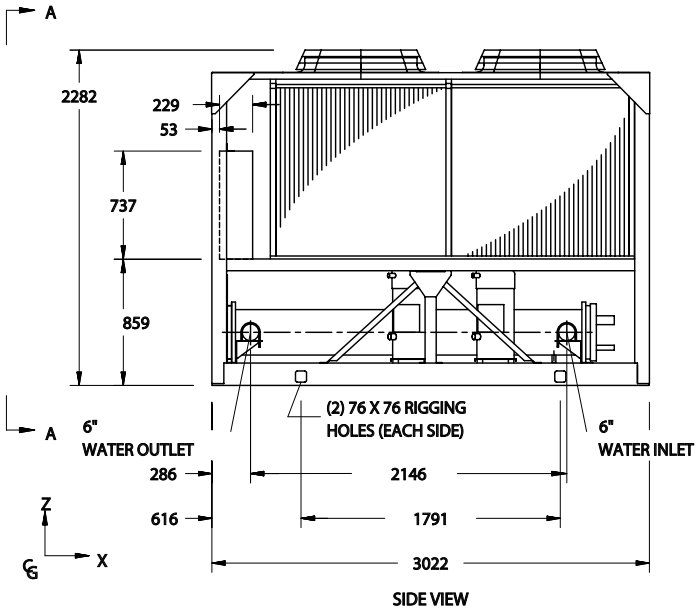




LD04875

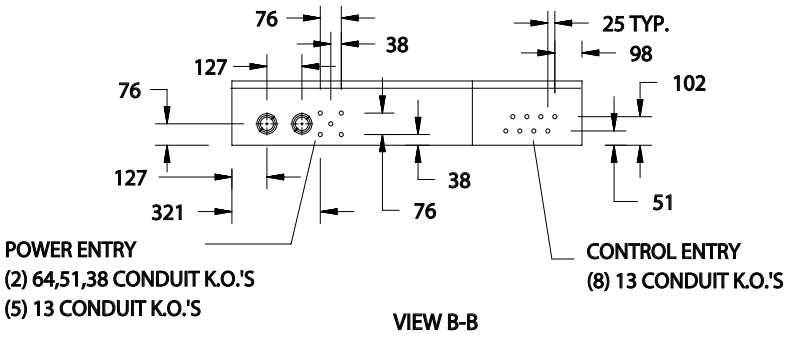
ALUMINUM

YCAL	Center of Gravity (mm)		
	X	Y	Z
0040	1490	1021	1047
0042	1481	1026	1009
0044	1483	1021	1004
0050	1484	1025	1003

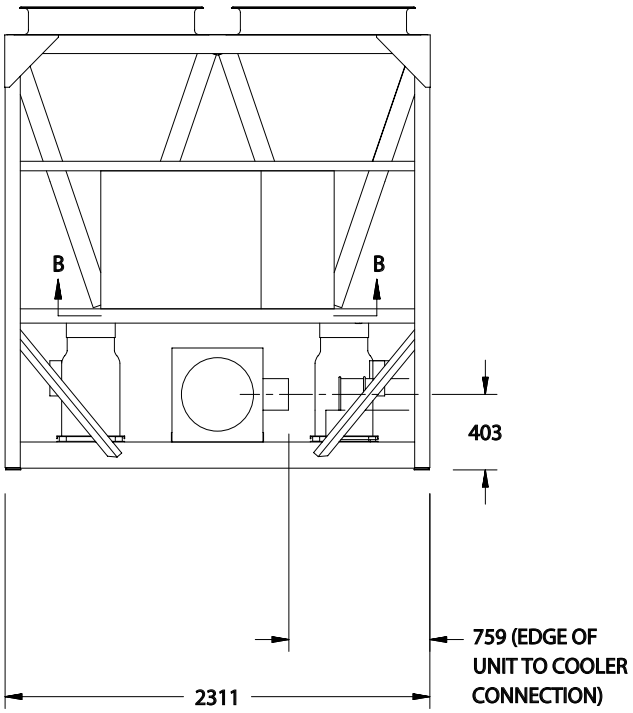
COPPER

YCAL	Center of Gravity (mm)		
	X	Y	Z
0040	1482	1021	1023
0042	1483	1026	1018
0044	1485	1021	1013
0050	1486	1025	1012

Dimensions -YCAL0064-YCAL0080 (SI)



VIEW B-B



VIEW A-A

LD04878

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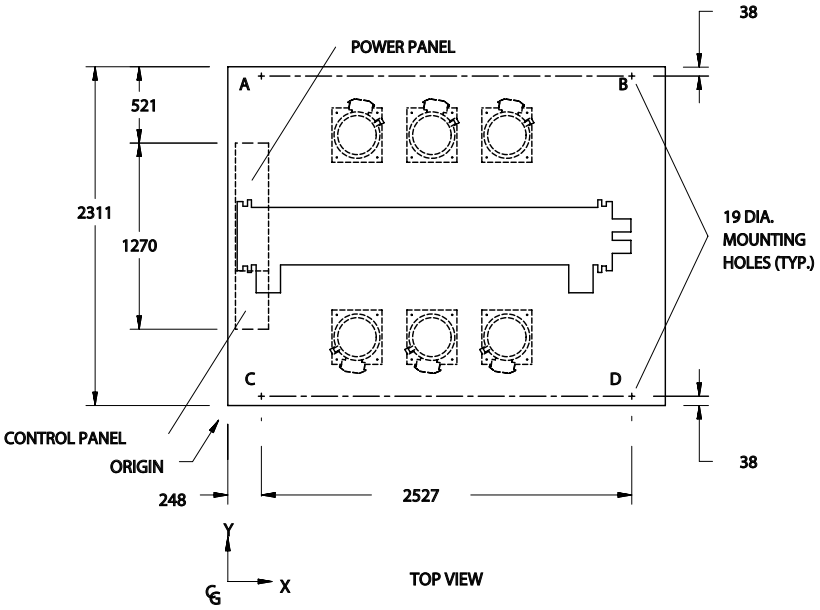
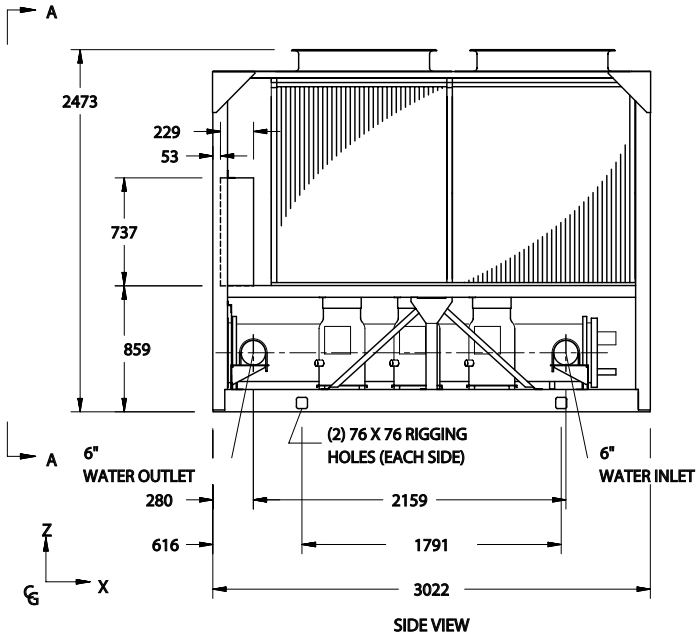




LD04879

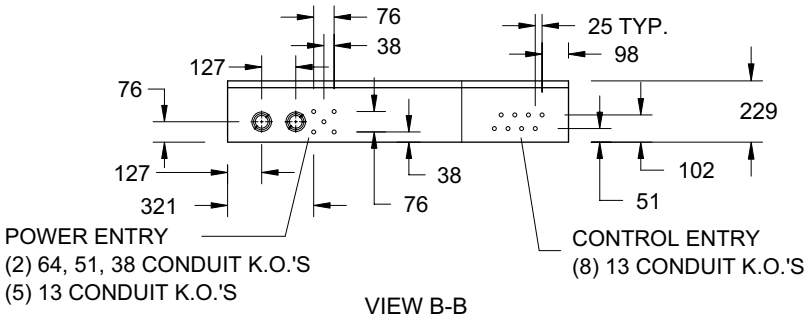
ALUMINUM

YCAL	Center of Gravity (mm)		
	X	Y	Z
0060	1485	1021	1001
0064	1435	1162	1001
0070	1437	1154	1002
0074	1438	1161	1003
0080	1437	1154	991

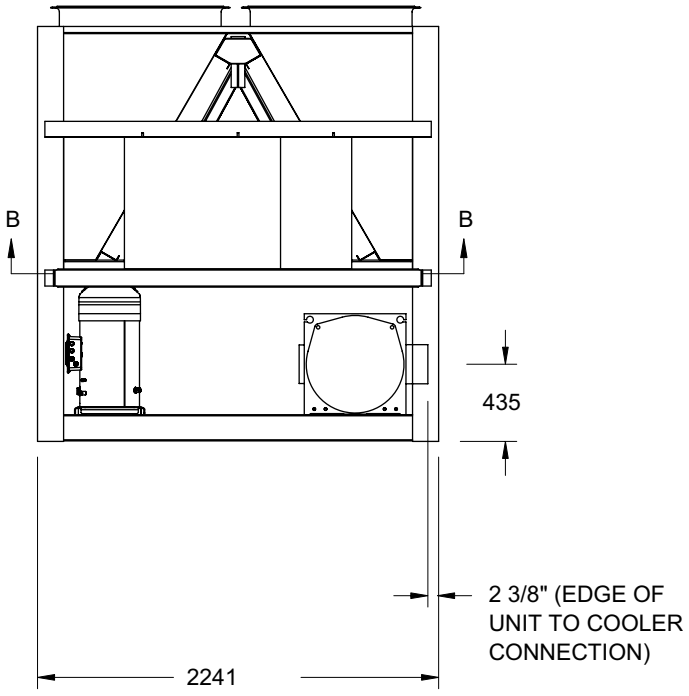
COPPER

YCAL	Center of Gravity (mm)		
	X	Y	Z
0060	1487	1021	1010
0064	1440	1162	1016
0070	1442	1154	1017
0074	1443	1160	1018
0080	1442	1154	1006

Dimensions - YCAL0090-YCAL0094 (SI)



VIEW B-B



VIEW A-A

NOTE: *All dimensions are in mm unless specified otherwise.*

NOTE:

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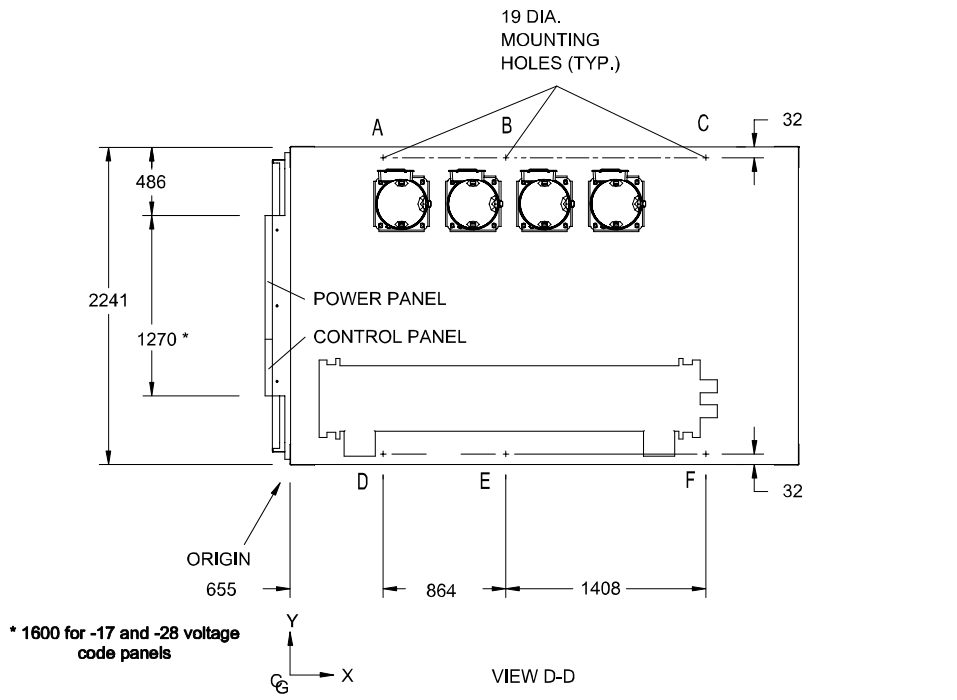
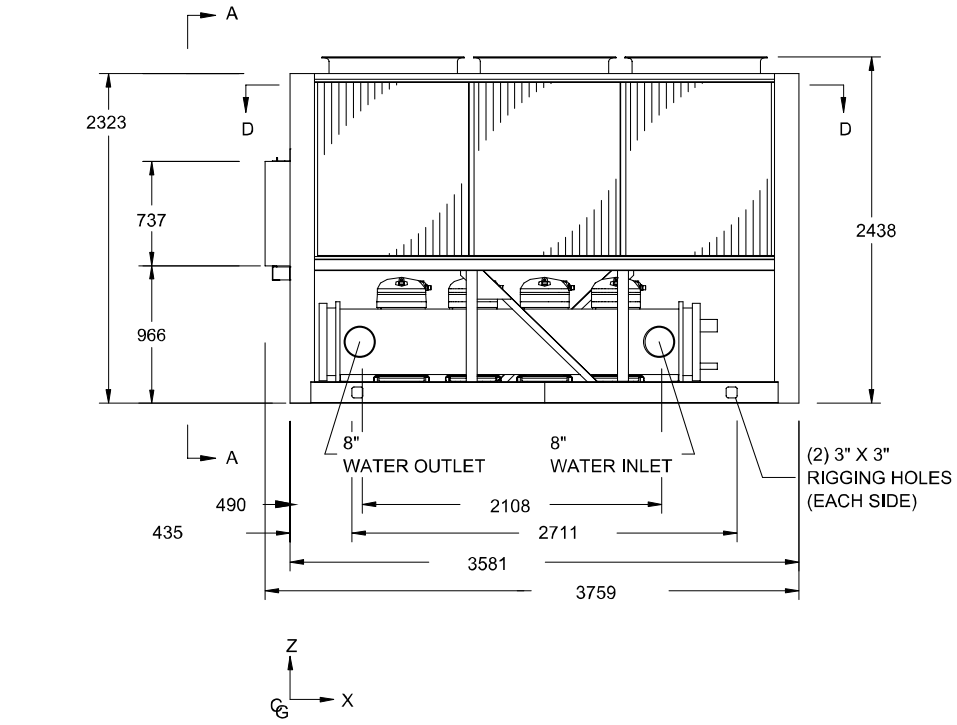




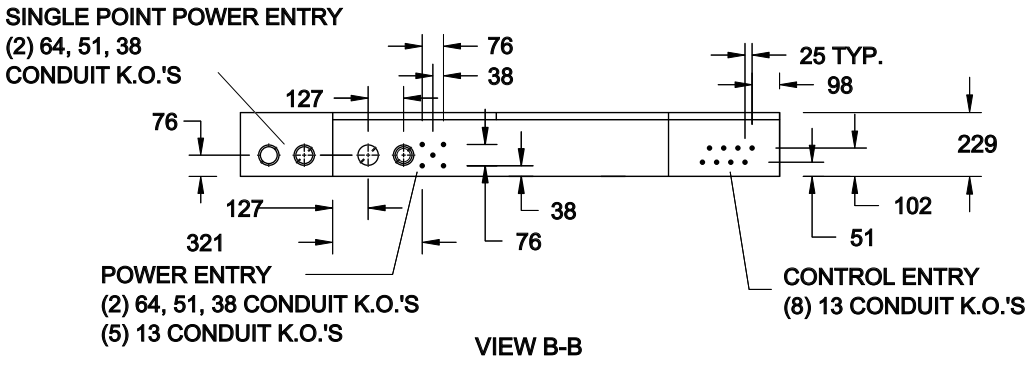
ALUMINUM

YCAL	Center of Gravity (mm)		
	X	Y	Z
0090	1610	1125	1069
0094	1633	1128	1064

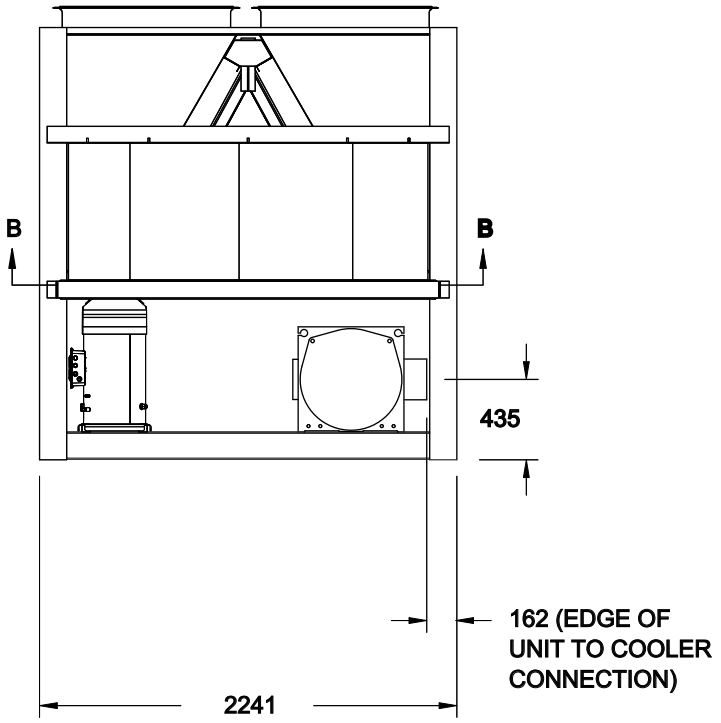
COPPER

YCAL	Center of Gravity (mm)		
	X	Y	Z
0090	1628	1125	1130
0094	1646	1127	1124

Dimensions - YCAL0104 (SI)



VIEW B-B



VIEW A-A

NOTE: *All dimensions are in mm unless specified otherwise.*

NOTE:

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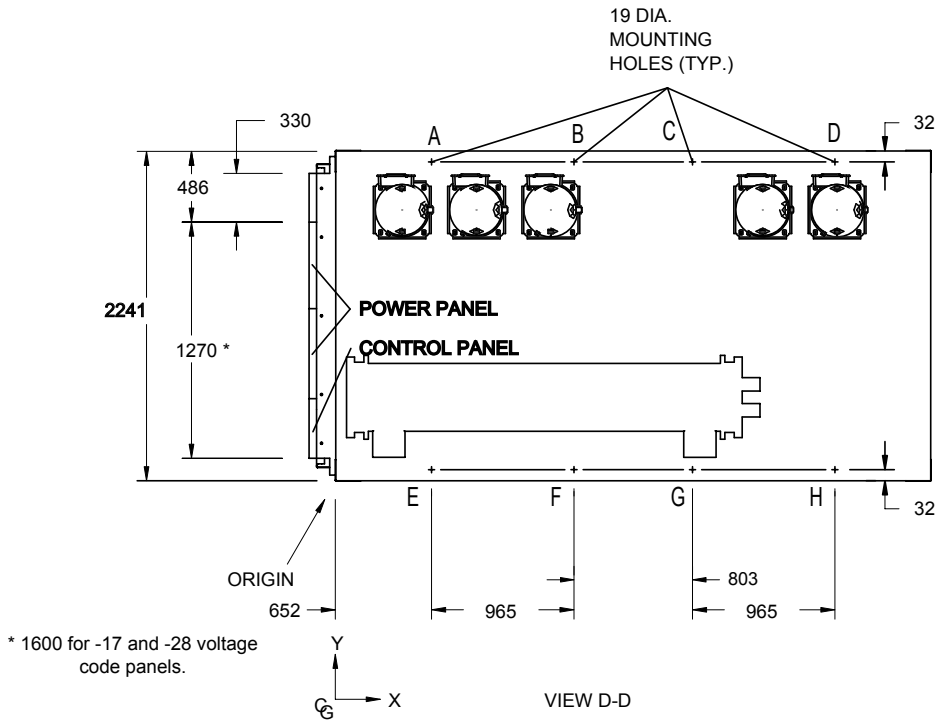
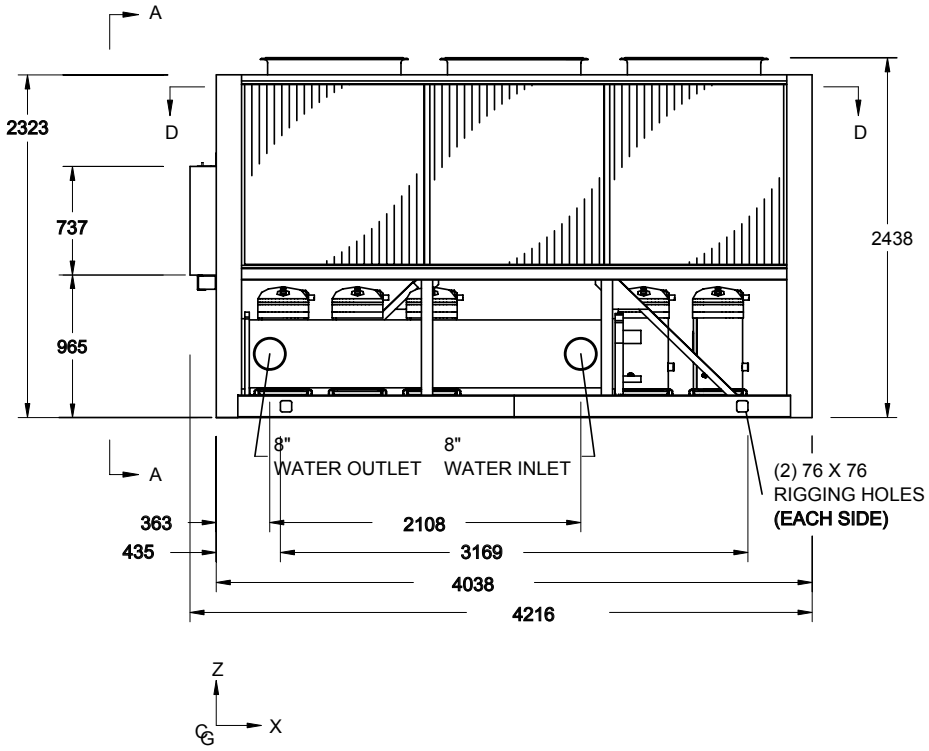




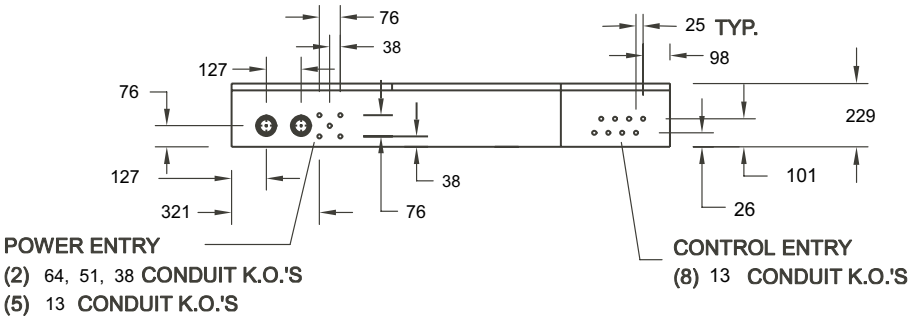
ALUMINUM

YCAL	Center of Gravity (mm)		
	X	Y	Z
0104	1786	1160	1035

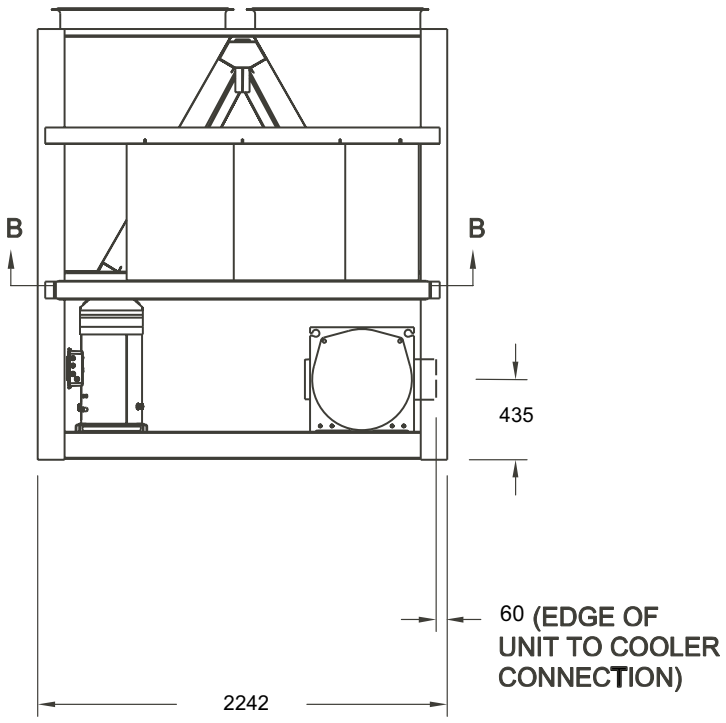
COPPER

YCAL	Center of Gravity (mm)		
	X	Y	Z
0104	1811	1155	1084

Dimensions - YCAL0114 - YCAL0124 (SI)



VIEW B-B



VIEW A-A

NOTE: *All dimensions are in mm unless specified otherwise.*

NOTE:

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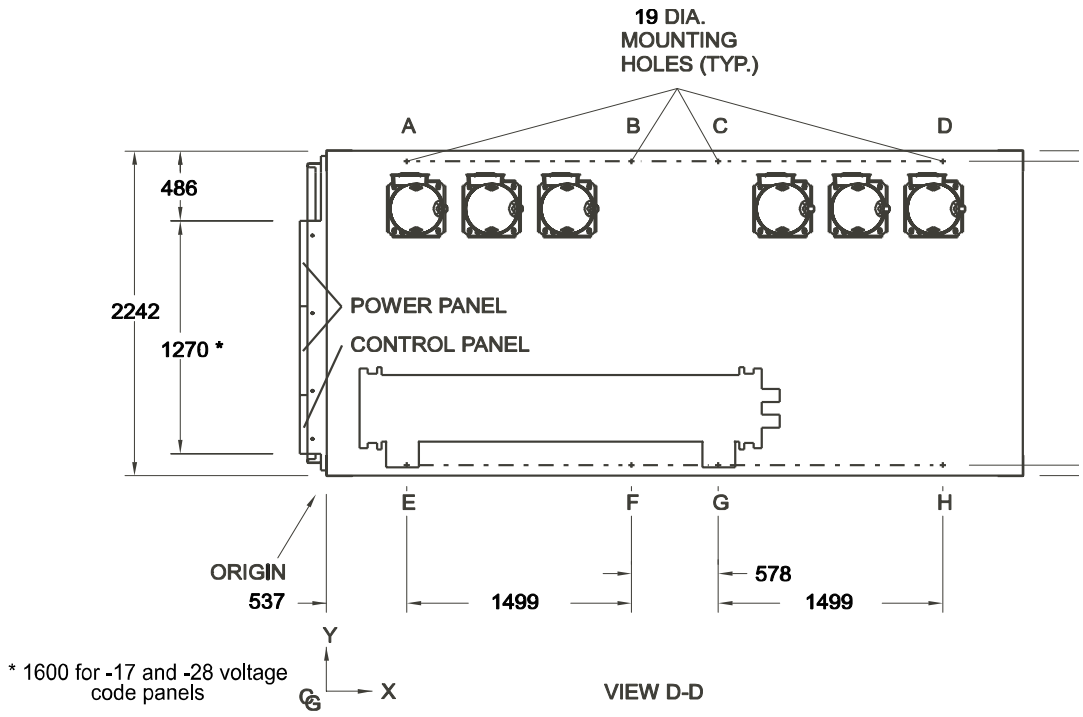
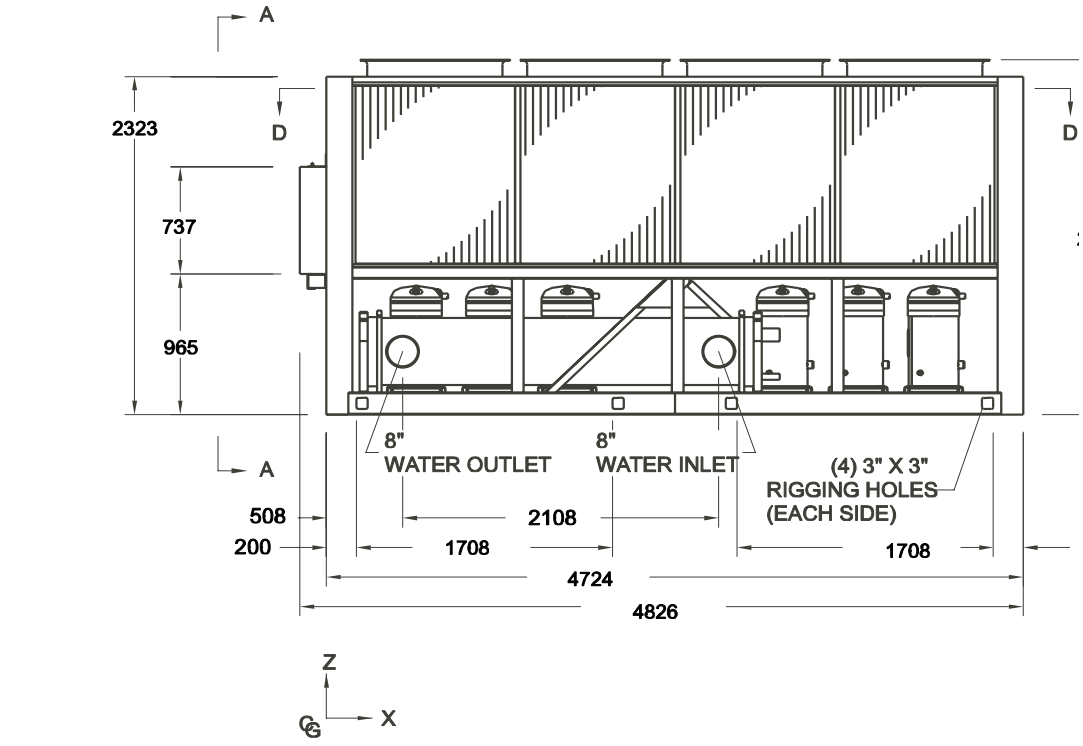




ALUMINUM

YCAL	Center of Gravity (mm)		
	X	Y	Z
0114	2017	1144	1053
0124	2017	1144	1053

COPPER

YCAL	Center of Gravity (mm)		
	X	Y	Z
0114	2055	1140	1105
0124	2054	1140	1105

Weight Distribution

ALUMINUM FIN COILS

English Units

Aluminum Fin Coil Weight Distribution (lbs)									
YCAL	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**Total**
0014	668	524	760	596	---	---	---	---	2,548
0020	672	527	765	600	---	---	---	---	2,564
0024	776	615	864	685	---	---	---	---	2,940
0030	758	680	842	755	---	---	---	---	3,036
0034	882	789	903	807	---	---	---	---	3,381
0040	1,261	1,200	1,266	1,204	---	---	---	---	4,931
0042	1,283	1,223	1,274	1,214	---	---	---	---	4,994
0044	1,292	1,235	1,297	1,239	---	---	---	---	5,064
0050	1,318	1,263	1,311	1,256	---	---	---	---	5,148
0060	1,333	1,280	1,338	1,284	---	---	---	---	5,236
0064	1,655	1,466	1,637	1,450	---	---	---	---	6,208
0070	1,688	1,501	1,692	1,505	---	---	---	---	6,386
0074	1,742	1,552	1,727	1,538	---	---	---	---	6,558
0080	1,792	1,593	1,797	1,597	---	---	---	---	6,779
0090	1,307	1,172	1,037	1,249	1,155	1,061	---	---	6,981
0094	1,292	1,188	1,082	1,269	1,166	1,062	---	---	7,059
0104	1,344	1,133	923	712	1,246	1,050	855	660	7,923
0114	1,572	1,318	1,063	808	1,501	1,262	1,017	772	9,313
0124	1,579	1,322	1,065	808	1,507	1,262	1,017	771	9,331

SI Units

Aluminum Fin Coil Weight Distribution (kg)									
YCAL	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**Total**
0014	303	238	345	270	---	---	---	---	1,156
0020	305	239	347	272	---	---	---	---	1,163
0024	352	279	392	311	---	---	---	---	1,333
0030	344	309	382	343	---	---	---	---	1,377
0034	400	358	410	366	---	---	---	---	1,534
0040	572	544	574	546	---	---	---	---	2,236
0042	582	555	578	551	---	---	---	---	2,265
0044	586	560	588	562	---	---	---	---	2,297
0050	598	573	595	570	---	---	---	---	2,335
0060	605	581	607	583	---	---	---	---	2,375
0064	751	665	742	658	---	---	---	---	2,816
0070	766	681	768	683	---	---	---	---	2,897
0074	790	704	783	698	---	---	---	---	2,975
0080	813	723	815	724	---	---	---	---	3,075
0090	593	532	470	567	524	481	---	---	3,167
0094	586	539	491	576	529	482	---	---	3,202
0104	610	514	419	323	565	476	388	299	3,594
0114	713	598	482	367	681	572	461	350	4,224
0124	716	600	483	367	684	572	461	350	4,232

COPPER FIN COILS

English Units

Copper Fin Coil Weight Distribution (lbs)									
YCAL	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**Total**
0014	718	581	809	654	---	---	---	---	2,762
0020	722	584	814	658	---	---	---	---	2,778
0024	854	704	941	776	---	---	---	---	3,275
0030	830	776	912	853	---	---	---	---	3,371
0034	954	885	974	904	---	---	---	---	3,717
0040	1,354	1,292	1,358	1,296	---	---	---	---	5,300
0042	1,375	1,315	1,366	1,307	---	---	---	---	5,363
0044	1,384	1,327	1,389	1,332	---	---	---	---	5,433
0050	1,410	1,355	1,403	1,348	---	---	---	---	5,517
0060	1,426	1,372	1,430	1,377	---	---	---	---	5,605
0064	1,766	1,577	1,747	1,561	---	---	---	---	6,651
0070	1,799	1,612	1,803	1,616	---	---	---	---	6,829
0074	1,852	1,662	1,838	1,649	---	---	---	---	7,001
0080	1,903	1,704	1,907	1,708	---	---	---	---	7,222
0090	1,427	1,310	1,193	1,409	1,293	1,177	---	---	7,809
0094	1,414	1,326	1,237	1,391	1,304	1,216	---	---	7,888
0104	1,460	1,251	1,041	832	1,364	1,169	973	777	8,867
0114	1,729	1,475	1,222	968	1,660	1,416	1,173	929	10,572
0124	1,735	1,479	1,224	968	1,666	1,420	1,175	929	10,596

SI Units

Copper Fin Coil Weight Distribution (kg)									
YCAL	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**Total**
0014	326	263	367	297	---	---	---	---	1,253
0020	327	265	369	299	---	---	---	---	1,260
0024	387	319	427	352	---	---	---	---	1,486
0030	377	352	414	387	---	---	---	---	1,529
0034	433	402	442	410	---	---	---	---	1,686
0040	614	586	616	588	---	---	---	---	2,404
0042	624	597	620	593	---	---	---	---	2,432
0044	628	602	630	604	---	---	---	---	2,464
0050	640	615	637	612	---	---	---	---	2,502
0060	647	622	649	624	---	---	---	---	2,542
0064	801	715	793	708	---	---	---	---	3,017
0070	816	731	818	733	---	---	---	---	3,098
0074	840	754	833	748	---	---	---	---	3,176
0080	863	773	865	775	---	---	---	---	3,276
0090	647	594	541	639	586	534	---	---	3,542
0094	641	601	561	631	591	552	---	---	3,578
0104	662	567	472	377	619	530	441	352	4,022
0114	784	669	554	439	753	642	532	421	4,795
0124	787	671	555	439	756	644	533	421	4,806

Isolator Selections - Aluminum Fin Coils

1" DEFLECTION ISOLATOR SELECTION - VMC TYPE

Aluminum Fin, 1" Isolator Selections								
YCAL	VMC Type CP-x-xx							
	A	B	C	D	E	F	G	H
0014	CP-1-27	CP-1-26	CP-1-28	CP-1-27	---	---	---	---
0020	CP-1-27	CP-1-26	CP-1-28	CP-1-27	---	---	---	---
0024	CP-1-28	CP-1-27	CP-1-28	CP-1-28	---	---	---	---
0030	CP-1-28	CP-1-27	CP-1-28	CP-1-28	---	---	---	---
0034	CP-1-28	CP-1-28	CP-1-31	CP-1-28	---	---	---	---
0040	CP-2-27	CP-2-27	CP-2-27	CP-2-27	---	---	---	---
0042	CP-2-27	CP-2-27	CP-2-27	CP-2-27	---	---	---	---
0044	CP-2-27	CP-2-27	CP-2-27	CP-2-27	---	---	---	---
0050	CP-2-27	CP-2-27	CP-2-27	CP-2-27	---	---	---	---
0060	CP-2-27	CP-2-27	CP-2-27	CP-2-27	---	---	---	---
0064	CP-2-28	CP-2-28	CP-2-28	CP-2-28	---	---	---	---
0070	CP-2-28	CP-2-28	CP-2-28	CP-2-28	---	---	---	---
0074	CP-2-28	CP-2-28	CP-2-28	CP-2-28	---	---	---	---
0080	CP-2-28	CP-2-28	CP-2-28	CP-2-28	---	---	---	---
0090	CP-2-27	CP-2-27	CP-2-26	CP-2-27	CP-2-27	CP-2-26	---	---
0094	CP-2-27	CP-2-27	CP-2-26	CP-2-27	CP-2-27	CP-2-26	---	---
0104	CP-2-27	CP-2-27	CP-2-26	CP-2-25	CP-2-27	CP-2-26	CP-2-26	CP-2-25
0114	CP-2-28	CP-2-27	CP-2-26	CP-2-25	CP-2-28	CP-2-27	CP-2-26	CP-2-25
0124	CP-2-28	CP-2-27	CP-2-26	CP-2-25	CP-2-28	CP-2-27	CP-2-26	CP-2-25

SEISMIC ISOLATOR SELECTION - VMC TYPE

Aluminum Fin, Seismic Isolator Selections								
YCAL	VMC Model # AEQM-xxxx							
	A	B	C	D	E	F	G	H
0014	AEQM-97	AEQM-96	AEQM-98	AEQM-97	---	---	---	---
0020	AEQM-97	AEQM-96	AEQM-98	AEQM-97	---	---	---	---
0024	AEQM-98	AEQM-97	AEQM-98	AEQM-98	---	---	---	---
0030	AEQM-98	AEQM-97	AEQM-98	AEQM-98	---	---	---	---
0034	AEQM-98	AEQM-98	AEQM-99	AEQM-98	---	---	---	---
0040	AEQM-1300	AEQM-1300	AEQM-1300	AEQM-1300	---	---	---	---
0042	AEQM-1300	AEQM-1300	AEQM-1300	AEQM-1300	---	---	---	---
0044	AEQM-1300	AEQM-1300	AEQM-1300	AEQM-1300	---	---	---	---
0050	AEQM-1600	AEQM-1300	AEQM-1600	AEQM-1300	---	---	---	---
0060	AEQM-1600	AEQM-1300	AEQM-1600	AEQM-1300	---	---	---	---
0064	AEQM-1625	AEQM-1600	AEQM-1625	AEQM-1600	---	---	---	---
0070	AEQM-1625	AEQM-1600	AEQM-1625	AEQM-1600	---	---	---	---
0074	AEQM-1625	AEQM-1600	AEQM-1625	AEQM-1600	---	---	---	---
0080	AEQM-1625	AEQM-1600	AEQM-1625	AEQM-1600	---	---	---	---
0090	AEQM-1600	AEQM-1600	AEQM-1300	AEQM-1600	AEQM-1300	AEQM-1300	---	---
0094	AEQM-1600	AEQM-1600	AEQM-1300	AEQM-1600	AEQM-1300	AEQM-1300	---	---
0104	AEQM-1600	AEQM-1300	AEQM-1000	AEQM-1000	AEQM-1600	AEQM-1300	AEQM-1000	AEQM-1000
0114	AEQM-1625	AEQM-1600	AEQM-1300	AEQM-1000	AEQM-1625	AEQM-1600	AEQM-1300	AEQM-1000
0124	AEQM-1625	AEQM-1600	AEQM-1300	AEQM-1000	AEQM-1625	AEQM-1600	AEQM-1300	AEQM-1000

NEOPRENE ISOLATOR SELECTION - VMC TYPE

Aluminum Fin, Neoprene Mount Selections								
YCAL	VMC Type RD							
	A	B	C	D	E	F	G	H
0014	-3 Grn	-2 Gray	-3 Gray	-3 Grn	---	---	---	---
0020	-3 Grn	-2 Gray	-3 Gray	-3 Grn	---	---	---	---
0024	-3 Gray	-3 Grn	-3 Gray	-3 Grn	---	---	---	---
0030	-3 Gray	-3 Grn	-3 Gray	-3 Grn	---	---	---	---
0034	-3 Gray	-3 Grn	-3 Gray	-3 Grn	---	---	---	---
0040	-4 Blk	-4 Blk	-4 Blk	-4 Blk	---	---	---	---
0042	-4 Blk	-4 Blk	-4 Blk	-4 Blk	---	---	---	---
0044	-4 Blk	-4 Blk	-4 Blk	-4 Blk	---	---	---	---
0050	-4 Blk	-4 Blk	-4 Blk	-4 Blk	---	---	---	---
0060	-4 Blk	-4 Blk	-4 Blk	-4 Blk	---	---	---	---
0064	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---
0070	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---
0074	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---
0080	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---
0090	-4 Blk	-4 Blk	-3 Gray	-4 Blk	-4 Blk	-3 Gray	---	---
0094	-4 Blk	-4 Blk	-3 Gray	-4 Blk	-4 Blk	-3 Gray	---	---
0104	-4 Blk	-4 Blk	-3 Gray	-3 Grn	-4 Blk	-3 Gray	-3 Gray	-3 Grn
0114	-4 Red	-4 Blk	-3 Gray	-3 Gray	-4 Red	-4 Blk	-3 Gray	-3 Gray
0124	-4 Red	-4 Blk	-3 Gray	-3 Gray	-4 Red	-4 Blk	-3 Gray	-3 Gray

Isolator Selections - Copper Fin Coils

1" DEFLECTION ISOLATOR SELECTION - VMC TYPE

Copper Fin Coil Weight Distribution (lbs)									
YCAL	VMC Type CP-x-xx								
	A	B	C	D	E	F	G	H	Total
0014	718	581	809	654	---	---	---	---	2,762
0020	722	584	814	658	---	---	---	---	2,778
0024	854	704	941	776	---	---	---	---	3,275
0030	830	776	912	853	---	---	---	---	3,371
0034	954	885	974	904	---	---	---	---	3,717
0040	1,354	1,292	1,358	1,296	---	---	---	---	5,300
0042	1,375	1,315	1,366	1,307	---	---	---	---	5,363
0044	1,384	1,327	1,389	1,332	---	---	---	---	5,433
0050	1,410	1,355	1,403	1,348	---	---	---	---	5,517
0060	1,426	1,372	1,430	1,377	---	---	---	---	5,605
0064	1,766	1,577	1,747	1,561	---	---	---	---	6,651
0070	1,799	1,612	1,803	1,616	---	---	---	---	6,829
0074	1,852	1,662	1,838	1,649	---	---	---	---	7,001
0080	1,903	1,704	1,907	1,708	---	---	---	---	7,222
0090	1,427	1,310	1,193	1,409	1,293	1,177	---	---	7,809
0094	1,414	1,326	1,237	1,391	1,304	1,216	---	---	7,888
0104	1,460	1,251	1,041	832	1,364	1,169	973	777	8,867
0114	1,729	1,475	1,222	968	1,660	1,416	1,173	929	10,572
0124	1,735	1,479	1,224	968	1,666	1,420	1,175	929	10,596

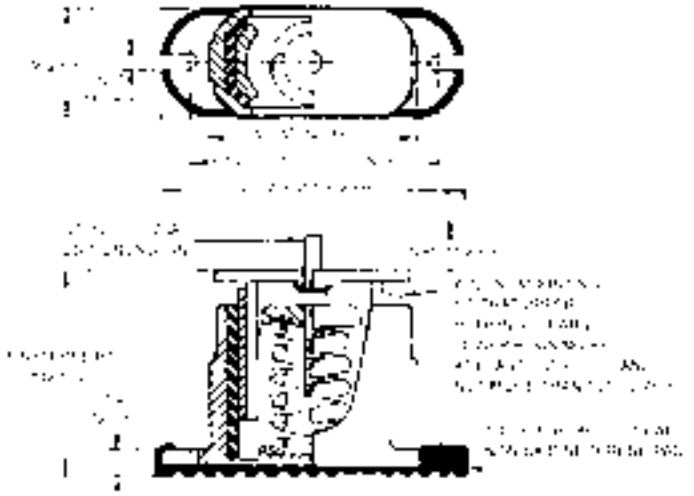
SEISMIC ISOLATOR SELECTION - VMC TYPE

Copper Fin, Seismic Isolator Selections								
VMC Model # AEQM-xxxx								
YCAL	A	B	C	D	E	F	G	H
0014	AEQM-97	AEQM-96	AEQM-98	AEQM-97	---	---	---	---
0020	AEQM-97	AEQM-96	AEQM-98	AEQM-97	---	---	---	---
0024	AEQM-98	AEQM-97	AEQM-99	AEQM-98	---	---	---	---
0030	AEQM-98	AEQM-97	AEQM-99	AEQM-98	---	---	---	---
0034	AEQM-99	AEQM-98	AEQM-99	AEQM-98	---	---	---	---
0040	AEQM-1600	AEQM-1600	AEQM-1600	AEQM-1300	---	---	---	---
0042	AEQM-1600	AEQM-1600	AEQM-1600	AEQM-1300	---	---	---	---
0044	AEQM-1600	AEQM-1600	AEQM-1600	AEQM-1600	---	---	---	---
0050	AEQM-1600	AEQM-1600	AEQM-1600	AEQM-1600	---	---	---	---
0060	AEQM-1600	AEQM-1600	AEQM-1600	AEQM-1600	---	---	---	---
0064	AEQM-1625	AEQM-1600	AEQM-1625	AEQM-1600	---	---	---	---
0070	AEQM-1625	AEQM-1625	AEQM-1625	AEQM-1625	---	---	---	---
0074	AEQM-1625	AEQM-1625	AEQM-1625	AEQM-1625	---	---	---	---
0080	AEQM-1625	AEQM-1625	AEQM-1625	AEQM-1625	---	---	---	---
0090	AEQM-1600	AEQM-1600	AEQM-1600	AEQM-1600	AEQM-1600	AEQM-1600	---	---
0094	AEQM-1600	AEQM-1600	AEQM-1600	AEQM-1600	AEQM-1600	AEQM-1600	---	---
0104	AEQM-1625	AEQM-1600	AEQM-1300	AEQM-1000	AEQM-1600	AEQM-1300	AEQM-1300	AEQM-1000
0114	AEQM-1625	AEQM-1625	AEQM-1600	AEQM-1300	AEQM-1625	AEQM-1600	AEQM-1300	AEQM-1000
0124	AEQM-1625	AEQM-1625	AEQM-1600	AEQM-1300	AEQM-1625	AEQM-1600	AEQM-1300	AEQM-1000

NEOPRENE ISOLATOR SELECTION - VMC TYPE

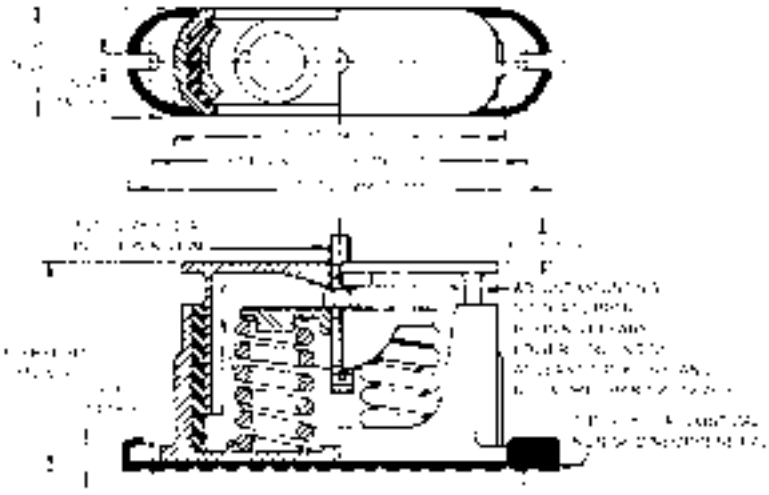
Copper Fin, Neoprene Mount Selections								
YCAL	VMC Type RD							
	A	B	C	D	E	F	G	H
0014	-3 Grn	-3 Grn	-3 Gray	-3 Grn	---	---	---	---
0020	-3 Grn	-3 Grn	-3 Gray	-3 Grn	---	---	---	---
0024	-3 Gray	-3 Gray	-3 Gray	-3 Gray	---	---	---	---
0030	-3 Gray	-3 Gray	-3 Gray	-3 Gray	---	---	---	---
0034	-3 Gray	-3 Gray	-3 Gray	-3 Gray	---	---	---	---
0040	-4 Blk	-4 Blk	-4 Blk	-4 Blk	---	---	---	---
0042	-4 Blk	-4 Blk	-4 Blk	-4 Blk	---	---	---	---
0044	-4 Blk	-4 Blk	-4 Blk	-4 Blk	---	---	---	---
0050	-4 Blk	-4 Blk	-4 Blk	-4 Blk	---	---	---	---
0060	-4 Blk	-4 Blk	-4 Blk	-4 Blk	---	---	---	---
0064	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---
0070	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---
0074	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---
0080	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---
0090	-4 Blk	-4 Blk	-4 Blk	-4 Blk	-4 Blk	-4 Blk	---	---
0094	-4 Blk	-4 Blk	-4 Blk	-4 Blk	-4 Blk	-4 Blk	---	---
0104	-4 Blk	-4 Blk	-3 Gray	-3 Gray	-4 Blk	-4 Blk	-3 Gray	-3 Gray
0114	-4 Red	-4 Blk	-4 Blk	-3 Gray	-4 Red	-4 Blk	-4 Blk	-3 Gray
0124	-4 Red	-4 Blk	-4 Blk	-3 Gray	-4 Red	-4 Blk	-4 Blk	-3 Gray

Isolator Selections



LD03839

TYPE CP 1



LD03840

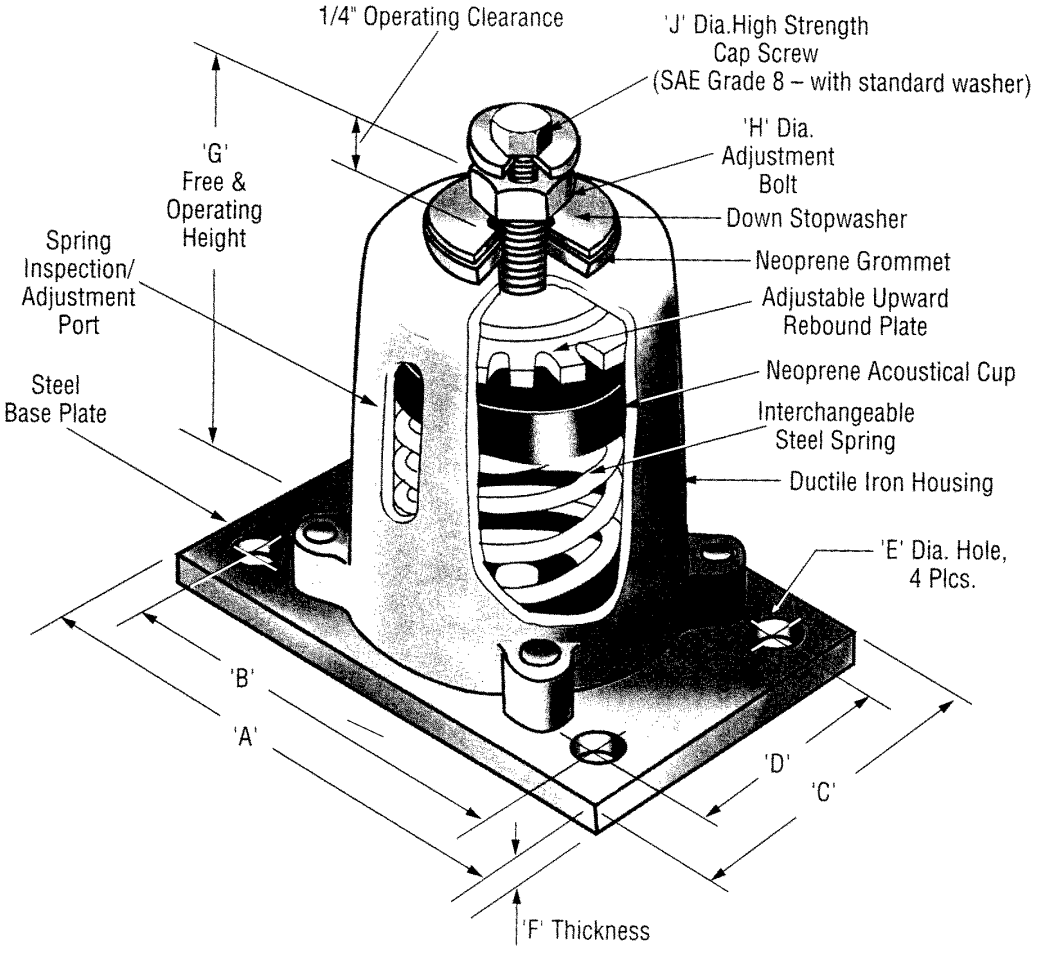
TYPE CP 2

ISOLATOR SPRING IDENTIFICATION TABLE

1" DEFLECTION			SEISMIC		
MODEL	**PART- #**	**COLOR**	**MODEL**	**PART #**	**COLOR**
CP-1-26	308439-26	PURPLE	**AEQM-96**	301055-96	BLACK
CP-1-27	308439-27	ORANGE	**AEQM-97**	301055-97	WHITE
CP-1-28	308439-28	GREEN	**AEQM-98**	301055-98	GRAY
CP-1-31	308439-31	GRAY	**AEQM-99**	301055-99	BLUE
CP-2-25	308439-25	RED	**AEQM-1000**	30106-1000	GREEN
CP-2-26	308692-26	PURPLE	**AEQM-1300**	30106-1300	YELLOW
CP-2-27	308962-27	ORANGE	**AEQM-1600**	301060-1600	GRAY
CP-2-28	308692-28	GREEN	**AEQM-1625**	301060-1625	RED
CP-2-31	308692-31	GRAY	**AEQM-1628**	301060-1628	GRAY/GREEN

DIMENSIONS

MODEL #	A	B	C	D	E	F	G	H	J
AEQM-97	7	5-1/2	4-1/2	2-1/2	5/8	1/4	7-1/4	5/8	3/8
AEQM-98	7	5-1/2	4-1/2	2-1/2	5/8	1/4	7-1/4	5/8	3/8
AEQM-99	7	5-1/2	4-1/2	2-1/2	5/8	1/4	7-1/4	5/8	3/8
AEQM-1000	8-1/2	6-1/2	6	4-1/2	3/4	3/8	8-3/8	7/8	1/2
AEQM-1300	8-1/2	6-1/2	6	4-1/2	3/4	3/8	8-3/8	7/8	1/2
AEQM-1600	8-1/2	6-1/2	6	4-1/2	3/4	3/8	8-3/8	7/8	1/2
AEQM-1625	8-1/2	6-1/2	6	4-1/2	3/4	3/8	8-3/8	7/8	1/2
AEQM-1628	8-1/2	6-1/2	6	4-1/2	3/4	3/8	8-3/8	7/8	1/2



TYPE AEQM

Electrical Data

NOTES:

1. Minimum Circuit Ampacity (MCA) is based on 125% of the rated load amps for the largest motor plus 100% of the rated load amps for all other loads included in the circuit, per N.E.C. Article 430-24. If the optional Factory Mounted Control Transformer is provided, add the following MCA values to the electrical tables for the system providing power to the transformer: -17, add 2.5 amps; -28, add 2.3 amps; -40, add 1.5 amps, -46, add 1.3 amps; -58, add 1 amps.

2. The minimum recommended disconnect switch is based on 115% of the rated load amps for all loads included in the circuit, per N.E.C. Article 440.

3. Minimum fuse size is based upon 150% of the rated load amps for the largest motor plus 100% of the rated load amps for all other loads included in the circuit to avoid nuisance trips at start-up due to lock rotor amps. It is not recommended in applications where brown outs, frequent starting and stopping of the unit, and/or operation at ambient temperatures in excess of 95ºF (35ºC) is anticipated.

4. Maximum fuse size is based upon 225% of the rated load amps for the largest motor plus 100% of the rated load amps for all other loads included in the circuit, per N.E.C. Article 440-22.

5. Circuit breakers must be UL listed and CSA certified and maximum size is based on 225% of the rated load amps for the largest motor plus 100% of the rated load amps for all other loads included in the circuit. Exception: YCAL0014 and YCAL0020 must have the optional factory overloads installed to use a standard circuit breaker. Otherwise, an HACR-type circuit breakers must be used. Maximum HACR circuit breaker rating is based on 225% of the rated load amps for the largest motor plus 100% of the rated load amps for all other loads included in the circuit.

6. The “INCOMING WIRE RANGE” is the minimum and maximum wire size that can be accommodated by the unit wiring lugs. The (2) preceding the wire range indicates the number of termination points available per phase of the wire range specified. Actual wire size and number of wires per phase must be determined based on the National Electrical Code, **using copper connectors only**. Field wiring must also comply with local codes.

7. A ground lug is provided for each compressor system to accommodate a field grounding conductor per N.E.C. Table 250-95. A control circuit grounding lug is also supplied.

8. The supplied disconnect is a “Disconnecting Means” as defined in the N.E.C. 100, and is intended for isolating the unit for the available power supply to perform maintenance and troubleshooting. This disconnect is not intended to be a Load Break Device.

9. Field Wiring by others which complies to the National Electrical Code & Local Codes.

LEGEND

ACR-LINE	ACROSS THE LINE START
C.B.	CIRCUIT BREAKER
D.E.	DUAL ELEMENT FUSE
DISC SW	DISCONNECT SWITCH
FACT MOUNT CB	FACTORY MOUNTED CIRCUIT BREAKER
FLA	FULL LOAD AMPS
HZ	HERTZ
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MIN	MINIMUM
MIN NF	MINIMUM NON FUSED
RLA	RATED LOAD AMPS
S.P. WIRE	SINGLE POINT WIRING
UNIT MTD SERV SW	UNIT MOUNTED SERVICE (NON-FUSED DISCONNECT SWITCH)
LRA	LOCKED ROTOR AMPS

VOLTAGE CODE

-17 = 200-3-60
-28 = 230-3-60
-40 = 380-3-60
-46 = 460-3-60
-58 = 575-3-60

YCAL0014 - YCAL0034

SINGLE POINT POWER SUPPLY CONNECTIONS (See Fig. 1)

(One Field Provided Power Supply to the chiller. Field connections to Factory Provided Power Terminal Block (standard), Non-Fused Disconnect Switch (optional) or Circuit Breaker (optional).)

MODEL YCAL	VOLT	HZ	SINGLE POINT FIELD SUPPLIED WIRING									SYSTEM #1 COMPRESSOR & FAN							
			MCA[1]	MIN N/F DISC SW[2]	D.E. FUSE		CKT. BKR.[5]		INCOMING (LUGS) WIRE RANGE[6]			COMPR. #1		COMPR. #2		COMPR. #3		FANS	
					MIN[3]	MAX[4]	MIN	MAX	TERMINAL BLOCK (std)	NF DISC. SWITCH (opt)	CIRCUIT BREAKER (opt)	RLA	LRA	RLA	LRA	RLA	LRA	QTY	FLA (EA)
0014	200	60	71	100	80	90	80	90	# 10 - # 1	# 14 - 1/0	# 14 - 1/0	24.0	189	24.0	189	—	—	2	8.2
	230	60	70	100	80	90	80	90	# 10 - # 1	# 14 - 1/0	# 14 - 1/0	24.0	189	24.0	189	—	—	2	7.8
	380	60	42	60	50	50	50	50	# 10 - # 1	# 14 - 2	# 14 - 2	14.4	112	14.4	112	—	—	2	4.8
	460	60	35	60	40	45	40	45	# 10 - # 1	# 14 - 2	# 14 - 2	12.0	99	12.0	99	—	—	2	4.0
	575	60	28	30	35	35	35	35	# 10 - # 1	# 14 - 2	# 14 - 2	9.6	74	9.6	74	—	—	2	3.1
0020	200	60	92	100	100	110	100	110	# 10 - # 1	# 14 - 1/0	# 14 - 1/0	33.2	278	33.2	278	—	—	2	8.2
	230	60	91	100	100	110	100	110	# 10 - # 1	# 14 - 1/0	# 14 - 1/0	33.2	278	33.2	278	—	—	2	7.8
	380	60	55	60	60	70	60	70	# 10 - # 1	# 14 - 2	# 14 - 2	19.9	151	19.9	151	—	—	2	4.8
	460	60	46	60	50	60	50	60	# 10 - # 1	# 14 - 2	# 14 - 2	16.6	127	16.6	127	—	—	2	4.0
	575	60	37	60	40	45	40	45	# 10 - # 1	# 14 - 2	# 14 - 2	13.3	100	13.3	100	—	—	2	3.1
0024	200	60	107	150	125	125	125	125	# 10 - # 1	# 2 - 4/0	# 2 - 4/0	40.0	350	40.0	350	—	—	2	8.2
	230	60	106	150	125	125	125	125	# 10 - # 1	# 2 - 4/0	# 2 - 4/0	40.0	350	40.0	350	—	—	2	7.8
	380	60	64	100	70	80	70	80	# 10 - # 1	# 14 - 1/0	# 14 - 1/0	24.0	195	24.0	195	—	—	2	4.8
	460	60	53	60	60	70	60	70	# 10 - # 1	# 14 - 2	# 14 - 2	19.9	167	19.9	167	—	—	2	4.0
	575	60	43	60	50	50	50	50	# 10 - # 1	# 14 - 2	# 14 - 2	16.0	125	16.0	125	—	—	2	3.1
0030	200	60	124	150	150	150	150	150	# 10 - 3/0	# 2 - 4/0	# 2 - 4/0	47.8	425	47.8	425	—	—	2	8.2
	230	60	124	150	150	150	150	150	# 10 - 3/0	# 2 - 4/0	# 2 - 4/0	47.8	425	47.8	425	—	—	2	7.8
	380	60	75	100	90	90	90	90	# 10 - # 1	# 14 - 1/0	# 14 - 1/0	28.7	239	28.7	239	—	—	2	4.8
	460	60	62	100	70	70	70	70	# 10 - # 1	# 14 - 1/0	# 14 - 1/0	23.9	198	23.9	198	—	—	2	4.0
	575	60	50	60	60	60	60	60	# 10 - # 1	# 14 - 2	# 14 - 2	19.1	148	19.1	148	—	—	2	3.1
0034	200	60	147	200	175	175	175	175	# 10 - 3/0	# 3 - 300	# 3 - 300	40.0	350	40.0	350	40.0	350	2	8.2
	230	60	146	200	175	175	175	175	# 10 - 3/0	# 3 - 300	# 3 - 300	40.0	350	40.0	350	40.0	350	2	7.8
	380	60	88	100	100	110	100	110	# 10 - # 1	# 14 - 1/0	# 14 - 1/0	24.0	195	24.0	195	24.0	195	2	4.8
	460	60	73	100	80	90	80	90	# 10 - # 1	# 14 - 1/0	# 14 - 1/0	19.9	167	19.9	167	19.9	167	2	4.0
	575	60	59	100	70	70	70	70	# 10 - # 1	# 14 - 1/0	# 14 - 1/0	16.0	125	16.0	125	16.0	125	2	3.1

UNIT VOLTAGE	UNIT VOLTAGE	CONTROL POWER	MCA	OVER CURRENT PROTECTION, SEE NOTE B		NF DISC Sw
			NOTE A	MIN	MAX	
MODELS w/o CONTROL TRANS		115-1-60/50	15A	10A	15A	30 A / 240V
MODELS w/ CONTROL TRANS	-17	200-1-60	15A	10A	15A	30 A / 240V
	-28	230-1-60	15A	10A	15A	30 A / 240V
	-40	380-1-60	15A	10A	15A	30 A / 480V
	-46	460-1-60	15A	10A	15A	30 A / 480V
	-58	575-1-60	15A	10A	15A	30 A / 600V

A. Minimum #14 AWG, 75°C, Copper Recommended

B. Minimum and Maximum Over Current Protection, Dual Element Fuse or Circuit Breaker

VOLTAGE RANGE

VOLTAGE CODE	UNIT POWER	MIN.	MAX.
-17	200-3-60	180	220
-28	230-3-60	207	253
-40	380/415-3-60	342	440
-46	460-3-60	414	506
-58	575-3-60	517	633

Electrical Data

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DUAL POINT POWER SUPPLY CONNECTIONS (See Fig. 2)

(Two Field Provided Power Supply Circuits to the chiller. Field connections to Factory Provided Terminal Blocks per system)

MODEL YCAL	VOLT	HZ	SYSTEM #1 FIELD SUPPLIED WIRING							SYSTEM #1 COMPRESSOR & FAN							
			MCA[1]	MIN N/F DISC SW[2]	D.E. FUSE		CKT. BKR.[5]		INCOMING (LUGS) WIRE RANGE[6]	COMPR. #1		COMPR. #2		COMPR. #3		FANS	
					MIN[3]	MAX[4]	MIN	MAX		RLA	LRA	RLA	LRA	RLA	LRA	QTY	FLA(EA)
0040	200	60	92	100	100	110	100	110	# 10 - # 1	33.2	278	33.2	278	—	—	2	8.2
	230	60	91	100	100	110	100	110	# 10 - # 1	33.2	278	33.2	278	—	—	2	7.8
	380	60	55	60	60	70	60	70	# 10 - # 1	19.9	151	19.9	151	—	—	2	4.8
	460	60	46	60	50	60	50	60	# 10 - # 1	16.6	127	16.6	127	—	—	2	4.0
	575	60	37	60	40	45	40	45	# 10 - # 1	13.3	100	13.3	100	—	—	2	3.1
0042	200	60	107	150	125	125	125	125	# 10 - # 1	40.0	350	40.0	350	—	—	2	8.2
	230	60	106	150	125	125	125	125	# 10 - # 1	40.0	350	40.0	350	—	—	2	7.8
	380	60	64	100	70	90	70	90	# 10 - # 1	24.0	195	24.0	195	—	—	2	4.8
	460	60	53	60	60	70	60	70	# 10 - # 1	19.9	167	19.9	167	—	—	2	4.0
	575	60	43	60	50	50	50	50	# 10 - # 1	16.0	125	16.0	125	—	—	2	3.1
0044	200	60	107	150	125	125	125	125	# 10 - # 1	40.0	350	40.0	350	—	—	2	8.2
	230	60	106	150	125	125	125	125	# 10 - # 1	40.0	350	40.0	350	—	—	2	7.8
	380	60	64	100	70	80	70	80	# 10 - # 1	24.0	195	24.0	195	—	—	2	4.8
	460	60	53	60	60	70	60	70	# 10 - # 1	19.9	167	19.9	167	—	—	2	4.0
	575	60	43	60	50	50	50	50	# 10 - # 1	16.0	125	16.0	125	—	—	2	3.1
0050	200	60	124	150	150	150	150	150	# 10 - 3/0	47.8	425	47.8	425	—	—	2	8.2
	230	60	124	150	150	150	150	150	# 10 - 3/0	47.8	425	47.8	425	—	—	2	7.8
	380	60	75	100	90	100	90	100	# 10 - # 1	28.7	239	28.7	239	—	—	2	4.8
	460	60	62	100	70	80	70	80	# 10 - # 1	23.9	198	23.9	198	—	—	2	4.0
	575	60	50	60	60	60	60	60	# 10 - # 1	19.1	148	19.1	148	—	—	2	3.1
0060	200	60	124	150	150	150	150	150	# 10 - 3/0	47.8	425	47.8	425	—	—	2	8.2
	230	60	124	150	150	150	150	150	# 10 - 3/0	47.8	425	47.8	425	—	—	2	7.8
	380	60	75	100	90	100	90	100	# 10 - # 1	28.7	239	28.7	239	—	—	2	4.8
	460	60	62	100	70	80	70	80	# 10 - # 1	23.9	198	23.9	198	—	—	2	4.0
	575	60	50	60	60	60	60	60	# 10 - # 1	19.1	148	19.1	148	—	—	2	3.1
0064	200	60	147	200	175	175	175	175	# 10 - 3/0	40.0	350	40.0	350	40.0	350	2	8.2
	230	60	146	200	175	175	175	175	# 10 - 3/0	40.0	350	40.0	350	40.0	350	2	7.8
	380	60	88	100	100	110	100	110	# 10 - # 1	24.0	195	24.0	195	24.0	195	2	4.8
	460	60	73	100	80	90	80	90	# 10 - # 1	19.9	167	19.9	167	19.9	167	2	4.0
	575	60	59	100	70	70	70	70	# 10 - # 1	16.0	125	16.0	125	16.0	125	2	3.1
0070	200	60	147	200	175	175	175	175	# 10 - 3/0	40.0	350	40.0	350	40.0	350	2	8.2
	230	60	146	200	175	175	175	175	# 10 - 3/0	40.0	350	40.0	350	40.0	350	2	7.8
	380	60	88	100	100	110	100	110	# 10 - # 1	24.0	195	24.0	195	24.0	195	2	4.8
	460	60	73	100	80	90	80	90	# 10 - # 1	19.9	167	19.9	167	19.9	167	2	4.0
	575	60	59	100	70	70	70	70	# 10 - # 1	16.0	125	16.0	125	16.0	125	2	3.1
0074	200	60	172	200	200	200	200	200	# 10 - 3/0	47.8	425	47.8	425	47.8	425	2	8.2
	230	60	171	200	200	200	200	200	# 10 - 3/0	47.8	425	47.8	425	47.8	425	2	7.8
	380	60	103	150	125	125	125	125	# 10 - # 1	28.7	239	28.7	239	28.7	239	2	4.8
	460	60	86	100	100	100	100	100	# 10 - # 1	23.9	198	23.9	198	23.9	198	2	4.0
	575	60	69	100	80	80	80	80	# 10 - # 1	19.1	148	19.1	148	19.1	148	2	3.1
0080	200	60	172	200	200	200	200	200	# 10 - 3/0	47.8	425	47.8	425	47.8	425	2	8.2
	230	60	171	200	200	200	200	200	# 10 - 3/0	47.8	425	47.8	425	47.8	425	2	7.8
	380	60	103	150	125	125	125	125	# 10 - # 1	28.7	239	28.7	239	28.7	239	2	4.8
	460	60	86	100	100	100	100	100	# 10 - # 1	23.9	198	23.9	198	23.9	198	2	4.0
	575	60	69	100	80	80	80	80	# 10 - # 1	19.1	148	19.1	148	19.1	148	2	3.1

See Notes on page 94.

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DUAL POINT POWER SUPPLY CONNECTIONS (See Fig. 2)

(Two Field Provided Power Supply Circuits to the chiller. Field connections to Factory Provided Terminal Blocks per system)

SYSTEM #2 FIELD SUPPLIED WIRING							SYSTEM #2 COMPRESSOR & FAN							
MCA[1]	MIN N/F DISC SW[2]	D.E. FUSE		CKT. BKR.[5]		INCOMING (LUGS) WIRE RANGE[6]	COMPR. #1		COMPR. #2		COMPR. #3		FANS	
		MIN[3]	MAX[4]	MIN	MAX		RLA	LRA	RLA	LRA	RLA	LRA	QTY	FLA(EA)
92	100	100	110	100	110	# 10 - # 1	33.2	278	33.2	278	—	—	2	8.2
91	100	100	110	100	110	# 10 - # 1	33.2	278	33.2	278	—	—	2	7.8
55	60	60	70	60	70	# 10 - # 1	19.9	151	19.9	151	—	—	2	4.8
46	60	50	60	50	60	# 10 - # 1	16.6	127	16.6	127	—	—	2	4.0
37	60	40	45	40	45	# 10 - # 1	13.3	100	13.3	100	—	—	2	3.1
92	100	100	110	100	110	# 10 - # 1	33.2	278	33.2	278	—	—	2	8.2
91	100	100	110	100	110	# 10 - # 1	33.2	278	33.2	278	—	—	2	7.8
55	60	60	70	60	70	# 10 - # 1	19.9	151	19.9	151	—	—	2	4.8
46	60	50	60	50	60	# 10 - # 1	16.6	127	16.6	127	—	—	2	4.0
37	60	40	45	40	45	# 10 - # 1	13.3	100	13.3	100	—	—	2	3.1
107	150	125	125	125	125	# 10 - # 1	40.0	350	40.0	350	—	—	2	8.2
106	150	125	125	125	125	# 10 - # 1	40.0	350	40.0	350	—	—	2	7.8
64	100	70	80	70	80	# 10 - # 1	24.0	195	24.0	195	—	—	2	4.8
53	60	60	70	60	70	# 10 - # 1	19.9	167	19.9	167	—	—	2	4.0
43	60	50	50	50	50	# 10 - # 1	16.0	125	16.0	125	—	—	2	3.1
107	150	125	125	125	125	# 10 - # 1	40.0	350	40.0	350	—	—	2	8.2
106	150	125	125	125	125	# 10 - # 1	40.0	350	40.0	350	—	—	2	7.8
64	100	70	80	70	80	# 10 - # 1	24.0	195	24.0	195	—	—	2	4.8
53	60	60	70	60	70	# 10 - # 1	19.9	167	19.9	167	—	—	2	4.0
43	60	50	50	50	50	# 10 - # 1	16.0	125	16.0	125	—	—	2	3.1
124	150	150	150	150	150	# 10 - 3/0	47.8	425	47.8	425	—	—	2	8.2
124	150	150	150	150	150	# 10 - 3/0	47.8	425	47.8	425	—	—	2	7.8
75	100	90	100	90	100	# 10 - # 1	28.7	239	28.7	239	—	—	2	4.8
62	100	70	80	70	80	# 10 - # 1	23.9	198	23.9	198	—	—	2	4.0
50	60	60	60	60	60	# 10 - # 1	19.1	148	19.1	148	—	—	2	3.1
125	150	150	150	150	150	# 10 - 3/0	33.2	278	33.2	278	33.2	278	2	8.2
124	150	150	150	150	150	# 10 - 3/0	33.2	278	33.2	278	33.2	278	2	7.8
75	100	80	90	80	90	# 10 - # 1	19.9	151	19.9	151	19.9	151	2	4.8
62	100	70	70	70	70	# 10 - # 1	16.6	127	16.6	127	16.6	127	2	4.0
50	60	60	60	60	60	# 10 - # 1	13.3	100	13.3	100	13.3	100	2	3.1
147	200	175	175	175	175	# 10 - 3/0	40.0	350	40.0	350	40.0	350	2	8.2
146	200	175	175	175	175	# 10 - 3/0	40.0	350	40.0	350	40.0	350	2	7.8
88	100	100	110	100	110	# 10 - # 1	24.0	195	24.0	195	24.0	195	2	4.8
73	100	80	90	80	90	# 10 - # 1	19.9	167	19.9	167	19.9	167	2	4.0
59	100	70	70	70	70	# 10 - # 1	16.0	125	16.0	125	16.0	125	2	3.1
147	200	175	175	175	175	# 10 - 3/0	40.0	350	40.0	350	40.0	350	2	8.2
146	200	175	175	175	175	# 10 - 3/0	40.0	350	40.0	350	40.0	350	2	7.8
88	100	100	100	100	100	# 10 - # 1	24.0	195	24.0	195	24.0	195	2	4.8
73	100	80	90	80	90	# 10 - # 1	19.9	167	19.9	167	19.9	167	2	4.0
59	100	70	70	70	70	# 10 - # 1	16.0	125	16.0	125	16.0	125	2	3.1
172	200	200	200	200	200	# 10 - 3/0	47.8	425	47.8	425	47.8	425	2	8.2
171	200	200	200	200	200	# 10 - 3/0	47.8	425	47.8	425	47.8	425	2	7.8
103	150	125	125	125	125	# 10 - # 1	28.7	239	28.7	239	28.7	239	2	4.8
86	100	100	100	100	100	# 10 - # 1	23.9	198	23.9	198	23.9	198	2	4.0
69	100	80	80	80	80	# 10 - # 1	19.1	148	19.1	148	19.1	148	2	3.1

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SINGLE POINT POWER SUPPLY CONNECTIONS (see Fig. 1)

(One Field Provided Power Supply Circuit to the chiller. Field connections to Factory Provided Terminal Block (optional), Non-Fused Disconnect Switch (optional) or Circuit Breaker (optional).)

MODEL YCAL	VOLT	HZ	SINGLE POINT FIELD SUPPLIED WIRING								
			MCA[1]	MIN N/F DISC SW[2]	D.E. FUSE		CKT. BKR.[5]		INCOMING (LUGS) WIRE RANGE[6]		
					MIN[3]	MAX[4]	MIN	MAX	TERMINAL BLOCK (opt)	NF DISC. SWITCH (opt)	CIRCUIT BREAKER (opt)
0040	200	60	174	200	200	200	200	200	# 10 - 3/0	# 6 - 350	# 3 - 300
	230	60	173	200	200	200	200	200	# 10 - 3/0	# 6 - 350	# 3 - 300
	380	60	104	150	110	110	110	110	# 10 - # 1	# 2 - 4/0	# 2 - 4/0
	460	60	87	100	100	100	100	100	# 10 - # 1	# 14 - 1/0	# 14 - 1/0
	575	60	69	100	80	80	80	80	# 10 - # 1	# 14 - 1/0	# 14 - 1/0
0042	200	60	190	250	200	225	200	225	# 10 - 300	# 6 - 350	# 3 - 300
	230	60	188	250	200	225	200	225	# 10 - 300	# 6 - 350	# 3 - 300
	380	60	113	150	125	125	125	125	# 10 - # 1	# 2 - 4/0	# 2 - 4/0
	460	60	94	150	100	110	100	110	# 10 - # 1	# 2 - 4/0	# 14 - 1/0
	575	60	75	100	80	90	80	90	# 10 - # 1	# 14 - 1/0	# 14 - 1/0
0044	200	60	203	250	225	225	225	225	# 10 - 300	# 6 - 350	# 3 - 300
	230	60	202	250	225	225	225	225	# 10 - 300	# 6 - 350	# 3 - 300
	380	60	122	150	150	125	150	125	# 10 - 3/0	# 2 - 4/0	# 2 - 4/0
	460	60	101	150	110	110	110	110	# 10 - # 1	# 2 - 4/0	# 2 - 4/0
	575	60	81	100	90	90	90	90	# 10 - # 1	# 14 - 1/0	# 14 - 1/0
0050	200	60	221	250	250	250	250	250	# 10 - 300	# 6 - 350	# 6 - 350
	230	60	219	250	250	250	250	250	# 10 - 300	# 6 - 350	# 6 - 350
	380	60	132	150	150	150	150	150	# 10 - 3/0	# 2 - 4/0	# 2 - 4/0
	460	60	110	150	125	125	125	125	# 10 - # 1	# 2 - 4/0	# 2 - 4/0
	575	60	88	100	100	100	100	100	# 10 - # 1	# 14 - 1/0	# 14 - 1/0
0060	200	60	236	400	250	250	250	250	# 10 - 300	250-500	# 6 - 350
	230	60	235	400	250	250	250	250	# 10 - 300	250-500	# 6 - 350
	380	60	142	200	150	150	150	150	# 10 - 3/0	# 6 - 350	# 2 - 4/0
	460	60	118	150	125	125	125	125	# 10 - 3/0	# 2 - 4/0	# 2 - 4/0
	575	60	94	150	100	110	100	110	# 10 - # 1	# 2 - 4/0	# 14 - 1/0
0064	200	60	263	400	300	300	300	300	# 4 - 500	250-500	250-500
	230	60	261	400	300	300	300	300	# 4 - 500	250-500	250-500
	380	60	157	200	175	175	175	175	# 10 - 3/0	# 6 - 350	# 2 - 4/0
	460	60	131	150	150	150	150	150	# 10 - 3/0	# 2 - 4/0	# 2 - 4/0
	575	60	105	150	110	110	110	110	# 10 - # 1	# 2 - 4/0	# 2 - 4/0
0070	200	60	283	400	300	300	300	300	# 4 - 500	250-500	250-500
	230	60	282	400	300	300	300	300	# 4 - 500	250-500	250-500
	380	60	170	200	200	200	200	200	# 10 - 3/0	# 6 - 350	# 4 - 300
	460	60	141	200	150	150	150	150	# 10 - 3/0	# 6 - 350	# 2 - 4/0
	575	60	113	150	125	125	125	125	# 10 - # 1	# 2 - 4/0	# 2 - 4/0
0074	200	60	309	400	350	350	350	350	# 4 - 500	250-500	250-500
	230	60	307	400	350	350	350	350	# 4 - 500	250-500	250-500
	380	60	185	250	200	200	200	200	# 10 - 300	# 6 - 350	# 4 - 300
	460	60	154	200	175	175	175	175	# 10 - 3/0	# 6 - 350	# 4 - 300
	575	60	123	150	150	125	150	125	# 10 - 3/0	# 2 - 4/0	# 2 - 4/0
0080	200	60	332	400	350	350	350	350	# 4 - 500	250-500	250-500
	230	60	330	400	350	350	350	350	# 4 - 500	250-500	250-500
	380	60	199	250	225	225	225	225	# 10 - 300	# 6 - 350	# 4 - 300
	460	60	166	200	175	175	175	175	# 10 - 3/0	# 6 - 350	# 4 - 300
	575	60	132	150	150	150	150	150	# 10 - 3/0	# 2 - 4/0	# 2 - 4/0

See Notes on page 94.

YCAL0040 - YCAL0080

SINGLE POINT POWER SUPPLY CONNECTIONS (see Fig. 1)

(One Field Provided Power Supply Circuit to the chiller. Field connections to Factory Provided Terminal Block (optional), Non-Fused Disconnect Switch (optional) or Circuit Breaker (optional).

SYSTEM #1 COMPRESSOR & FAN								SYSTEM #2 FIELD SUPPLIED WIRING							
COMPR. #1		COMPR. #2		COMPR. #3		FANS		COMPR. #1		COMPR. #2		COMPR. #3		FANS	
RLA	LRA	RLA	LRA	RLA	LRA	QTY	FLA(EA)	RLA	LRA	RLA	LRA	RLA	LRA	QTY	FLA(EA)
33.2	278	33.2	278	—	—	2	8.2	33.2	278	33.2	278	—	—	2	8.2
33.2	278	33.2	278	—	—	2	7.8	33.2	278	33.2	278	—	—	2	7.8
19.9	151	19.9	151	—	—	2	4.8	19.9	151	19.9	151	—	—	2	4.8
16.6	127	16.6	127	—	—	2	4.0	16.6	127	16.6	127	—	—	2	4.0
13.3	100	13.3	100	—	—	2	3.1	13.3	100	13.3	100	—	—	2	3.1
40.0	350	40.0	350	—	—	2	8.2	33.2	278	33.2	278	—	—	2	8.2
40.0	350	40.0	350	—	—	2	7.8	33.2	278	33.2	278	—	—	2	7.8
24.0	195	24.0	195	—	—	2	4.8	19.9	151	19.9	151	—	—	2	4.8
19.9	167	19.9	167	—	—	2	4.0	16.6	127	16.6	127	—	—	2	4.0
16.0	125	16.0	125	—	—	2	3.1	13.3	100	13.3	100	—	—	2	3.1
40.0	350	40.0	350	—	—	2	8.2	40.0	350	40.0	350	—	—	2	8.2
40.0	350	40.0	350	—	—	2	7.8	40.0	350	40.0	350	—	—	2	7.8
24.0	195	24.0	195	—	—	2	4.8	24.0	195	24.0	195	—	—	2	4.8
19.9	167	19.9	167	—	—	2	4.0	19.9	167	19.9	167	—	—	2	4.0
16.0	125	16.0	125	—	—	2	3.1	16.0	125	16.0	125	—	—	2	3.1
47.8	425	47.8	425	—	—	2	8.2	40.0	350	40.0	350	—	—	2	8.2
47.8	425	47.8	425	—	—	2	7.8	40.0	350	40.0	350	—	—	2	7.8
28.7	239	28.7	239	—	—	2	4.8	24.0	195	24.0	195	—	—	2	4.8
23.9	198	23.9	198	—	—	2	4.0	19.9	167	19.9	167	—	—	2	4.0
19.1	148	19.1	148	—	—	2	3.1	16.0	125	16.0	125	—	—	2	3.1
47.8	425	47.8	425	—	—	2	8.2	47.8	425	47.8	425	—	—	2	8.2
47.8	425	47.8	425	—	—	2	7.8	47.8	425	47.8	425	—	—	2	7.8
28.7	239	28.7	239	—	—	2	4.8	28.7	239	28.7	239	—	—	2	4.8
23.9	198	23.9	198	—	—	2	4.0	23.9	198	23.9	198	—	—	2	4.0
19.1	148	19.1	148	—	—	2	3.1	19.1	148	19.1	148	—	—	2	3.1
40.0	350	40.0	350	40.0	350	2	8.2	33.2	278	33.2	278	33.2	278	2	8.2
40.0	350	40.0	350	40.0	350	2	7.8	33.2	278	33.2	278	33.2	278	2	7.8
24.0	195	24.0	195	24.0	195	2	4.8	19.9	151	19.9	151	19.9	151	2	4.8
19.9	167	19.9	167	19.9	167	2	4.0	16.6	127	16.6	127	16.6	127	2	4.0
16.0	125	16.0	125	16.0	125	2	3.1	13.3	100	13.3	100	13.3	100	2	3.1
40.0	350	40.0	350	40.0	350	2	8.2	40.0	350	40.0	350	40.0	350	2	8.2
40.0	350	40.0	350	40.0	350	2	7.8	40.0	350	40.0	350	40.0	350	2	7.8
24.0	195	24.0	195	24.0	195	2	4.8	24.0	195	24.0	195	24.0	195	2	4.8
19.9	167	19.9	167	19.9	167	2	4.0	19.9	167	19.9	167	19.9	167	2	4.0
16.0	125	16.0	125	16.0	125	2	3.1	16.0	125	16.0	125	16.0	125	2	3.1
47.8	425	47.8	425	47.8	425	2	8.2	40.0	350	40.0	350	40.0	350	2	8.2
47.8	425	47.8	425	47.8	425	2	7.8	40.0	350	40.0	350	40.0	350	2	7.8
28.7	239	28.7	239	28.7	239	2	4.8	24.0	195	24.0	195	24.0	195	2	4.8
23.9	198	23.9	198	23.9	198	2	4.0	19.9	167	19.9	167	19.9	167	2	4.0
19.1	148	19.1	148	19.1	148	2	3.1	16.0	125	16.0	125	16.0	125	2	3.1
47.8	425	47.8	425	47.8	425	2	8.2	47.8	425	47.8	425	47.8	425	2	8.2
47.8	425	47.8	425	47.8	425	2	7.8	47.8	425	47.8	425	47.8	425	2	7.8
28.7	239	28.7	239	28.7	239	2	4.8	28.7	239	28.7	239	28.7	239	2	4.8
23.9	198	23.9	198	23.9	198	2	4.0	23.9	198	23.9	198	23.9	198	2	4.0
19.1	148	19.1	148	19.1	148	2	3.1	19.1	148	19.1	148	19.1	148	2	3.1

Electrical Data

YCAL0090 - YCAL0124

MULTIPLE POINT POWER SUPPLY CONNECTIONS (see Fig. 3)

(Two Field Provided Power Supply Circuits to the chiller. Field connections to Factory Provided Terminal Blocks (standard), Non-Fused Disconnect Switches (optional), or Individual System Circuit Breakers (optional) per electrical system)

MODEL YCAL	VOLT	HZ	SYSTEM #1 FIELD SUPPLIED WIRING								
			MCA[1]	MIN N/F DISC SW[2]	D.E. FUSE		CKT. BKR.[5]		INCOMING (LUGS) WIRE RANGE[6]		
					MIN[3]	MAX[4]	MIN	MAX	TERMINAL BLOCK (std)	NF DISC. SWITCHES (opt)	CIR BREAKERS (opt)
0090	200	60	251	400	300	350	300	350	# 6 - 400	(1 or 2) 3/0 - 500	(1 or 2) 3/0 - 500
	230	60	233	250	300	300	300	300	# 6 - 400	(1) # 6 - 350	(1 or 2) 3/0 - 500
	380	60	135	150	150	175	150	175	# 14 - 2/0	(1) # 6 - 350	(1) # 6 - 350
	460	60	111	150	125	150	125	150	# 14 - 2/0	(1) # 6 - 350	(1) # 3 - 3/0
	575	60	89	100	100	110	100	110	# 14 - 2/0	(1) # 6 - 350	(1) # 10 - 1/0
0094	200	60	251	400	300	350	300	350	# 6 - 400	(1 or 2) 3/0 - 500	(1 or 2) 3/0 - 500
	230	60	233	250	300	300	300	300	# 6 - 400	(1) # 6 - 350	(1 or 2) 3/0 - 500
	380	60	135	150	150	175	150	175	# 14 - 2/0	(1) # 6 - 350	(1) # 6 - 350
	460	60	111	150	125	150	125	150	# 14 - 2/0	(1) # 6 - 350	(1) # 3 - 3/0
	575	60	89	100	100	110	100	110	# 14 - 2/0	(1) # 6 - 350	(1) # 10 - 1/0
0104	200	60	274	400	300	300	300	300	(2) # 4 - 500	(1 or 2) 3/0 - 500	(1 or 2) 3/0 - 500
	230	60	254	400	300	300	300	300	(2) # 4 - 500	(1 or 2) 3/0 - 500	(1 or 2) 3/0 - 500
	380	60	148	200	175	175	175	175	# 14 - 2/0	(1) # 6 - 350	(1) # 3 - 3/0
	460	60	122	150	150	150	150	150	# 14 - 2/0	(1) # 6 - 350	(1) # 10 - 1/0
	575	60	98	150	110	110	110	110	# 14 - 2/0	(1) # 10 - 1/0	(1) # 10 - 1/0
0114	200	60	274	400	300	300	300	300	(2) # 4 - 500	(1 or 2) 3/0 - 500	(1 or 2) 3/0 - 500
	230	60	254	400	300	300	300	300	(2) # 4 - 500	(1 or 2) 3/0 - 500	(1 or 2) 3/0 - 500
	380	60	148	200	175	175	175	175	# 14 - 2/0	(1) # 6 - 350	(1) # 6 - 350
	460	60	122	150	150	150	150	150	# 14 - 2/0	(1) # 6 - 350	(1) # 6 - 350
	575	60	98	150	110	110	110	110	# 14 - 2/0	(1) # 6 - 350	(1) # 3 - 3/0
0124	200	60	359	400	400	450	400	450	(2) # 4 - 500	(1 or 2) 3/0 - 500	(1 or 2) 3/0 - 500
	230	60	333	400	400	400	400	400	(2) # 4 - 500	(1 or 2) 3/0 - 500	(1 or 2) 3/0 - 500
	380	60	194	250	225	225	225	225	# 6 - 400	(1) # 6 - 350	(1) # 6 - 350
	460	60	159	200	175	200	175	200	# 6 - 400	(1) # 6 - 350	(1) # 6 - 350
	575	60	128	150	150	150	150	150	# 14 - 2/0	(1) # 6 - 350	(1) # 6 - 350

MODEL YCAL	VOLT	HZ	SYSTEM #2 FIELD SUPPLIED WIRING								
			MCA[1]	MIN N/F DISC SW[2]	D.E. FUSE		CKT. BKR.[5]		INCOMING (LUGS) WIRE RANGE[6]		
					MIN[3]	MAX[4]	MIN	MAX	TERMINAL BLOCK (std)	NF DISC. SWITCHES (opt)	CIR BREAKERS (opt)
0090	200	60	191	200	225	250	225	250	# 6 - 400	(1) # 6 - 350	(1) # 6 - 350
	230	60	178	200	200	225	200	225	# 6 - 400	(1) # 6 - 350	(1) # 6 - 350
	380	60	104	150	125	125	125	125	# 14 - 2/0	(1) # 6 - 350	(1) # 3 - 3/0
	460	60	85	100	100	110	100	110	# 14 - 2/0	(1) # 10 - 1/0	(1) # 10 - 1/0
	575	60	68	100	80	90	80	90	# 14 - 2/0	(1) # 10 - 1/0	(1) # 10 - 1/0
0094	200	60	251	400	300	350	300	350	# 6 - 400	(1 or 2) 3/0 - 500	(1 or 2) 3/0 - 500
	230	60	233	250	300	300	300	300	# 6 - 400	(1) # 6 - 350	(1 or 2) 3/0 - 500
	380	60	135	150	150	175	150	175	# 14 - 2/0	(1) # 6 - 350	(1) # 6 - 350
	460	60	111	150	125	150	125	150	# 14 - 2/0	(1) # 6 - 350	(1) # 3 - 3/0
	575	60	89	100	100	110	100	110	# 14 - 2/0	(1) # 6 - 350	(1) # 10 - 1/0
0104	200	60	259	400	300	350	300	350	# 6 - 400	(1 or 2) 3/0 - 500	(1 or 2) 3/0 - 500
	230	60	241	250	300	300	300	300	# 6 - 400	(1) # 6 - 350	(1 or 2) 3/0 - 500
	380	60	140	150	175	175	175	175	# 14 - 2/0	(1) # 6 - 350	(1) # 6 - 350
	460	60	115	150	150	150	150	150	# 14 - 2/0	(1) # 6 - 350	(1) # 6 - 350
	575	60	92	100	110	125	110	125	# 14 - 2/0	(1) # 6 - 350	(1) # 3 - 3/0
0114	200	60	274	400	300	300	300	300	(2) # 4 - 500	(1 or 2) 3/0 - 500	(1 or 2) 3/0 - 500
	230	60	254	400	300	300	300	300	(2) # 4 - 500	(1 or 2) 3/0 - 500	(1 or 2) 3/0 - 500
	380	60	148	200	175	175	175	175	# 14 - 2/0	(1) # 6 - 350	(1) # 6 - 350
	460	60	122	150	150	150	150	150	# 14 - 2/0	(1) # 6 - 350	(1) # 6 - 350
	575	60	98	150	110	110	110	110	# 14 - 2/0	(1) # 6 - 350	(1) # 3 - 3/0
0124	200	60	374	400	300	300	300	300	(2) # 4 - 500	(1 or 2) 3/0 - 500	(1 or 2) 3/0 - 500
	230	60	354	400	300	300	300	300	(2) # 4 - 500	(1 or 2) 3/0 - 500	(1 or 2) 3/0 - 500
	380	60	148	200	175	175	175	175	# 14 - 2/0	(1) # 6 - 350	(1) # 6 - 350
	460	60	122	150	150	150	150	150	# 14 - 2/0	(1) # 6 - 350	(1) # 6 - 350
	575	60	98	150	110	110	110	110	# 14 - 2/0	(1) # 6 - 350	(1) # 3 - 3/0

See Notes on page 94.

YCAL0090 - YCAL0124

MULTIPLE POINT POWER SUPPLY CONNECTIONS (see Fig. 3)

(Two Field Provided Power Supply Circuits to the chiller. Field connections to Factory Provided Terminal Blocks (standard), Non-Fused Disconnect Switches (optional), or Individual System Circuit Breakers (optional) per electrical system)

SYSTEM #1 COMPRESSOR & FAN

COMPR. #1		COMPR. #2		COMPR. #3		FANS	
RLA	LRA	RLA	LRA	RLA	LRA	QTY	FLA(EA)
100.2	550	100.2	550	—	—	3	8.2
92.8	550	92.8	550	—	—	3	7.8
53.5	305	53.5	305	—	—	3	4.8
44.2	270	44.2	270	—	—	3	4.0
35.4	210	35.4	210	—	—	3	3.1
100.2	550	100.2	550	—	—	3	8.2
92.8	550	92.8	550	—	—	3	7.8
53.5	305	53.5	305	—	—	3	4.8
44.2	270	44.2	270	—	—	3	4.0
35.4	210	35.4	210	—	—	3	3.1
73.9	450	73.9	450	73.9	450	3	8.2
68.5	450	68.5	450	68.5	450	3	7.8
39.5	260	39.5	260	39.5	260	3	4.8
32.6	215	32.6	215	32.6	215	3	4.0
26.1	180	26.1	180	26.1	180	3	3.1
73.9	450	73.9	450	73.9	450	4	8.2
68.5	450	68.5	450	68.5	450	4	7.8
39.5	260	39.5	260	39.5	260	4	4.8
32.6	215	32.6	215	32.6	215	4	4.0
26.1	180	26.1	180	26.1	180	4	3.1
100.2	550	100.2	550	100.2	550	4	8.2
92.8	550	92.8	550	92.8	550	4	7.8
53.5	305	53.5	305	53.5	305	4	4.8
44.2	270	44.2	270	44.2	270	4	4.0
35.4	210	35.4	210	35.4	210	4	3.1

SYSTEM #2 COMPRESSOR & FAN

COMPR. #1		COMPR. #2		COMPR. #3		FANS	
RLA	LRA	RLA	LRA	RLA	LRA	QTY	FLA(EA)
73.9	450	73.9	450	—	—	3	8.2
68.5	450	68.5	450	—	—	3	7.8
39.5	260	39.5	260	—	—	3	4.8
32.6	215	32.6	215	—	—	3	4.0
26.1	180	26.1	180	—	—	3	3.1
100.2	550	100.2	550	—	—	3	8.2
92.8	550	92.8	550	—	—	3	7.8
53.5	305	53.5	305	—	—	3	4.8
44.2	270	44.2	270	—	—	3	4.0
35.4	210	35.4	210	—	—	3	3.1
100.2	550	100.2	550	—	—	3	8.2
92.8	550	92.8	550	—	—	3	7.8
53.5	305	53.5	305	—	—	3	4.8
44.2	270	44.2	270	—	—	3	4.0
35.4	210	35.4	210	—	—	3	3.1
73.9	450	73.9	450	73.9	450	4	8.2
68.5	450	68.5	450	68.5	450	4	7.8
39.5	260	39.5	260	39.5	260	4	4.8
32.6	215	32.6	215	32.6	215	4	4.0
26.1	180	26.1	180	26.1	180	4	3.1
73.9	450	73.9	450	73.9	450	4	8.2
68.5	450	68.5	450	68.5	450	4	7.8
39.5	260	39.5	260	39.5	260	4	4.8
32.6	215	32.6	215	32.6	215	4	4.0
26.1	180	26.1	180	26.1	180	4	3.1

Electrical Data

YCAL0090 - YCAL0124

SINGLE POINT POWER SUPPLY CONNECTIONS WITH INDIVIDUAL SYSTEM CIRCUIT BREAKERS (see Fig. 4)

(One Field Provided Power Supply Circuit to the chiller. Field connections to Factory Provided Teminal Block (optional) or Non-Fused Disconnect Switch (optional). Includes Individual Branch Circuit Protection (Breakers) per electrical system)

MODEL YCAL	VOLT	HZ	SINGLE POINT FIELD SUPPLIED WIRING							
			MCA[1]	MIN N/F DISC SW[2]	D.E. FUSE		CKT. BKR.[5]		INCOMING (LUGS) WIRE RANGE[6]	
					MIN[3]	MAX[4]	MIN	MAX	TERMINAL BLOCK (opt)	NF DISC. SWITCH (opt)
0090	200	60	423	600	450	500	450	500	(2) # 4 - 500	(1 or 2) 3/0 - 500
	230	60	393	600	450	450	450	450	(2) # 4 - 500	(1 or 2) 3/0 - 500
	380	60	229	250	250	250	250	250	(2) # 4 - 500	(1) # 6 - 350
	460	60	188	250	250	200	250	200	# 6 - 400	(1) # 6 - 350
	575	60	151	200	200	175	200	175	# 14 - 2/0	(1) # 6 - 350
0094	200	60	476	600	600	600	600	600	(2) # 4 - 500	(1 or 2) 3/0 - 500
	230	60	442	600	500	500	500	500	(2) # 4 - 500	(1 or 2) 3/0 - 500
	380	60	257	400	300	300	300	300	(2) # 4 - 500	(1 or 2) 3/0 - 500
	460	60	211	250	225	250	225	250	# 6 - 400	(1) # 6 - 350
	575	60	169	200	200	200	200	200	# 6 - 400	(1) # 6 - 350
0104	200	60	513	600	600	600	600	600	(2) # 4 - 500	(1 or 2) 3/0 - 500
	230	60	477	600	500	500	500	500	(2) # 4 - 500	(1 or 2) 3/0 - 500
	380	60	278	400	300	300	300	300	(2) # 4 - 500	(1 or 2) 3/0 - 500
	460	60	228	250	250	250	250	250	# 6 - 400	(1) # 6 - 350
	575	60	183	200	200	200	200	200	# 6 - 400	(1) # 6 - 350
0114	200	60	528	600	600	600	600	600	(2) # 4 - 500	(1 or 2) 3/0 - 500
	230	60	491	600	600	600	600	600	(2) # 4 - 500	(1 or 2) 3/0 - 500
	380	60	286	400	300	300	300	300	(2) # 4 - 500	(1 or 2) 3/0 - 500
	460	60	235	400	250	250	250	250	# 6 - 400	(1 or 2) 3/0 - 500
	575	60	188	250	200	200	200	200	# 6 - 400	(1) # 6 - 350
0124	200	60	607	800	700	700	700	700	(2) # 4 - 500	(1 or 2) 3/0 - 500
	230	60	564	800	600	600	600	600	(2) # 4 - 500	(1 or 2) 3/0 - 500
	380	60	328	400	350	350	350	350	(2) # 4 - 500	(1 or 2) 3/0 - 500
	460	60	269	400	300	300	300	300	# 6 - 400	(1 or 2) 3/0 - 500
	575	60	216	250	250	250	250	250	# 6 - 400	(1) # 6 - 350

See Notes on page 94.

See Notes on page 74.

YCAL0090 - YCAL0124

SINGLE POINT POWER SUPPLY CONNECTIONS WITH INDIVIDUAL SYSTEM CIRCUIT BREAKERS (see Fig. 4)

(One Field Provided Power Supply Circuit to the chiller. Field connections to Factory Provided Teminal Block (optional) or Non-Fused Disconnect Switch (optional). Includes Individual Branch Circuit Protection (Breakers) per electrical system)

SYSTEM #1 COMPRESSOR & FAN								SYSTEM #2 FIELD SUPPLIED WIRING							
COMPR. #1		COMPR. #2		COMPR. #3		FANS		COMPR. #1		COMPR. #2		COMPR. #3		FANS	
RLA	LRA	RLA	LRA	RLA	LRA	QTY	FLA(EA)	RLA	LRA	RLA	LRA	RLA	LRA	QTY	FLA(EA)
100.2	550	100.2	550	—	—	3	8.2	73.9	450	73.9	450	—	—	3	8.2
92.8	550	92.8	550	—	—	3	7.8	68.5	450	68.5	450	—	—	3	7.8
53.5	305	53.5	305	—	—	3	4.8	39.5	260	39.5	260	—	—	3	4.8
44.2	270	44.2	270	—	—	3	4.0	32.6	215	32.6	215	—	—	3	4.0
35.4	210	35.4	210	—	—	3	3.1	26.1	180	26.1	180	—	—	3	3.1
100.2	550	100.2	550	—	—	3	8.2	100.2	550	100.2	550	—	—	3	8.2
92.8	550	92.8	550	—	—	3	7.8	92.8	550	92.8	550	—	—	3	7.8
53.5	305	53.5	305	—	—	3	4.8	53.5	305	53.5	305	—	—	3	4.8
44.2	270	44.2	270	—	—	3	4.0	44.2	270	44.2	270	—	—	3	4.0
35.4	210	35.4	210	—	—	3	3.1	35.4	210	35.4	210	—	—	3	3.1
73.9	450	73.9	450	73.9	450	3	8.2	100.2	550	100.2	550	—	—	3	8.2
68.5	450	68.5	450	68.5	450	3	7.8	92.8	550	92.8	550	—	—	3	7.8
39.5	260	39.5	260	39.5	260	3	4.8	53.5	305	53.5	305	—	—	3	4.8
32.6	215	32.6	215	32.6	215	3	4.0	44.2	270	44.2	270	—	—	3	4.0
26.1	180	26.1	180	26.1	180	3	3.1	35.4	210	35.4	210	—	—	3	3.1
73.9	450	73.9	450	73.9	450	4	8.2	73.9	450	73.9	450	73.9	450	4	8.2
68.5	450	68.5	450	68.5	450	4	7.8	68.5	450	68.5	450	68.5	450	4	7.8
39.5	260	39.5	260	39.5	260	4	4.8	39.5	260	39.5	260	39.5	260	4	4.8
32.6	215	32.6	215	32.6	215	4	4.0	32.6	215	32.6	215	32.6	215	4	4.0
26.1	180	26.1	180	26.1	180	4	3.1	26.1	180	26.1	180	26.1	180	4	3.1
100.2	550	100.2	550	100.2	550	4	8.2	73.9	450	73.9	450	73.9	450	4	8.2
92.8	550	92.8	550	92.8	550	4	7.8	68.5	450	68.5	450	68.5	450	4	7.8
53.5	305	53.5	305	53.5	305	4	4.8	39.5	260	39.5	260	39.5	260	4	4.8
44.2	270	44.2	270	44.2	270	4	4.0	32.6	215	32.6	215	32.6	215	4	4.0
35.4	210	35.4	210	35.4	210	4	3.1	26.1	180	26.1	180	26.1	180	4	3.1

Power Wiring

Figure 1: Single Point Supply Connection – Terminal Block, Non-Fused Disconnect Switch or Circuit Breaker (YCAL0014-0080)

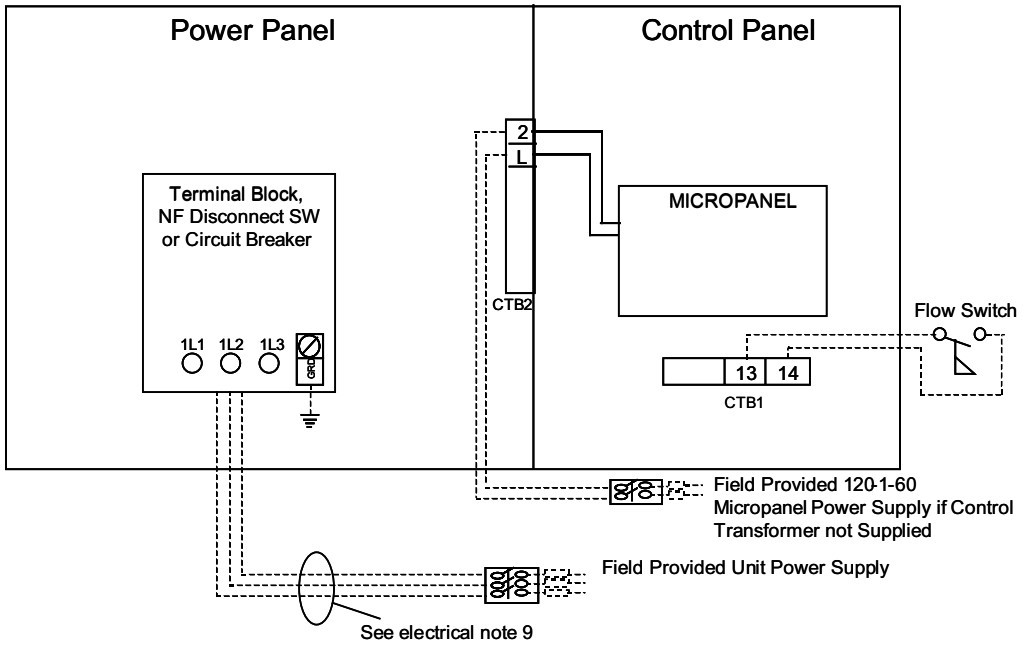


Figure 2: Multiple Point Power Supply Connection – Terminal Block (YCAL0040-0080)

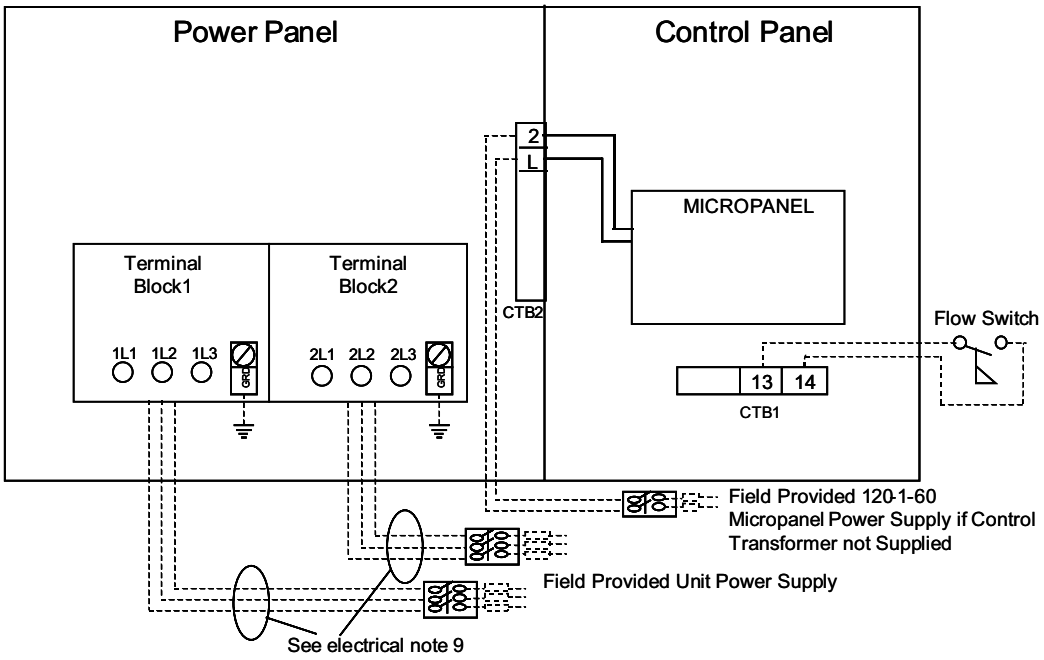


Figure 3: Multiple Point Power Supply Connection – Terminal Block, Non-Fused Disconnect Switches or Circuit Breakers (YCAL0090-0124)

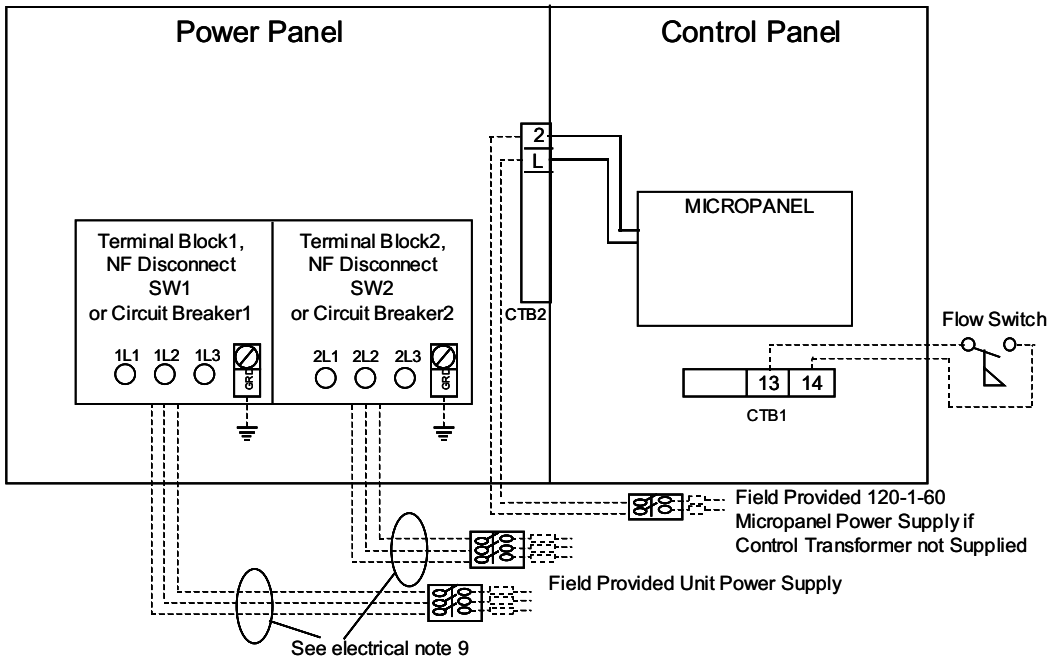
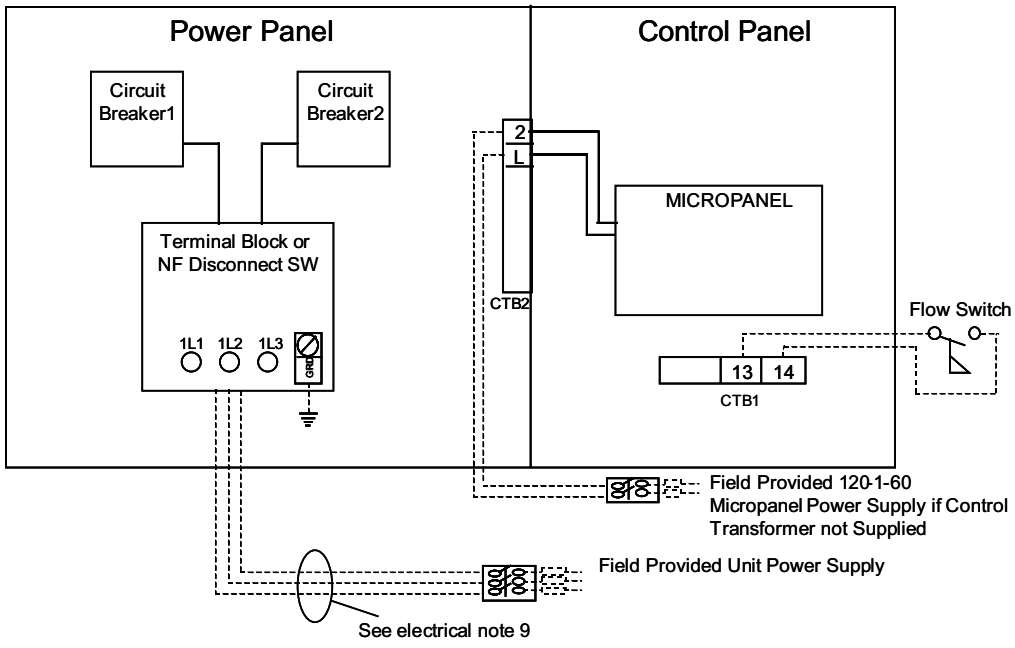
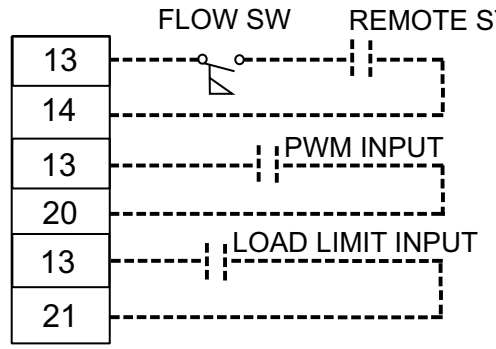


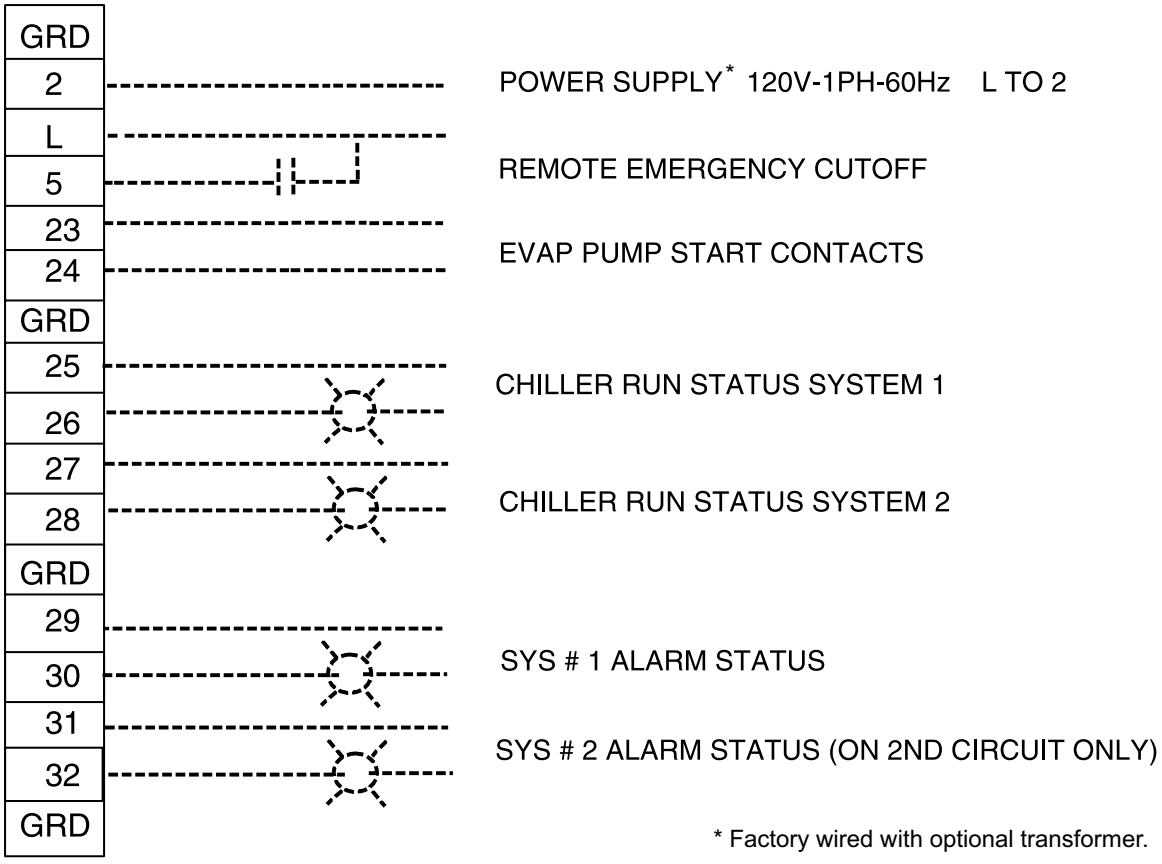
Figure 4: Single Point Supply Connection – Terminal Block or Non-Fused Disconnect Switch to Individual System Circuit Breakers (YCAL0090-0124)



Control Wiring



CTB1



* Factory wired with optional transformer.

CTB2

LD03819

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LD03611

Application Data

UNIT LOCATION

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

1. For outdoor locations of the unit, select a place having an adequate supply of fresh air for the condenser.

2. Avoid locations beneath windows or between structures where normal operating sounds may be objectionable.

3. Installation sites may be either on a roof, or at ground level. (See FOUNDATION.)

4. The condenser fans are the propeller-type, and are not recommended for use with duct work in the condenser air stream.

5. When it is desirable to surround the unit(s), it is recommended that the screening be able to pass the required chiller CFM without exceeding 0.1" of water external static pressure.

6. Protection against corrosive environments is available by supplying the units with either copper fin, cured phenolic, or epoxy coating on the condenser coils. The phenolic or epoxy coils should be offered with any units being installed at the seashore or where salt spray may hit the unit.

In installations where winter operation is intended and snow accumulations are expected, additional height must be provided to ensure normal condenser air flow.

Recommended clearances for units are given in DIMENSIONS. When the available space is less, the unit(s) must be equipped with the discharge pressure transducer option to permit high pressure unloading in the event that air recirculation were to occur.

FOUNDATION

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

ROOF LOCATIONS – Choose a spot with adequate structural strength to safely support the entire weight of the unit and service personnel. Care must be taken not to damage the roof during installation. If the roof is “bonded”, consult the building contractor or architect for special installation requirements. Roof installations should incorporate the use of spring-type isolators to minimize the transmission of vibration into the building structure.

GROUND LEVEL INSTALLATIONS – It is important that the units be installed on a substantial base that will not settle, causing strain on the liquid lines and resulting in possible leaks. A one-piece concrete slab with footers extending below the frost line is highly recommended. Additionally, the slab should not be tied to the main building foundation as noises will telegraph.

Mounting holes (11/16" diameter) are provided in the steel channel for bolting the unit to its foundation. See DIMENSIONS.

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

CHILLED LIQUID PIPING

The chilled liquid piping system should be laid out so that the circulating pump discharges into the cooler. The inlet and outlet cooler liquid connections are given in DIMENSIONS.

Hand stop valves are recommended for use in all lines to facilitate servicing. Drain connections should be provided at all low points to permit complete drainage of the cooler and system piping. Additionally, a strainer (40 mesh) is recommended for use on the INLET line to the cooler.

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

The chilled liquid lines that are exposed to outdoor ambients should be wrapped with a supplemental heater cable and covered with insulation. As an alternative, ethylene glycol should be added to protect against freeze-up during low ambient periods.

A flow switch is available as an accessory on all units. The flow switch (or its equivalent) must be installed in the leaving water piping of the cooler and must not be

Guide Specifications

PART 1 – GENERAL

1.01 SCOPE

A. The requirements of the General Conditions, Supplementary Conditions, Division 1, and Drawings apply to all Work herein.

B. Provide Microprocessor controlled, multiple-scroll compressor, air-cooled, liquid chillers of the scheduled capacities as shown and indicated on the Drawings, including but not limited to:
   1. Chiller package
   2. Electrical power and control connections
   3. Chilled water connections

1.02 QUALITY ASSURANCE

A. Products shall be Designed, Tested, Rated and Certified in accordance with, and installed in compliance with applicable sections of the following Standards and Codes:
   1. ANSI/ASHRAE Standard 15 – *Safety Code for Mechanical Refrigeration*
   2. ASHRAE 90.1– *Energy Efficiency compli ance*.
   3. ANSI/NFPA Standard 70 – *National Electrical Code (N.E.C.).*
   4. *ASME Boiler & Pressure Vessel Code, Sec tion VIII, Division 1.*
   5. ARI Standard 550/590 – *Positive Displacement* Compressors and Air Cooled Rotary Screw Water-Chilling Packages.
   6. Conform to Intertek Testing Services, formerly ETL, for construction of chillers and provide ETL/cETL Listing label.
   7. Manufactured in facility registered to ISO 9002.

B. Factory Test: Chiller shall be pressure-tested, evacuated and fully charged with refrigerant and oil, and shall be factory operational run tested with water flowing through the vessel.

C. Warranty: Manufacturer shall Warrant all equipment and material of its manufacture against defects in workmanship and material for a period of one year from date of initial start-up or eighteen (18) months from date of shipment, whichever occurs first.

1.03 DELIVERY AND HANDLING

A. Unit shall be delivered to job site fully assembled, and charged with refrigerant and oil by the Manufacturer.

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

PART 2 - PRODUCTS

2.01 CHILLER MATERIALS AND COMPONENTS

A. General: Install and commission, as shown on the schedules and plans, factory assembled, charged, and tested air cooled scroll compressor chiller(s) as specified herein. Chiller shall be designed, selected, and constructed using a refrigerant with Flammability rating of "1", as defined by ANSI/ASHRAE STANDARD - 34 *Number Designation and Safety Classification of Refrigerants*. Chiller shall include, but is not limited to: a complete system with a single refrigerant circuit 35 tons (123kW) and below, and not less than two refrigerant circuits above 35 tons (123kW), scroll compressors, direct expansion type evaporator, air-cooled condenser, refrigerant, lubrication system, interconnecting wiring, safety and operating controls including capacity controller, control center, motor starting components, and special features as specified herein or required for safe, automatic operation.

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

2.02 COMPRESSORS

Compressors: Shall be hermetic, scroll-type, including:

1. Compliant design for axial and radial sealing
2. Refrigerant flow through the compressor with 100% suction cooled motor.
3. Large suction side free volume and oil sump to provide liquid handling capability.
4. Compressor crankcase heaters to provide extra liquid migration protection.
5. Annular discharge check valve and reverse vent assembly to provide low pressure drop, silent shutdown and reverse rotation protection.
6. Initial Oil charge.
7. Oil Level sightglass.
8. Vibration isolator mounts for compressors.
9. Brazed-type connections for fully hermetic refrigerant circuits.

2.03 REFRIGERANT CIRCUIT COMPONENTS

Each refrigerant circuit shall include: liquid line shutoff valve with charging port, low side pressure relief device, filter-drier, solenoid valve, sight glass with moisture indicator, thermostatic expansion valves, and flexible, closed-cell foam insulated suction line.

2.04 HEAT EXCHANGERS

A. Evaporator:
   1. Direct expansion type with refrigerant inside high efficiency copper tubes, chilled liquid forced over the tubes by galvanized steel baffles.
   2. Constructed, tested, and stamped in accordance with applicable sections of ASME pressure vessel code for minimum 350 PSIG (24 bar)refrigerant side design working pres sure and150 PSIG (10 bar) water side design working pressure.
   3. Shell covered with ¾" (19mm), flexible, closed cell insulation, thermal conductivity of 0.26k ([BTU/HR-Ft^2-°F]/in.) maximum. Water nozzles with grooves for mechanical couplings, and in sulated by Contractor after pipe installation.
   4. Provide vent and drain fittings, and thermostati cally controlled heaters to protect to -20°F (29°C) ambient in off-cycle.

B. Air Cooled Condenser:
   1. Coils: Internally enhanced, seamless copper tubes, mechanically expanded into aluminum alloy fins with full height collars. Subcooling coil an integral part of condenser. Design working pressure shall be 450 PSIG (31 bar).

   2. Fans: Shall be dynamically and statically bal anced, direct drive, corrosion resistant glass fi ber reinforced composite blades molded into a low noise, full-airfoil cross section, providing vertical air discharge and low sound. Each fan in its own compartment to prevent crossflow during fan cycling. Guards of heavy gauge, PVC (polyvinylchloride) coated or galvanized steel.

   3. Fan Motors: High efficiency, direct drive, 6 pole, 3 phase, insulation class “F”, current protected, Totally Enclosed Air-Over (TEAO), rigid mounted, with double sealed, permanently lubricated, ball bearings.

2.05 CONTROLS

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

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

C. Microprocessor Control Center:
   1. Automatic control of compressor start/stop, anti-coincidence and anti-recycle timers, automatic pumpdown shutdown, condenser fans, evaporator pump, evaporator heater, unit alarm contacts, and chiller operation from 0°F to 125°F (-18°C to 52°C) ambient. Automatic reset to normal chiller operation after power failure.
   2. Remote water temperature reset via a Pulse Width Modulated (PWM) input signal or up to two steps of demand (load) limiting.
   3. Software stored in non-volatile memory, with programmed setpoints retained in lithium battery backed real time clock (RTC) memory for minimum 5 years.
   4. Forty character liquid crystal display, descriptions in English (or Spanish, French, Italian, or German), numeric data in English (or Metric) units. Sealed keypad with sections for Setpoints, Display/Print, Entry, Unit Options & clock, and On/Off Switch.
   5. Programmable Setpoints (within Manufacturer limits): display language; chilled liquid temperature setpoint and range, remote reset temperature range, set daily schedule/holiday for start/stop, manual override for servicing, low and high ambient cutouts, number of compressors, low liquid temperature cutout, low suction pressure cutout, high discharge pressure cutout, anti-recycle timer (compressor start cycle time), and anti-coincident timer (delay compressor starts).
   6. Display Data: Return and leaving liquid temperatures, low leaving liquid temperature cutout setting, low ambient temperature cutout setting, outdoor air temperature, English or metric data, suction pressure cutout setting, each system suction pressure (optional on YCAL0014 0060 models), discharge pressure (optional), liquid temperature reset via a YORK ISN DDC or Building Automation System (by others) via PWM input as standard or a 4-20milliamp or 0-10 VDC input or contact closure with optional BAS interface, anti-recycle timer status for each compressor, anti-coincident system start timer condition, compressor run status, no cooling load condition, day, date and time, daily start/stop times, holiday status, automatic or manual

system lead/lag control, lead system definition, compressor starts/operating hours (each), status of hot gas valves, evaporator heater and fan operation, run permissive status, number of compressors running, liquid solenoid valve status, load & unload timer status, water pump status.

7. System Safeties: Shall cause individual com pressor systems to perform auto shut down; manual reset required after the third trip in 90 minutes. Includes: high discharge pressure, low suction pressure, high pressure switch, and motor protector. Compressor motor protector shall protect against damage due to high input current or thermal overload of windings.
8. Unit Safeties: Shall be automatic reset and cause compressors to shut down if low ambient, low leaving chilled liquid temperature, under voltage, and flow switch operation. Contractor shall provide flow switch and wiring per chiller manufacturer requirements.
9. Alarm Contacts: Low ambient, low leaving chilled liquid temperature, low voltage, low battery, and (per compressor circuit): high discharge pressure, and low suction pressure.

D. Manufacturer shall provide any controls not listed above, necessary for automatic chiller operation. Mechanical Contractor shall provide field control wiring necessary to interface sensors to the chiller control system.

2.06 POWER CONNECTION AND DISTRIBUTION

A. Power Panels:
1. NEMA 3R/12 (IP55) rain/dust tight, powder painted steel cabinets with hinged, latched, and gasket sealed outer doors. Provide main power connection(s), control power connections, compressor and fan motor start contactors, current overloads, and factory wiring.
2. Power supply shall enter unit at a single location, be 3 phase of scheduled voltage, and connect to individual terminal blocks per compressor. Separate disconnecting means and/or external branch circuit protection (by Contractor) required per applicable local or national codes.

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

2.07 ACCESSORIES AND OPTIONS

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

A. Microprocessor controlled, Factory installed Across-the-Line type compressor motor starters as standard.

B. Outdoor Ambient Temperature Control
1. Low Ambient Control: Permits unit operation to 0°F ambient. Standard unit controls to 25°F ambient. Low Ambient Control standard on YCAL0090-0124 models.
2. High Ambient Control: Permits unit operation above 115°F ambient.

C. Power Supply Connections:
1. Single Point Power Supply: Single point Terminal Block for field connection and interconnecting wiring to the compressors. Separate external protection must be supplied, by others, in the incoming power wiring, which must comply with the National Electric Code and/or local codes. Single Point Supply option avail able on YCAL0040-0080 models and standard on YCAL0014 - 0034 models.
2. Single Point or Multiple Point Power Supply with individual System Breakers: Single or Multiple Point Terminal Block(s) for field connection and factory interconnecting wiring to factory supplied system breakers . Available on YCAL0090-0124 models.
3. Single Point or Multiple Point Disconnect: Single or Dual point Non-Fused Disconnect(s) and lockable external handle (in compliance with Article 440-14 of N.E.C.) can be supplied to isolate the unit power voltage for servicing. Separate external fusing must be supplied, by others, in the in coming power wiring, which must comply with the National Electric Code and/or local codes.
4. Single Point Disconnect with Individual System Breakers: Single point Terminal Block with Non-Fused Disconnect and lockable external handle (in compliance with Article 440-14 of N.E.C.) can be supplied to isolate power voltage for servicing. Factory interconnecting wiring from disconnect to factory supplied circuit breakers. Available on YCAL0090-0124 models.
5. Single Point Circuit Breaker: Single point Terminal Block with Circuit Breaker and lockable external handle (in compliance with Article 440 14 of N.E.C.) can be supplied to isolate power voltage for servicing. Incoming power wiring

must comply with the National Electric Code and/or local codes. Single Point Circuit Breakers available on YCAL0014-0080 models.

D. Pressure Transducers and Readout Capability

1. Discharge Pressure Transducers: Permits unit to sense and display discharge pressure. Standard on YCAL0080-0124 models.

2. Suction Pressure Transducers: Permits unit to sense and display suction pressure. This capability is standard on YCAL0064-0124 models.

E. Control Power Transformer: Converts unit power voltage to 120-1-60 (500 VA capacity). Factory-mounting includes primary and secondary wiring between the transformer and the control panel.

F. Motor Current Module: Capable of monitoring compressor motor current. Provides extra protection against compressor reverse rotation, phase-loss and phase imbalance. Option consists of one module per electrical system. (Factory-mounted.)

G. Power Factor Correction Capacitors: Provided to correct unit compressor factors to a 0.90-0.95.

H. Condenser Coil Environmental Protection:

1. Pre-Coated: Epoxy coated aluminum fin stock to guard from corrosive agents and insulate against galvanic potential. For mild seashore or industrial locations.
2. Copper Fin: Provide copper fins in lieu of aluminum.
3. Post-Coated Dipped: Dipped-cured coating on condenser coils for seashore and other corrosive applications (with the exception of strong alkalis, oxidizers, and wet bromine, chlorine and fluorine in concentrations greater than 100ppm).

I. Protective Chiller Panels (Factory or Field Mounted

1. Louvered Panels (condenser coils only): Painted steel as per remainder of unit cabinet, 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 as per remainder of unit cabinet, 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 as per remainder of unit cabinet. Heavy gauge, welded wire-mesh, coated to resist corrosion, around base of machine to restrict unauthorized access.

J. Flow Switch (Field-mounted): Vapor proof SPDT, NEMA 4X switch (___150 PSIG or ___300 PSIG), -20°F to 250°F.

K. Differential Pressure Switch: Alternative to an above mentioned flow switch. Pretempco model DPS300A-P40PF-82582-5 (300 psi max. working pressure) SPDT 5 amp 125/250VAC switch, Range 0 - 40 PSID, deadband 0.5 - 0.8 psi, with 1/4" NPTE Pressure Connections.

L. Evaporator options:

1. Provide 1½" cooler insulation in lieu of standard ¾".
2. Provide DX Cooler with 300 PSIG water-side design working pressure in lieu of standard 150 PSIG.
3. Provide Raised Face Flanges for field installation on cooler nozzles and field piping:
   a. 150 PSIG, welded Flanges.
   b. 300 PSIG, welded Flanges.

M. Service Isolation valves: Service suction and discharge (ball type) isolation valves are added to unit per system. This option also includes a system high pressure relief valve in compliance with ASHRAE 15. (Factory-mounted.)

N. Remote Cooler: Manufacturer shall provide separately: chiller less evaporator, leaving and return water sensors, and liquid line components (solenoid valves, filter driers, sight glasses, and TXVs), as discrete elements of a complete factory system. Contractor shall be field erect system and provide interconnecting refrigerant piping and wiring in accordance with Manufacturer recommendations, and project plans and schedules. Where not otherwise specified, Contractor provided system piping shall be in accordance with applicable sections of ASHRAE Handbook.

O. Hot Gas By-Pass: Permits continuous, stable operation at capacities below the minimum step of unloading to as low as 5% capacity (depending on

both the unit & operating conditions) by introducing an artificial load on the cooler. Hot gas by-pass is installed on only one refrigerant circuit.

P. Microprocessor Membrane Keypad Graphics on in lieu of Standard English:
   1. French language.
   2. German language.
   3. Spanish language.
   4. Italian language.

Q. Thermal Storage: Leaving chilled liquid setpoint range for charge cycle from 25°F to 20°F minimum, with automatic reset of the leaving brine temperature up to 40°F above the setpoint.

R. Low Temperature Process Brine: Leaving chilled liquid setpoint range 20°F to 50°F.

S. Chicago Code Relief Valves to meet Chicago Code requirements.

T. Building Automation System (EMS) Reset Interface: Chiller to accept 4 to 20mA, 0 to 10 VDC, or discrete contact closure input to reset the leaving chilled liquid temperature.

U. Remote Control Panel (Field-mounted): Auxiliary panel for remote user interface for functions normally made at the unit control center. Available on YCAL0014-0080 models.

V. OptiView Remote Control Panel (Field-mounted): Graphical interface panel to remotely control and monitor up to 8 different units.

W. Multi-Unit Sequencing Panel (Field-mounted): Separate Sequencing control center is provided to permit control of up to eight chillers in parallel based on mixed liquid temperature.

X. Sound Reduction (Factory-mounted):
   1. Low speed, reduced noise fans
   2. Compressor Acoustic Sound Blankets

Y. Vibration Isolation (Field-mounted):
   1. Neoprene Pad Isolators.
   2. 1 Inch Deflection Spring Isolators: Level adjustable, spring and cage type isolators for mounting under the unit base rails.
   3. 2 Inch Deflection Seismic Isolators: Level adjustable, restrained mounts in rugged welded steel housing with vertical and horizontal limit stops. Housings shall be designed to withstand a minimum 1.0g accelerated force in all directions to 2 inches.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General: Rig and Install in full accordance with Manufacturers requirements, Project drawings, and Contract documents.
B. Location: Locate chiller as indicated on drawings, including cleaning and service maintenance clearance per Manufacturer instructions. Adjust and level chiller on support structure.
C. Components: Installing Contractor shall provide and install all auxiliary devices and accessories for fully operational chiller.

D. Electrical: Coordinate electrical requirements and connections for all power feeds with Electrical Contractor (Division 16).

E. Controls: Coordinate all control requirements and

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Tel: 800-861-1001
www.york.com

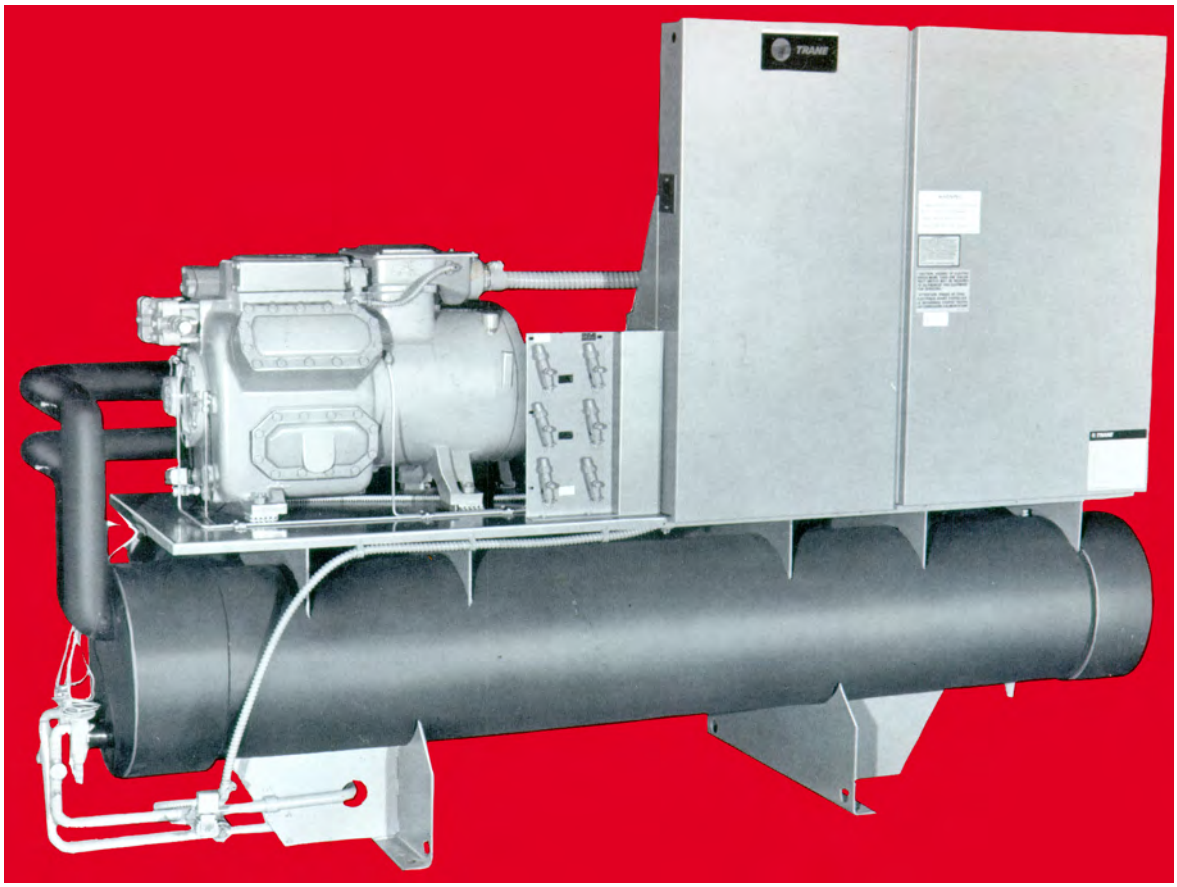
Form 150.62-EG1 (103)
Supersedes: 150.62-EG1 (102)

RPC 3M 303 9.28
Codes: DXL, ET2

CG-DS-4
June 1990
First Printing

Cold Generator® Reciprocating Liquid Chillers

70 to 120 Tons Water-Cooled and Condenserless



Features and Benefits

Rugged Compressors — Simple Design, Proven Reliable

Built on Quality and Excellence

Trane Cold Generator® reciprocating liquid chillers are designed and built to provide reliable, efficient performance and easy serviceability. Over 50,000 successful installations worldwide prove the quality and dependability of a Trane chiller.

Part of the dependability is due to the wide range of available chiller sizes and the ability to match a chiller to your job requirements. From 70 through 120 tons, six major sizes allow precise matching of chiller capacity to job requirements for efficient comfort system operation.

You get the right chiller for the job — not oversized and not undersized.

Proven Microprocessor Technology A Trane Tradition

The same Cold Generator chillers that have earned a first class reputation are equipped with the latest microprocessor control technology, Microprocessor chiller control means smooth, accurate and logical chiller control. That translates into even greater efficiency, reliability and consistent building comfort.

Microprocessor control means the Cold Generator chiller maintains chilled water temperature more accurately, resulting in consistent comfort with less temperature drift in the building. The microprocessor control also incorporates optimum chiller start-up, load limiting, compressor antirecycle timing and lead-lag functions.

Contents

100% Run Tested
Complete factory run testing helps ensure every Trane Cold Generator chiller starts easily and operates reliably. The compressor alone undergoes a continuous series of demanding production checks such as proof and leak tests, and static electrical and multiple leak-back checks. These are followed by several run tests to confirm proper operation of the chiller.

To meet safety standards all shell and tube heat exchangers are designed, tested and rated in accordance with ASME standards on the refrigerant side.

Easy Serviceability
Trane 70 through 120-ton Cold Generator chillers are designed with service personnel in mind. Components are standardized and assembled for easy access. Plus, the microprocessor control panel provides diagnostic capability to aid service personnel in analyzing problems. That means if a problem does occur, the chiller can be up and running in a shorter period of time.

Packed Stock for Fast Delivery
When your project is a fast-track job, Trane can help. We have a wide range of chillers in stock that can be shipped as soon as we receive your order.

Single Source Responsibility
Trane makes available a wide range of products designed for complete compatibility with the Cold Generator chiller. You can complete the entire building comfort system using components from Trane.

The Added Value of Applications Expertise
With the Cold Generator chiller you get applications expertise and know-how from a Trane sales engineer. There are more than 500 Trane sales engineers across the country — each one a graduate engineer with an average of 13 years experience working with the leading design and construction firms in the industry. Trane sales engineers have creative ideas and solutions to difficult building comfort system design problems. You can take advantage of their knowledge in designing a quality, dependable comfort system,

There's more. Your Trane sales engineer is backed by the Trane world headquarters staff of applications experts who are regarded as the best in the industry. Plus there are services like the C.D.S. Network that provide Trane sales engineers — and many independent design and consulting firms — direct access to the Trane mainframe computer and to many comfort system application, selection and design programs.

You get a quality chiller, properly selected and applied in a properly designed system. That means a comfort system that works.

Features and Benefits

Optional power supply monitor protects compressors from phase loss, phase reversal, phase imbalance, incorrect phase sequence and low voltage.

Single point power connection for easy hook-up and lower installation costs.

Control power transformer is factory-installed and tested on all chillers.

Optional alarm package for rapid detection of problems via electronic alarm and indicating lights. Easily detects compressor problems, low evaporator temperature and loss of evaporator chilled waterflow.

Load limit option slows compressor loading during start-up to reduce electrical demand charges and protect against overloading.

Rugged Trane Model R compressors are designed for efficient and proven reliable operation.

Timed periodic pumpout protects against liquid slugging during start-up.

Single circuit water connections on condenser and evaporator eliminate need for expensive jobsite water pipe manifolding.

Antirecycle timer prevents excessive start-stop cycling.

All features and options are available on standard shipment cycles.

Features and Benefits

- **Control Power Transformer**
  Factory-installed and tested control power transformer means no separate 115V field control power required. Benefit lower installation costs.

Ž **Chilled Water Temperature Control**
The microprocessor actually monitors temperature and its rate of change over time, effectively controlling compressor loading for efficient chiller operation. Benefit accurate, uniform building comfort.

Ž**Part-Winding Starter**
Factory-installed and tested part winding starter reduces motor in rush current versus across-the-line starters. Benefit: Reduces electrical grid "brown out" problems.

Ž**Automatic Lead-Lag Selection**
Automatically alternates the lead compressor on every start-up to equalize the number of starts on the compressors. Benefit: helps enhance compressor life.

Ž **Low Ambient Start Logic**
Prevents nuisance chiller shutdown during start-up under low ambient conditions. Benefit smooth operation.

- **Load Limiting**
  Prevents motor overload devices from tripping out during start-up with high chilled water loop temperatures. Also prevents excessive peak electrical demand. Benefit: improved reliability and controlled energy costs.

- **Safety Features**
  The microprocessor also provides low water temperature cutout, loss of charge protection and self diagnostics. Benefits not only helps protect the chiller from unsafe operating conditions, but also annunciates problems allowing easy diagnosis.

Chiller Options for Increased Flexibility

Ž**Sequence Panel**
Allows connection of up to three chillers in a single chiller system with system control features identical to single chiller microprocessor control.

Ž**Factory Installed Smart Hot Gas Bypass**
Saves field installation labor costs and is intelligently controlled for efficient operation.

Ž**Sound Attenuators**
Reduces sound levels for sound sensitive applications.

Ž**Unit Mounted Disconnect Switch**
Located inside the control panel. Disconnects electrical power safely and easily. Also saves jobsite installation labor costs.

Ž**Cycle Counter and Hour Meter**
Records compressor starts and operating hours for easy service monitoring.

Ž**Chilled Water Reset**
Allows ambient or zone controlled chilled water reset.

Ž**Ice Making Controls**
Provide simple chiller controls for use with ice making systems.

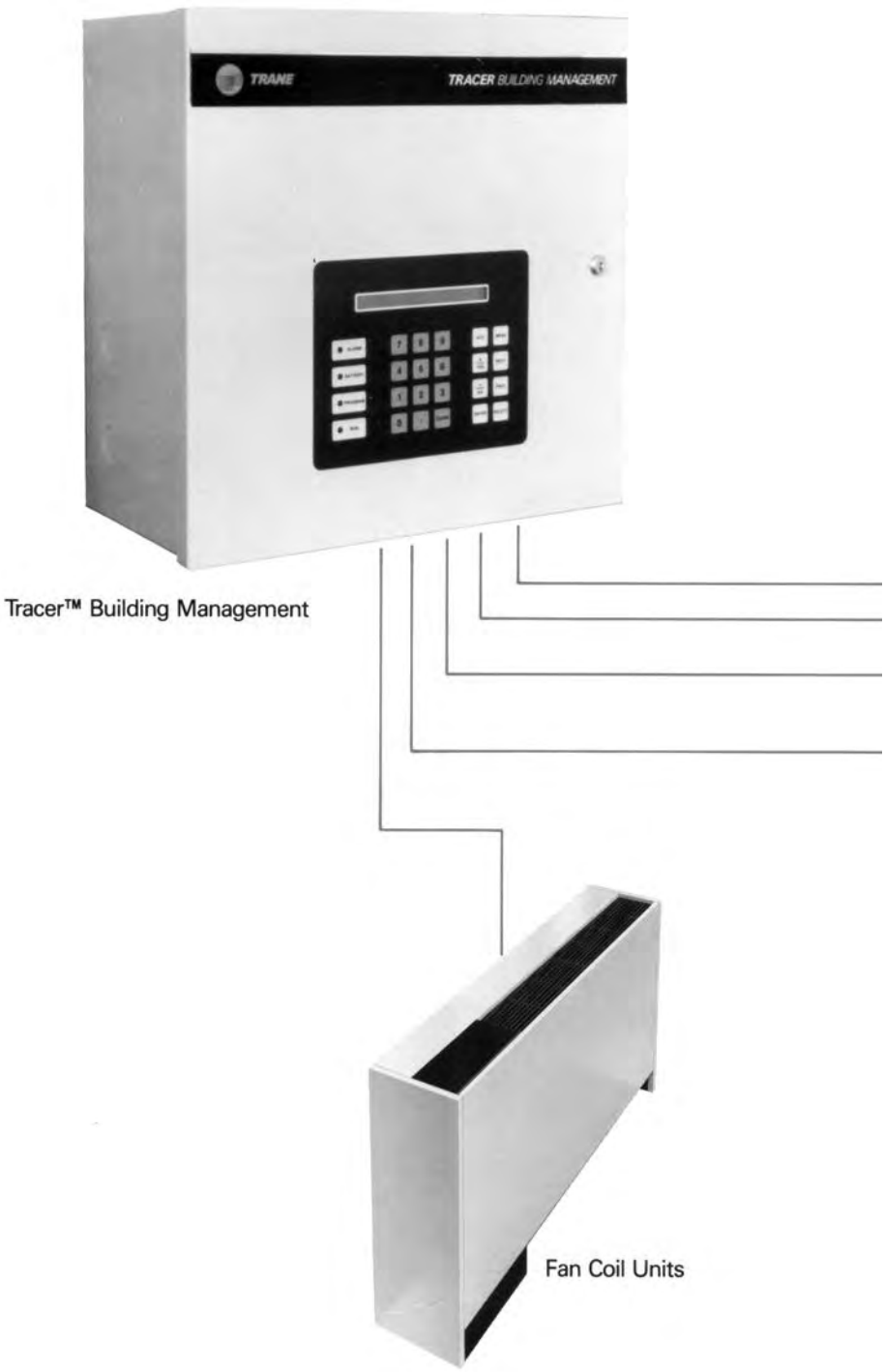
Ž**Integrated Comfort™ System (ICS) Interface**
Factory-mounted panel allows easy interface with Trane building management systems via a twisted pair of wires.

An Integrated Comfort™ System. . . With Single Source Responsibility

Single source responsibility is to your advantage. Trane can provide the entire HVAC package — the chillers, air handlers, fan-coil units plus the controls and the building management system. Nobody knows better how to control Trane equipment than the people who make it.

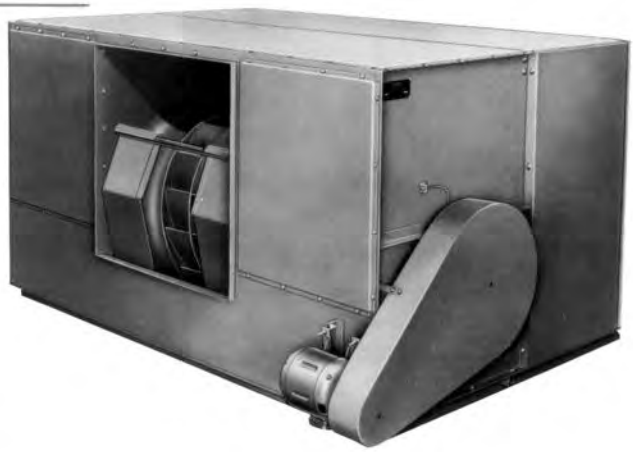
Trane energy management and building automation systems are designed to be user friendly. The methodology is easy to learn and changes in system control strategy are easily made without having to call Trane. This reduces service call expense when control questions arise.

There is another benefit from single source responsibility. With a Trane Integrated Comfort system, if you have a problem, there's no finger-pointing on the jobsite as to who is responsible because we are the single-source supplier of the system — from the chillers to the air handlers and controls. And Trane is the only HVAC manufacturer who can provide the entire system.



Air-Cooled
Condensing Units

Cold Generator®
Chillers and
Condensing Units



Climate Changer®
Air Handlers

Compressor
Chillers

Model Number Description

MODEL NOMENCLATURE

CG	W	C	-	D12	1	R
1,2	3	4		5,6,7	8	9

Digits 1,2 — Unit Type
CG = Cold Generator®
CC = Compressor Chiller

Digit 3 — Condenser Type
W = Water-Cooled Condenser
A = Air-Cooled Condenser

Digit 4- Development Sequence

Digits 5,6,7 — Nominal Cooling Capacity
C70 = 70 Tons
C80 = 80 Tons
C90 = 90 Tons
D10 = 100 Tons
D11 = 110Tons
D12 = 120 Tons

Digit 8 — Voltage Designator
1 = 460V PWS
2 = 575V PWS
3 = 230V PWS
6 = 200V PWS
PWS = Part Wind Starter

Digit 9 – Compressor Type
R = Model R

TRANE™

General Data

Table 9-1 — General Data — CGWC

Unit	C70R	C80R	C90R		D10R	D11R		D12R
Compressor:								
Model Number	CRHR-350	CRHR-400	CRHR-400	CRHR-500	CRHR-500	CRHR-500	CRHR-600	CRHR-600
Nominal Tons	2-35	2-40	1-40	1-50	2-50	1-50	1-60	2-60
Steps of Unloading	100-75 50-25	100-75 50-25	100-81 59-22 (40 Lead)	100-78 59-37 (50 Lead)	100-83-67 50-33-17	100-82-64 49-30-15 (50 Lead)	100-85-70 52-36-18 (60 Lead)	(100-83-67 50-33-17)
Evaporator:								
Model Designator	80(J)	80(J)	80(J)		100(K)	100(K)		120(L)
Storage Capacity	43.0	43.0	43.0		34.9	34.9		47.7
Minimum Flow Rate (GPM)	96	96	96		120	120		144
Maximum Flow Rate (GPM)	280	280	280		350	350		420
Condenser: Model Designator	80(J)	80(J)	100(K)		100(K)	120(L)		120(L)
Storage Capacity	8.8	8.8	10.8		10.8	12.8		47.7
Minimum Flow Rate (GPM)	96	96	96		120	120		420
Maximum Flow Rate (GPM)	280	280	280		350	350		144
General:								
Refrigerant Type	HCFC 22	HCFC 22	HCFC 22		HCFC 22	HCFC 22		HCFC 22
Refrigerant Charge (lb)	100	100	120		140	145		150
Oil Charge (Pints)/CKT	21	21	21/28.5		28.5	28.5/28.5		28.5

Note:
Units with 2 dissimilar compressors have (2) different steps of unloading, depending on which compressor is the lead compressor.

Table 9-2 — General Data — CCAC

Unit	C70R	C80R	C90R		D10R	D11R		D12R
Compressor:								
Model Number	CRHR-350	CRHR-400	CRHR-400	CRHR-500	CRHR-500	CRHR-500	CRHR-600	CRHR-600
Nominal Tons	2-35	2-40	1-40	1-50	2-50	1-50	1-60	2-60
Steps of Unloading	100-75 50-25	100-75 50-25	100-81 59-22 (40 Lead)	100-78 59-37 (50 Lead)	100-83-67 50-33-17	100-82-64 49-30-15 (50 Lead)	100-85-70 52-36-18 (60 Lead)	(100-83-67 50-33-17)
Evaporator:								
Model Designator	80(J)	80(J)	80(J)		100(K)	100(K)		120(L)
Storage Capacity	43.0	43.0	43.0		34.9	34.9		47.7
Minimum Flow Rate (GPM)	96	96	96		120	120		144
Maximum Flow Rate (GPM)	280	280	280		350	350		420
General:								
Refrigerant Type	HCFC 22	HCFC 22	HCFC 22		HCFC 22	HCFC 22		HCFC 22
Refrigerant Charge (lb)	35	35	42		49	51		53
Oil Charge (Pints)/CKT	20	20	21/29		29	29/29		27

Note:
Units with 2 dissimilar compressors have (2) different steps of unloading, depending on which compressor is the lead compressor.

Application Considerations

Unit Location
Units should be installed indoors where exposure to rain or water splash is minimal. A level foundation or flooring must be provided which will support at least 150 percent of the operating weight of the unit. Service clearance must allow for compressor removal, as well as evaporator and condenser tube removal. The chiller foundation must be rigid to reduce vibration transmission to a minimum. Use of vibration isolators is recommended for applications with sensitive vibration and noise criteria.

Condenser Water Limitations
Water-cooled Cold Generator® chillers start and operate satisfactorily over a range of load conditions with uncontrolled entering water temperature.

Reducing the condenser water temperature is an effective method of lowering the power input required. However, beyond certain limits, the effect of further reducing condenser water temperature causes a reduction in the pressure drop across the thermal expansion valve to a point where system instability may occur. In general, continuous machine operation with entering condenser water temperature below 60 F is not recommended. When the condenser water temperature is expected to drop below 60 F, it is recommended that some form of condenser water temperature control be used to ensure optimal machine performance.

Water Treatment
Use of untreated or improperly treated water in chillers may result in scaling, erosion, corrosion, algae or slime. It is recommended that the services of a qualified water treatment specialist be engaged to determine what treatment, if any, is advisable. The Trane Company assumes no responsibility for the results of untreated, or improperly treated water.

Remote Condenser
Remote condensers should be located as close as possible to the chiller to ensure minimum pressure drops of discharge refrigerant. If non-Trane condensers are provided, a subcooling circuit must be provided in order to achieve cataloged performances (16 F subcooling).

Selection Procedure

The chiller capacity tables presented on the following pages cover the most frequently encountered leaving water temperatures. The tables reflect a 10 F temperature drop through the evaporator. For temperature drops other than 10 F, refer to Table 11-1, Performance Adjustment Factors, shown below.

To select a Trane water-cooled Cold Generator, the following information is required:

1
Design load in tons of refrigeration

2
Design chilled water temperature drop

3
Design leaving chilled water temperature

4
Entering condenser water temperature

Evaporator gpm can be determined by using the following formula:

$$gpm = \frac{\text{Tons X 24}}{\text{Temperature Drop (Degrees F)}}$$

Condenser gpm can be determined by using the following formula:

$$gpm = \frac{24 \text{ X (tons + (0.285 X (compressor KW))}}{\text{Temperature Drop (Cond, Degrees F)}}$$

Table 11-1 — Performance Adjustment Factors

Fouling Factor	Water Delta T	Capacity	Evaporator Gpm	KW	Condenser Gpm
	4	.977	2.442	.991	.980
	6	.984	1.641	.994	.987
	8	.992	1.240	.997	.993
0.00025*	10	1.000	1.000	1.000	1.000
	12	1.008	.840	1.003	1.007
	14	1.016	.726	1.006	1.013
	16	1.024	.640	1.009	1.020

Notes:
This selection procedure is for water only being used as the solution. For ethylene glycol solutions, see the correction chart on page 14. For solutions other than water or ethylene glycol, contact your local Trane sales engineer.

For a condenser fouling factor of .001 use a capacity adjustment factor of .97. For a condenser fouling factor of .002 use .92. These capacity adjustment factors are in addition to any other adjustment factors.

*Ratings based on .00025 per ARI 590-86 or .0005 per ARI 590-81.

Selection Procedure

Selection Example

Given: System Load = 109 tons
Leaving Chilled Water Temperature (LCWT) = 44 F
Chilled Water Temperature Drop= 10 F
Entering Condensing Water Temperature (EWT) = 85 F

1

From Table 17-1, CGWC Performance Data, a CGWC D11R with 100 ton (K) Evaporator and 120 ton (L) Condenser at the given conditions will produce 110.4 tons with a compressor power input of 93.9 kw and a unit EER of 14.0.

2

To determine the evaporator and condenser water pressure drops, the flow rates (gpm) must be determined. Using the formula given earlier, this unit would require an evaporator flow rate of 265 gpm and a condenser flow rate of 329 gpm (compressor kw is found in the same table as the capacity).

The evaporator pressure drop curve, Chart 15-1, indicates 265 gpm through a 100 ton (K) evaporator results in a pressure drop of 15 ft of water.

The condenser pressure drop curve, Chart 15-2, indicates 329 gpm through a 120 ton (L) condenser results in a pressure drop of 14.3 ft of water.

3

The final unit selection is:

- Qty (1) CGWCD11 R with 100 ton (K) Evap. and 120 ton (L) Cond.
- Cooling Capacity = 110.4 tons
- Entering/Leaving Chilled Water Temperatures = 54/44 F
- Chilled waterflow rate = 265 gpm
- Evaporator water pressure drop = 15.0 feet
- Cooling waterflow = 329 gpm
- Condenser water pressure drop = 14.3 feet
- Compressor power input = 93.9 kw
- Unit EER = 14.0

Compressor Chiller — (CCAC) —

Selection with Cataloged Condensers

Select the unit for the following conditions

A reciprocating compressor chiller is required to produce 101.7 tons when matched with an air-cooled condenser. The leaving chilled water temperature is 44 F. The evaporator ΔT is 10 F. The ambient temperature is 95 F.

1

Select the nominal unit size.

The performance data is tabulated by leaving chilled water temperature. For the example, the standard unit capacities at 44 F leaving chilled water temperature are found on page 20. The system that best meets the tonnage requirement is a CCAC D11R matched with a CAUC-D12. The unit capacity is 102.8 tons with a kw input of 103.6. The compressor chiller EER is 11.8.

2

Calculate the required chilled water-flow rate.

$$gpm = \frac{\text{tons X 24}}{\Delta T \text{ chilled water}}$$

For this example,

$$gpm = \frac{102.8 \text{ X } 24}{10} = 246.7$$

3

Determine the evaporator water pressure drop.

The evaporator water pressure drop chart is located on page 15. Entering the evaporator chart at 246.7 gpm, the pressure drop for a K evaporator is 12.7 feet.

4

Unit Selection

The above procedure shows the proper selection for this example is a CCAC D11R with a CAUC-D12 condenser operating as follows:

Capacity 102.8
Entering/leaving chilled water temperature: 54/44
Chilled waterflow rate: 246.7 gpm
Evaporator water pressure drop 12.7 feet
Compressor power input 103.6
Unit EER: 11.8

Selection Procedure

Compressor Chiller – (CCAC) With no cataloged condensers.
Selection procedure when matching CCAC with condensers not cataloged.

When selecting a combination of equipment or conditions which are not cataloged, it becomes necessary to match the compressor and condenser performance. The following procedure can be used in selecting the correct condenser.

Example:

Given:
1
Total cooling load = 72 tons (864 MBh)
2
Leaving Chiller Water = 45 F
3
Design air temperature entering coil = 95 F
4
Altitude = sea level
5
Refrigerant = HCFC 22

Select a compressor-chiller/condenser combination to satisfy design requirements (assuming component performance is not cataloged).

The procedure is outlined as follows

Step 1: Select a compressor-chiller that appears to meet tonnage requirements.

Ž Select CCAC C80R (80 nominal tons)

Step 2: Plot at least two gross compressor-chiller capacities, less subcooling at the design leaving water temperature, and different condensing temperatures as shown on Chart 13-1.

Ž From performance data (page 23), the following points are plotted for CCAC C80R: To subtract capacity increase due to subcooling reduce catalog capacity by five percent (for every 10 F of subcooling).

Leaving Water Temp.	Cond Temp.	MBH w/Subclg.	Degrees Subclg.	MBH Leas Subclg
45F	115	925	10 F	879
45F	135	790	10 F	750

Step 3a Select a condenser that appears to meet the tonnage requirements.

Ž Select TC-63 (centrifugal fan air-cooled condenser)

Step 3b: Plot two gross heat rejection points (DS-ACDS-2) divided by the appropriate N value (Table 13-1).

Ž By selecting points at 25 F and 35 F initial temperature different (ITD = condensing temp. - ambient temp.), the following table is constructed.

Cond. ITD	Cond. Temp.	Gross Heat Rejection MBH
25 F	120 F	770
35 F	130 F	1125

Divide gross heat rejection by the appropriate N value to get net capacity. (See table below).

Leaving Water Temp.	Cond. Temp.	N	GHP/N in MBH
45F	120F	1.29	597
45F	130 F	1.34	840

Step 3c: Determine intersection point.
• Resultant capacity is 790 at a condensing temperature of 128 F.

Step 4 In DS-ACDS-2 enter Chart 24-1 at the appropriate temperature difference (temp. difference = condensing temp. - ambient temp.). Determine increase in capacity due to subcooling.

Ž Percent increase in capacity due to subcooling for a temperature difference of 33 F (128 F -95 F) is 11.5 percent.

790 X 1.115 = 880MBh

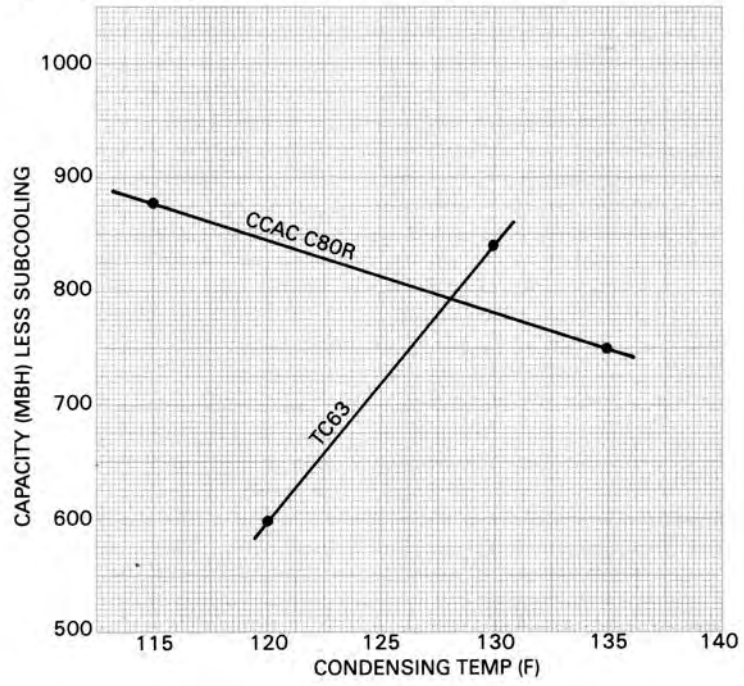
Step 5: From performance data (page 23), determine kw of compressor - condenser at condensing temperature of 128 F.

MBh = 880
Kw = 83.2

Table 13-1 — Values Of "N" (CCAC)

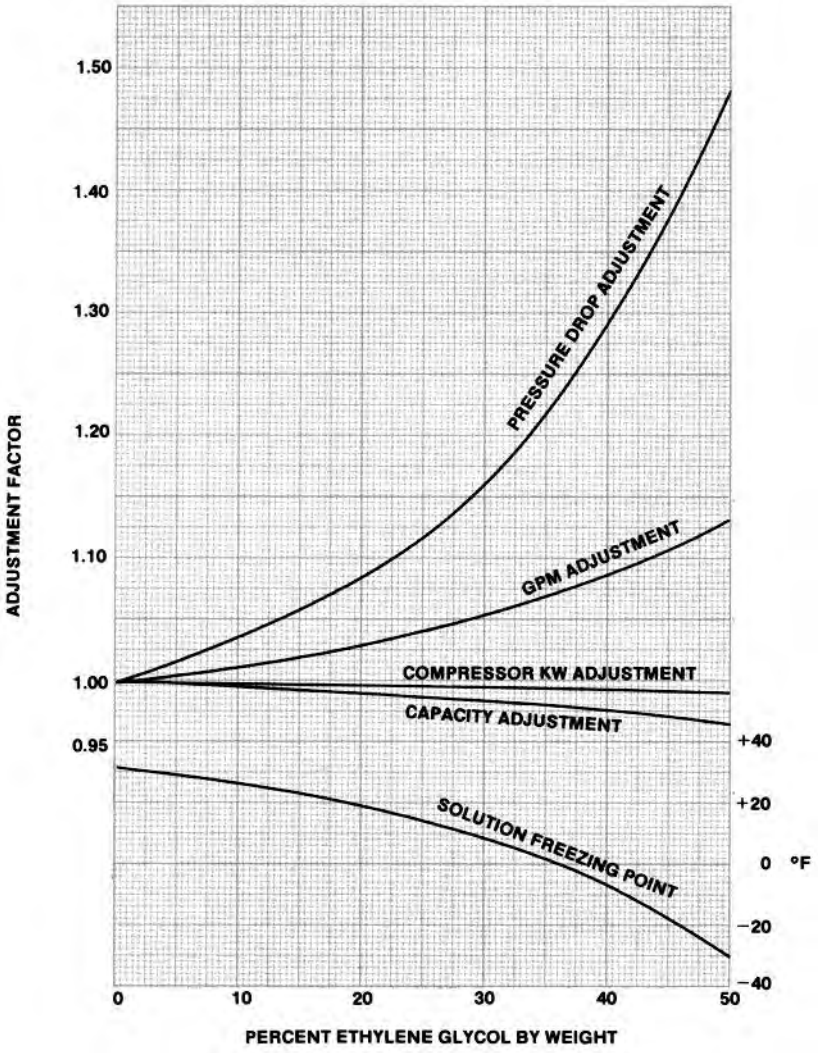
Cond. Temp.	Leaving Chilled Water Temperature 40	45	50
85	1.17	1.16	1.14
95	1.21	1.19	1.17
105	1.24	1.22	1.21
115	1.29	1.27	1.25
125	1.33	1.31	1.29
135	1.39	1.37	1.34
145	—	1.43	1.40

Chart 13-1 — Compressor-Chiller/Condenser Performance



Performance Adjustment Factors

Chart 14-1 — Ethylene Glycol Performance Adjustment Factors and Solution Freezing Points For Evaporators



Performance Adjustment Factors

Chart 15-1 — Evaporator Water Pressure Drop

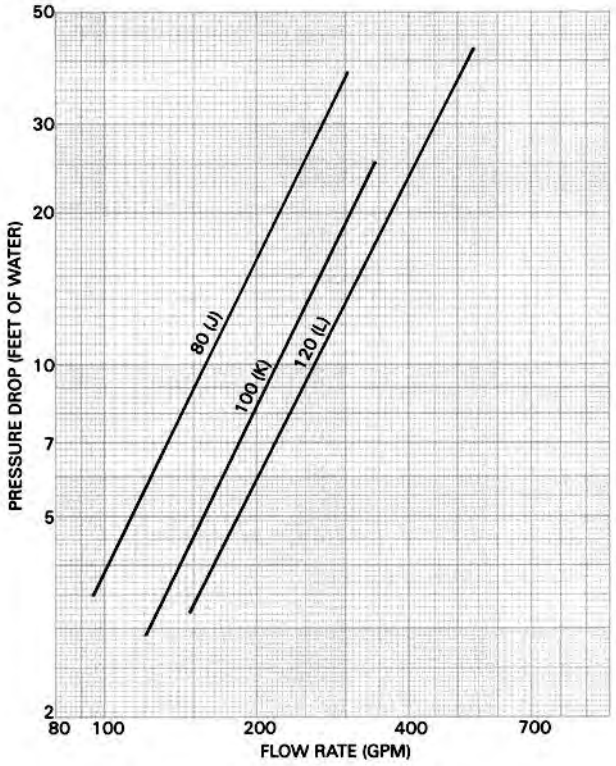
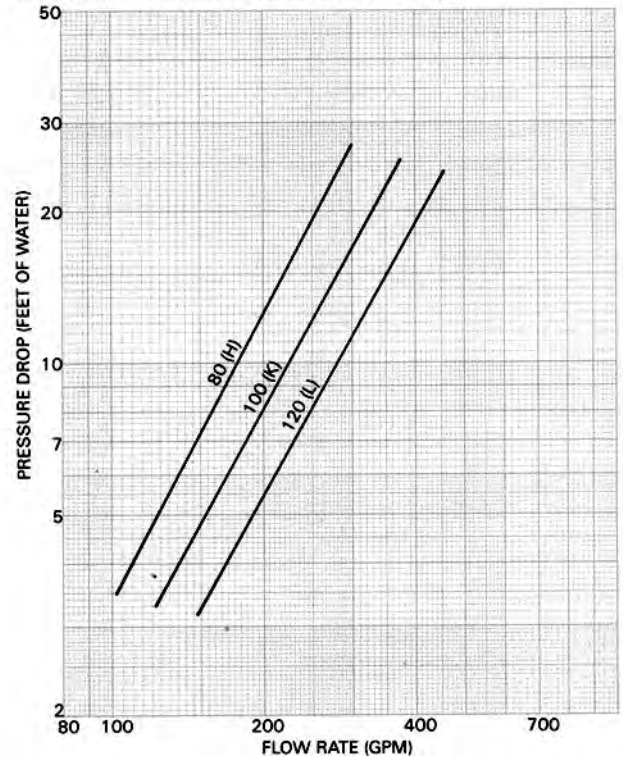


Chart 15-2 — Condenser Water Pressure Drop



Performance Data

Table 16-1 — CGWC Performance Data, 40 F Leaving Chilled Water Temperature

Entering Condenser Water Temperature — LCWT = 40

Unit Size	Evp Size	Cnd Size	75 Tons	75 Kw	75 EER	80 Tons	80 Kw	80 EER	85 Tons	85 Kw	85 EER	90 Tons	90 Kw	90 EER	95 Tons	95 Kw	95 EER
C70R	80(J)	80(J)	70.0	55.6	14.9	67.6	57.8	13.9	65.3	59.6	13.0	63.0	61.6	12.2	60.7	63.4	11.4
C80R	80(J)	80(J)	79.5	66.2	14.3	77.2	68.6	13.4	75.0	71.0	12.6	72.7	73.4	11.8	70.3	75.6	11.1
C90R	80(J)	100(K)	88.1	71.5	14.7	85.6	74.3	13.7	83.1	76.8	12.9	80.6	79.4	12.1	78.0	81.7	11.4
D10R	100(K)	100(K)	99.9	79.0	15.1	97.0	82.2	14.1	94.0	85.2	13.2	91.0	88.2	12.3	87.9	91.0	11.5
D11R	100(K)	120(L)	109.3	84.9	15.4	106.2	88.4	14.3	103.0	91.9	13.4	99.7	95.3	12.5	96.3	98.4	11.7
D12R	120(L)	120(L)	122.2	93.2	15.6	118.8	97.6	14.5	115.2	101.6	13.5	111.6	105.6	12.6	108.0	109.4	11.8

Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressor(s) only.
5. EER = Energy Efficiency Ratio, (Btu/watt-hour). Power inputs include compressor(s) and control power.
6. Rated in accordance with ARI Standard 590.
7. Ratings based on evaporator temperature drop of 10 F.

Table 16-2 — CGWC Performance Data, 42 F Leaving Chilled Water Temperature

Entering Condenser Water Temperature — LCWT = 42

Unit Size	Evp Size	Cnd Size	75 Tons	75 Kw	75 EER	80 Tons	80 Kw	80 EER	85 Tons	85 Kw	85 EER	90 Tons	90 Kw	90 EER	95 Tons	95 Kw	95 EER
C70R	80(J)	80(J)	72.6	56.4	15.3	70.2	58.4	14.3	67.8	60.4	13.4	65.4	62.4	12.5	63.1	64.2	11.7
C80R	80(J)	80(J)	82.3	67.0	14.6	80.1	69.6	13.7	77.8	72.0	12.9	75.4	74.4	12.1	73.0	76.6	11.4
C90R	80(J)	100(K)	91.2	72.3	15.0	88.7	75.3	14.0	86.2	78.0	13.2	83.6	80.6	12.4	81.0	82.9	11.6
D10R	100(K)	100(K)	103.5	79.8	15.5	100.5	83.0	14.4	97.4	86.2	13.5	94.3	89.3	12.6	91.1	92.2	11.8
D11R	100(K)	120(L)	113.2	85.7	15.8	110.0	89.4	14.7	106.7	92.9	13.7	103.3	96.4	12.8	99.9	99.6	12.0
D12R	120(L)	120(L)	126.2	94.2	16.0	122.6	98.4	14.9	119.0	102.8	13.8	115.4	106.8	12.9	111.6	110.8	12.0

Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressor(s) only.
5. EER = Energy Efficiency Ratio, (Btu/watt-hour). Power inputs include compressor(s) and control power.
6. Rated in accordance with ARI Standard 590.
7. Ratings based on evaporator temperature drop of 10 F.

Performance Data

Table 17-1 — CGWC Performance Data, 44 F Leaving Chilled Water Temperature

Entering Condenser Water Temperature — LCWT = 44

Unit Size	Evp Size	Cnd Size	75 Tons	75 Kw	75 EER	80 Tons	80 Kw	80 EER	85 Tons	85 Kw	85 EER	90 Tons	90 Kw	90 EER	95 Tons	95 Kw	95 EER
C70R	80(J)	80(J)	75.4	57.0	15.7	72.9	59.2	14.7	70.4	61.2	13.7	68.0	63.2	12.8	65.5	65.2	12.0
C80R	80(J)	80(J)	85.2	67.8	15.0	82.9	70.4	14.0	80.6	73.0	13.2	78.2	75.4	12.4	75.8	77.8	11.6
C90R	80(J)	100(K)	94.2	73.3	15.3	91.8	76.0	14.4	89.3	79.0	13.5	86.7	81.5	12.7	84.0	84.3	11.9
D10R	100(K)	100(K)	107.0	80.4	15.9	104.0	83.8	14.8	100.8	87.0	13.8	97.7	90.2	12.9	94.4	93.2	12.1
D11R	100(K)	120(L)	117.1	86.4	16.2	113.8	90.2	15.1	110.4	93.9	14.0	106.9	97.4	13.1	103.4	100.7	12.3
D12R	120(L)	120(L)	130.1	95.0	16.4	126.5	99.4	15.2	122.9	103.8	14.1	119.1	108.0	13.2	115.3	112.2	12.3

Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressor(s) only.
5. EER = Energy Efficiency Ratio, (Btu/watt-hour). Power inputs include compressor(s) and control power.
6. Rated in accordance with ARI Standard 590.
7. Ratings based on evaporator temperature drop of 10 F.

Table 17-2 — CGWC Performance Data, 45 F Leaving Chilled Water Temperature

Entering Condenser Water Temperature — LCWT = 45

Unit Size	Evp Size	Cnd Size	75 Tons	75 Kw	75 EER	80 Tons	80 Kw	80 EER	85 Tons	85 Kw	85 EER	90 Tons	90 Kw	90 EER	95 Tons	95 Kw	95 EER
C70R	80(J)	80(J)	76.7	57.2	15.9	74.2	59.4	14.9	71.7	61.6	13.9	69.2	63.6	12.9	66.8	65.6	12.1
C80R	80(J)	80(J)	86.6	68.2	15.1	84.4	70.8	14.2	82.0	73.4	13.3	79.6	76.0	12.5	77.1	78.4	11.7
C90R	80(J)	100(K)	95.9	73.7	15.5	93.4	76.6	14.5	90.8	79.4	13.6	88.3	82.1	12.8	85.6	84.9	12.0
D10R	100(K)	100(K)	108.8	80.8	16.1	105.7	84.2	15.0	102.6	87.4	14.0	99.3	90.6	13.1	96.1	93.8	12.2
D11R	100(K)	120(L)	119.1	86.8	16.4	115.7	90.6	15.2	112.3	94.3	14.2	108.8	97.8	13.3	105.3	101.3	12.4
D12R	120(L)	120(L)	132.1	95.4	16.5	128.5	100.0	15.4	124.8	104.4	14.3	121.0	108.6	13.3	117.2	112.8	12.4

Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressor(s) only.
5. EER = Energy Efficiency Ratio, (Btu/watt-hour). Power inputs include compressor(s) and control power.
6. Rated in accordance with ARI Standard 590.
7. Ratings based on evaporator temperature drop of 10 F.

Table 17-3 — CGWC Performance Data, 46 F Leaving Chilled Water Temperature

Entering Condenser Water Temperature — LCWT = 46

Unit Size	Evp Size	Cnd Size	75 Tons	75 Kw	75 EER	80 Tons	80 Kw	80 EER	85 Tons	85 Kw	85 EER	90 Tons	90 Kw	90 EER	95 Tons	95 Kw	95 EER
C70R	80(J)	80(J)	78.1	57.6	16.1	75.6	59.8	15.0	73.1	62.0	14.0	70.5	64.0	13.1	68.0	66.0	12.3
C80R	80(J)	80(J)	88.1	68.4	15.3	85.8	71.2	14.3	83.5	74.0	13.5	81.0	76.4	12.6	78.5	79.0	11.9
C90R	80(J)	100(K)	97.4	74.1	15.7	95.0	77.0	14.7	92.4	80.0	13.8	89.8	82.7	12.9	87.0	85.5	12.1
D10R	100(K)	100(K)	110.6	81.2	16.3	107.5	84.6	15.2	104.3	88.0	14.2	101.0	91.2	13.2	97.7	94.2	12.4
D11R	100(K)	120(L)	121.0	87.2	16.6	117.6	90.9	15.4	114.1	94.7	14.4	110.6	98.4	13.4	107.1	101.7	12.6
D12R	120(L)	120(L)	134.2	95.8	16.7	130.5	100.4	15.5	126.7	104.8	14.4	122.9	109.2	13.4	119.1	113.4	12.5

Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressor(s) only.
5. EER = Energy Efficiency Ratio, (Btu/watt-hour). Power inputs include compressor(s) and control power.
6. Rated in accordance with ARI Standard 590.
7. Ratings based on evaporator temperature drop of 10 F.

Performance Data

Table 18-1 — CGWC Performance Data, 48 F Leaving Chilled Water Temperature

Entering Condenser Water Temperature — LCWT = 48

Unit Size	Evp Size	Cnd Size	75 Tons	75 Kw	75 EER	80 Tons	80 Kw	80 EER	85 Tons	85 Kw	85 EER	90 Tons	90 Kw	90 EER	95 Tons	95 Kw	95 EER
C70R	80(J)	80(J)	80.9	58.2	16.6	78.3	60.4	15.4	75.7	62.8	14.4	73.2	64.8	13.4	70.6	67.0	12.6
C80R	80(J)	80(J)	91.0	69.2	15.7	88.7	72.0	14.7	86.3	74.8	13.8	83.9	77.4	12.9	81.3	80.0	12.1
C90R	80(J)	100(K)	100.7	74.9	16.0	98.2	77.8	15.0	95.6	80.9	14.1	92.9	83.7	13.2	90.1	86.6	12.4
D10R	100(K)	100(K)	114.3	81.8	16.6	111.1	85.4	15.5	107.8	88.8	14.5	104.5	92.0	13.6	101.1	95.2	12.7
D11R	100(K)	120(L)	125.0	87.8	17.0	121.5	91.7	15.8	118.0	95.5	14.8	114.4	99.2	13.8	110.7	102.7	12.9
D12R	120(L)	120(L)	138.2	96.6	17.1	134.4	101.2	15.9	130.6	105.8	14.7	126.8	110.4	13.7	122.8	114.8	12.8

Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressor(s) only.
5. EER = Energy Efficiency Ratio, (Btu/watt-hour). Power inputs include compressor(s) and control power.
6. Rated in accordance with ARI Standard 590.
7. Ratings based on evaporator temperature drop of 10 F.

Table 18-2 — CGWC Performance Data, 50 F Leaving Chilled Water Temperature

Entering Condenser Water Temperature — LCWT = 50

Unit Size	Evp Size	Cnd Size	75 Tons	75 Kw	75 EER	80 Tons	80 Kw	80 EER	85 Tons	85 Kw	85 EER	90 Tons	90 Kw	90 EER	95 Tons	95 Kw	95 EER
C70R	80(J)	80(J)	83.8	58.8	17.0	81.1	61.2	15.8	78.5	63.4	14.7	75.8	65.6	13.7	73.2	67.8	12.9
C80R	80(J)	80(J)	94.0	70.0	16.0	91.7	72.8	15.0	89.3	75.6	14.1	86.8	78.4	13.2	84.2	81.0	12.4
C90R	80(J)	100(K)	104.0	75.7	16.4	101.5	78.8	15.3	98.8	81.7	14.4	96.1	84.9	13.5	93.3	87.6	12.7
D10R	100(K)	100(K)	118.0	82.6	17.1	114.7	86.0	15.9	111.3	89.4	14.8	107.9	92.8	13.9	104.5	96.0	13.0
D11R	100(K)	120(L)	129.1	88.4	17.4	125.5	92.5	16.2	121.8	96.2	15.1	118.1	100.2	14.1	114.4	103.7	13.2
D12R	120(L)	120(L)	142.3	97.2	17.5	138.4	102.0	16.2	134.6	106.8	15.0	130.6	111.4	14.0	126.6	115.8	13.1

Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressor(s) only.
5. EER = Energy Efficiency Ratio, (Btu/watt-hour). Power inputs include compressor(s) and control power.
6. Rated in accordance with ARI Standard 590.
7. Ratings based on evaporator temperature drop of 10 F.

Performance Data

Table 19-1 — CCAC Performance Data, 40 F Leaving Chilled Water Temperature

Entering Condenser Air Temperature — LCWT = 40

Unit Size	Evp Size	Condenser Size	85			95			100			105			115		
			Tons	Kw	EER	Tons	Kw	EER	Tons	Kw	EER	Tons	Kw	EER	Tons	Kw	EER
C70R	80(J)	CAUC-C60	62.5	64.2	10.7	58.0	67.2	9.5	55.9	68.6	9.0	53.7	69.8	8.5	49.4	72.2	7.6
	80(J)	CAUC-C80	65.4	61.2	11.4	60.8	64.6	10.1	58.5	66.2	9.5	56.3	67.8	9.0	51.8	70.4	8.0
C80R	80(J)	CAUC-C80	73.3	73.8	11.8	68.5	77.8	10.5	66.1	79.8	9.9	63.5	81.4	9.3	58.3	84.8	7.2
	80(J)	CAUC-D10	75.3	71.4	12.6	70.6	75.8	11.1	68.1	77.8	10.4	65.6	79.8	9.8	60.5	83.2	7.1
C90R	80(J)	CAUC-C80	80.4	81.5	11.8	75.1	85.8	10.4	72.4	87.8	9.8	69.6	89.6	9.3	63.8	93.1	8.2
	80(J)	CAUC-D10	82.7	79.0	12.5	77.6	83.5	11.1	74.9	85.7	10.4	72.1	87.6	9.8	66.4	91.3	8.7
D10R	100(K)	CAUC-D10	92.8	88.8	12.5	86.5	94.0	11.0	83.3	96.6	10.3	80.1	98.8	9.7	73.4	103.2	7.2
	100(K)	CAUC-D12	95.2	85.8	13.2	88.9	91.6	11.6	85.7	94.2	10.9	82.4	96.8	10.2	75.8	101.4	7.6
D11R	100(K)	CAUC-D10	100.0	98.0	12.2	93.2	103.5	10.8	89.7	106.0	10.1	86.2	108.6	9.5	79.0	113.3	8.3
	100(K)	CAUC-D12	102.8	94.6	13.0	96.0	100.6	11.4	92.5	103.6	10.7	89.0	106.2	10.0	81.7	111.2	8.8
D12R	120(L)	CAUC-D12	114.4	106.0	12.9	107.0	113.4	11.3	103.2	116.8	10.6	99.3	120.2	9.9	91.3	126.8	7.5
	120(L)	2-CAUC-C80	116.8	101.6	13.7	109.4	109.6	11.9	105.6	113.4	11.1	101.8	117.0	10.4	93.8	124.0	7.5

Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressor(s) only.
5. EER = Energy Efficiency Ratio, (Btu/watt-hour). Power inputs include compressor(s) and control power.
6. Rated in accordance with ARI Standard 590.
7. Ratings based on evaporator temperature drop of 10 F.

Table 19-2 — CCAC Performance Data, 42 F Leaving Chilled Water Temperature

Entering Condenser Air Temperature — LCWT = 42

Unit Size	Evp Size	Condenser Size	85			95			100			105			115		
			Tons	Kw	EER	Tons	Kw	EER	Tons	Kw	EER	Tons	Kw	EER	Tons	Kw	EER
C70R	80(J)	CAUC-C60	64.7	65.4	10.9	60.1	68.6	9.7	57.9	70.0	9.2	55.6	71.4	8.6	51.2	73.8	7.7
	80(J)	CAUC-C80	67.8	62.2	11.6	63.1	65.8	10.3	60.7	67.4	9.7	58.4	69.0	9.1	53.8	71.8	8.1
C80R	80(J)	CAUC-C80	75.9	75.0	12.1	71.0	79.2	10.7	68.5	81.2	10.1	65.9	83.2	9.5	60.5	86.6	7.3
	80(J)	CAUC-D10	78.0	72.6	12.8	73.2	77.2	11.3	70.7	79.2	10.6	68.1	81.2	10.0	62.8	85.0	7.3
C90R	80(J)	CAUC-C80	83.2	82.9	12.0	77.9	87.4	10.6	75.0	89.6	10.0	72.1	91.5	9.4	66.1	95.1	8.3
	80(J)	CAUC-D10	85.7	80.4	12.7	80.3	85.1	11.3	77.7	87.2	10.6	74.8	89.4	10.0	68.9	93.3	8.8
D10R	100(K)	CAUC-D10	96.0	90.2	12.7	89.6	95.4	11.2	86.3	98.0	10.5	83.0	100.4	9.9	76.3	105.0	7.4
	100(K)	CAUC-D12	98.5	87.0	13.5	92.0	92.8	11.8	88.8	95.6	11.1	85.4	98.2	10.4	78.7	103.2	7.8
D11R	100(K)	CAUC-D10	103.4	99.9	12.4	96.4	105.1	11.0	92.9	107.8	10.3	89.3	110.3	9.7	82.1	115.2	8.5
	100(K)	CAUC-D12	106.3	95.8	13.2	99.4	102.2	11.6	95.8	105.0	10.9	92.2	107.8	10.2	84.9	113.2	9.0
D12R	120(L)	CAUC-D12	118.0	107.6	13.1	110.4	115.2	11.5	106.5	118.8	10.7	102.6	122.4	10.0	94.4	129.2	7.7
	120(L)	2-CAUC-C80	120.6	103.0	14.0	113.0	111.2	12.1	109.1	115.0	11.3	105.2	118.8	10.6	97.0	126.2	7.7

Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressor(s) only.
5. EER = Energy Efficiency Ratio, (Btu/watt-hour). Power inputs include compressor(s) and control power.
6. Rated in accordance with ARI Standard 590.
7. Ratings based on evaporator temperature drop of 10 F.

Performance Data

Table 20-1 — CCAC Performance Data, 44 F Leaving Chilled Water Temperature

Entering Condenser Air Temperature — LCWT = 44

Unit Size	Evp Size	Condenser Size	85 Tons	85 Kw	85 EER	95 Tons	95 Kw	95 EER	100 Tons	100 Kw	100 EER	105 Tons	105 Kw	105 EER	115 Tons	115 Kw	115 EER
C70R	80(J)	CAUC-C60	66.9	66.6	11.1	62.2	69.8	9.9	59.9	71.4	9.3	57.6	72.8	8.8	53.1	75.4	7.8
	80(J)	CAUC-C80	70.2	63.2	11.9	65.4	66.8	10.5	63.0	68.6	9.9	60.6	70.2	9.3	55.9	73.2	8.3
C80R	80(J)	CAUC-C80	78.6	76.4	12.3	73.6	80.8	10.9	71.0	82.8	10.2	68.3	84.8	8.6	62.7	88.4	7.5
	80(J)	CAUC-D10	80.7	73.8	13.0	75.8	78.4	11.5	73.3	80.6	10.8	70.7	82.6	10.2	65.2	86.6	7.4
C90R	80(J)	CAUC-C80	86.1	84.5	12.2	80.5	89.0	10.8	77.7	91.1	10.1	74.7	93.3	9.6	68.5	97.0	8.4
	80(J)	CAUC-D10	88.7	81.7	12.9	83.2	86.6	11.5	80.4	88.8	10.8	77.6	91.1	10.2	71.5	95.5	8.9
D10R	100(K)	CAUC-D10	99.1	91.4	12.9	92.6	97.0	11.4	89.3	99.6	10.4	86.0	102.0	10.1	79.2	106.8	7.6
	100(K)	CAUC-D12	101.8	88.2	13.8	95.2	94.2	12.1	91.9	97.0	11.3	88.5	99.6	10.6	81.7	104.8	7.9
D11R	100(K)	CAUC-D10	106.8	100.9	12.6	99.7	106.8	11.1	96.1	109.6	10.5	92.5	112.3	9.8	85.2	117.2	8.7
	100(K)	CAUC-D12	109.9	97.2	13.5	102.8	103.6	11.8	99.2	106.6	11.1	95.5	109.6	10.4	88.1	115.0	9.2
D12R	120(L)	CAUC-D12	121.6	109.2	13.3	113.9	117.0	11.6	109.9	120.8	10.9	105.9	124.4	10.2	97.6	131.6	7.8
	120(L)	2-CAUC-C80	124.3	104.2	14.2	116.6	112.8	12.4	112.6	116.8	11.5	108.6	120.6	10.8	100.3	128.2	7.8

Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressor(s) only.
5. EER = Energy Efficiency Ratio, (Btu/watt-hour). Power inputs include compressor(s) and control power.
6. Rated in accordance with ARI Standard 590.
7. Ratings based on evaporator temperature drop of 10 F.

Table 20-2 — CCAC Performance Data, 45 F Leaving Chilled Water Temperature

Entering Condenser Air Temperature — LCWT = 45

Unit Size	Evp Size	Condenser Size	85 Tons	85 Kw	85 EER	95 Tons	95 Kw	95 EER	100 Tons	100 Kw	100 EER	105 Tons	105 Kw	105 EER	115 Tons	115 Kw	115 EER
C70R	80(J)	CAUC-C60	68.0	67.2	11.2	63.3	70.6	9.9	60.9	72.0	9.4	58.6	73.4	8.9	54.0	76.2	7.9
	80(J)	CAUC-C80	71.5	63.8	12.0	66.5	67.4	10.6	64.1	69.2	10.0	61.7	70.8	9.4	56.9	74.0	8.4
C80R	80(J)	CAUC-C80	79.9	77.0	12.4	74.8	81.4	11.0	72.2	83.6	10.3	69.5	85.6	9.7	63.9	89.2	7.5
	80(J)	CAUC-D10	82.1	74.4	13.2	77.1	79.0	11.6	74.6	81.4	10.9	71.9	83.4	10.3	66.4	87.4	7.5
C90R	80(J)	CAUC-C80	87.6	85.3	12.2	81.9	90.0	10.9	79.0	92.1	10.2	76.0	94.3	9.6	69.7	98.0	8.5
	80(J)	CAUC-D10	90.1	82.3	13.1	84.7	87.4	11.6	81.9	89.6	10.9	78.9	91.9	10.2	72.8	96.0	9.1
D10R	100(K)	CAUC-D10	100.7	92.0	13.1	94.2	97.6	11.5	90.8	100.2	10.8	87.5	102.8	10.2	80.7	107.8	7.7
	100(K)	CAUC-D12	103.4	88.8	13.9	96.8	94.8	12.2	93.5	97.6	11.4	90.1	100.4	10.7	83.2	105.6	8.0
D11R	100(K)	CAUC-D10	108.5	101.5	12.8	101.4	107.6	11.3	97.7	110.3	10.6	94.1	113.1	9.9	86.7	118.4	8.7
	100(K)	CAUC-D12	111.7	97.8	13.6	104.5	104.4	12.0	100.9	107.4	11.2	97.2	110.4	10.5	89.7	116.0	9.2
D12R	120(L)	CAUC-D12	123.4	110.0	13.4	115.6	118.0	11.7	111.6	121.8	11.0	107.6	125.4	10.3	99.2	132.6	7.9
	120(L)	2-CAUC-C80	126.2	105.0	14.4	118.4	113.4	12.5	114.4	117.6	11.6	110.4	121.4	10.9	102.0	129.2	7.9

Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressor(s) only.
5. EER = Energy Efficiency Ratio, (Btu/watt-hour). Power inputs include compressor(s) and control power.
6. Rated in accordance with ARI Standard 590.
7. Ratings based on evaporator temperature drop of 10 F.

Performance Data

Table 21-1 — CCAC Performance Data, 46 F Leaving Chilled Water Temperature

Entering Condenser Air Temperature — LCWT = 46

Unit Size	Evp Size	Condenser Size	85 Tons	85 Kw	85 EER	95 Tons	95 Kw	95 EER	100 Tons	100 Kw	100 EER	105 Tons	105 Kw	105 EER	115 Tons	115 Kw	115 EER
C70R	80(J)	CAUC-C60	69.2	67.8	11.2	64.4	71.2	10.0	62.0	72.8	9.5	59.6	74.2	8.9	55.0	77.0	8.0
	80(J)	CAUC-C80	72.7	64.2	12.1	67.7	68.0	10.7	65.3	69.8	10.1	62.8	71.4	9.5	57.9	74.6	8.4
C80R	80(J)	CAUC-C80	81.2	77.6	12.5	76.1	82.2	11.0	73.4	84.4	10.4	70.7	86.4	9.8	65.0	90.2	7.6
	80(J)	CAUC-D10	83.5	75.0	13.3	78.5	79.8	11.7	75.9	82.0	11.0	73.2	84.2	10.4	67.6	88.2	7.6
C90R	80(J)	CAUC-C80	89.0	85.8	12.4	83.2	90.7	10.9	80.3	92.9	10.3	77.3	95.1	9.7	71.0	99.2	8.5
	80(J)	CAUC-D10	91.7	83.1	13.2	86.7	88.0	11.8	83.2	90.6	11.0	80.3	92.7	10.3	74.2	97.0	9.1
D10R	100(K)	CAUC-D10	102.4	92.6	13.2	95.7	98.4	11.6	92.4	101.0	10.9	89.0	103.6	10.3	82.2	108.6	7.8
	100(K)	CAUC-D12	105.1	89.2	14.1	98.4	95.4	12.3	95.0	97.6	11.5	91.6	101.2	10.8	84.7	106.4	8.1
D11R	100(K)	CAUC-D10	110.7	102.3	12.9	103.0	108.4	11.3	99.4	111.3	10.7	95.7	114.1	10.0	88.4	119.4	8.8
	100(K)	CAUC-D12	113.5	98.4	13.8	106.2	105.0	12.1	102.5	108.2	11.3	98.8	111.2	10.6	91.3	116.8	9.3
D12R	120(L)	CAUC-D12	125.2	110.8	13.5	117.4	118.8	11.8	113.3	122.6	11.0	109.3	126.4	10.3	100.8	133.8	7.9
	120(L)	2-CAUC-C80	128.1	105.6	14.5	120.2	114.2	12.6	116.2	118.4	11.7	112.1	122.4	11.0	103.7	130.2	8.0

Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressor(s) only.
5. EER = Energy Efficiency Ratio, (Btu/watt-hour). Power inputs include compressor(s) and control power.
6. Rated in accordance with ARI Standard 590.
7. Ratings based on evaporator temperature drop of 10 F.

Table 21-2 — CCAC Performance Data, 48 F Leaving Chilled Water Temperature

Entering Condenser Air Temperature — LCWT = 48

Unit Size	Evp Size	Condenser Size	85 Tons	85 Kw	85 EER	95 Tons	95 Kw	95 EER	100 Tons	100 Kw	100 EER	105 Tons	105 Kw	105 EER	115 Tons	115 Kw	115 EER
C70R	80(J)	CAUC-C60	71.5	69.2	11.4	66.5	72.6	10.2	64.1	74.2	9.6	61.7	75.6	9.7	56.9	78.6	8.1
	80(J)	CAUC-C80	75.2	65.2	12.4	70.1	69.2	10.9	67.6	71.0	10.3	65.1	72.8	9.7	60.1	76.0	8.6
C80R	80(J)	CAUC-C80	83.9	78.8	12.7	78.7	83.6	11.2	75.9	85.8	10.6	73.1	88.0	9.9	67.3	92.0	7.7
	80(J)	CAUC-D10	86.3	76.0	13.5	81.2	81.0	11.9	78.5	83.4	11.2	75.8	85.6	10.6	70.1	89.8	7.8
C90R	80(J)	CAUC-C80	91.9	87.4	12.5	86.0	92.3	11.1	83.0	94.7	10.4	79.9	97.0	9.8	73.4	101.1	8.7
	80(J)	CAUC-D10	94.7	84.5	13.4	89.1	89.6	11.9	86.1	92.1	11.2	83.1	94.5	10.5	76.7	98.8	9.3
D10R	100(K)	CAUC-D10	105.6	93.8	13.4	98.9	99.6	11.8	95.5	102.4	11.1	92.1	105.2	10.5	85.2	110.4	7.9
	100(K)	CAUC-D12	117.1	99.6	11.9	109.7	106.4	10.5	106.0	109.6	9.9	102.2	112.8	9.3	94.7	118.6	8.3
D11R	100(K)	CAUC-D10	113.6	103.7	13.2	106.4	110.0	11.6	102.7	112.9	10.9	99.0	115.8	10.2	91.6	121.3	9.0
	100(K)	CAUC-D12	117.1	99.6	14.0	109.7	106.4	12.3	106.0	109.6	11.5	102.2	112.8	10.8	94.7	118.6	9.5
D12R	120(L)	CAUC-D12	128.9	112.2	13.7	120.9	120.6	12.0	116.8	124.6	11.2	112.7	128.4	10.5	104.1	136.0	8.1
	120(L)	2-CAUC-C80	131.9	106.8	14.7	123.9	115.8	12.8	119.8	120.0	11.9	115.6	124.0	11.1	107.1	132.2	8.2

Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressor(s) only.
5. EER = Energy Efficiency Ratio, (Btu/watt-hour). Power inputs include compressor(s) and control power.
6. Rated in accordance with ARI Standard 590.
7. Ratings based on evaporator temperature drop of 10 F.

Performance Data

Table 22-1 — CCAC Performance Data, 50 F Leaving Chilled Water Temperature

Entering Condenser Air Temperature — LCWT = 50

Unit Size	Evp Size	Condenser Size	85 Tons	85 Kw	85 EER	95 Tons	95 Kw	95 EER	100 Tons	100 Kw	100 EER	105 Tons	105 Kw	105 EER	115 Tons	115 Kw	115 EER
C70R	80(J)	CAUC-C60	73.8	70.4	11.6	68.8	73.8	10.3	66.3	75.6	9.8	63.8	77.2	9.2	58.8	80.2	8.2
	80(J)	CAUC-C80	77.8	66.2	12.6	72.6	70.4	11.2	70.0	72.2	10.5	67.4	74.0	9.9	62.2	77.4	8.8
C80R	80(J)	CAUC-C80	86.6	80.2	12.9	81.3	85.0	11.4	78.5	87.4	10.7	75.6	89.6	10.1	69.7	93.8	7.9
	80(J)	CAUC-D10	89.1	77.2	13.8	83.9	82.4	12.2	81.2	84.8	11.4	78.4	87.0	10.7	72.6	91.4	7.9
C90R	80(J)	CAUC-C80	94.8	89.0	12.7	88.8	94.1	11.3	85.7	96.4	10.6	82.5	98.8	10.0	75.9	103.1	8.8
	80(J)	CAUC-D10	97.7	85.7	13.6	92.0	91.1	12.0	89.0	93.7	11.5	85.9	96.0	10.7	79.4	100.7	9.4
D10R	100(K)	CAUC-D10	108.9	95.0	13.7	102.0	101.0	12.1	98.6	104.0	11.3	95.2	106.8	10.6	88.3	112.2	8.1
	100(K)	CAUC-D12	111.9	91.4	14.6	105.0	97.8	12.8	101.5	100.8	12.0	98.0	104.0	11.3	91.0	109.8	8.5
D11R	100(K)	CAUC-D10	117.1	105.1	13.3	109.7	111.5	11.8	106.0	114.7	11.0	102.3	117.6	10.4	94.9	123.5	9.2
	100(K)	CAUC-D12	120.7	100.8	14.3	113.2	107.8	12.5	109.4	111.0	11.8	105.6	114.4	11.0	98.1	120.6	9.7
D12R	120(L)	CAUC-D12	132.6	113.8	13.9	124.4	122.2	12.2	120.3	126.4	11.4	116.1	130.4	10.7	107.5	138.2	8.2
	120(L)	2-CAUC-C80	135.7	108.0	15.0	127.5	117.2	13.0	123.4	121.6	12.1	119.2	125.8	11.3	110.6	134.2	8.3

Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressor(s) only.
5. EER = Energy Efficiency Ratio, (Btu/watt-hour). Power inputs include compressor(s) and control power.
6. Rated in accordance with ARI Standard 590.
7. Ratings based on evaporator temperature drop of 10 F.

Performance Data

Chart 23-1 — CCAC C70R (MBH)

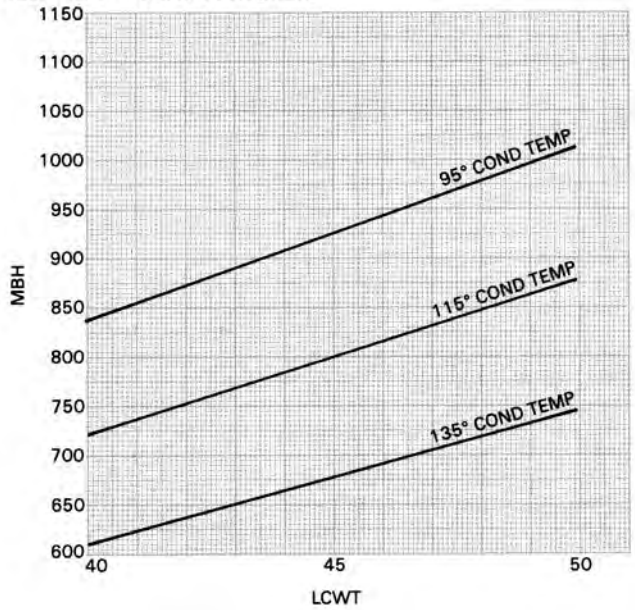


Chart 23-2 — CCAC C70R (KW)

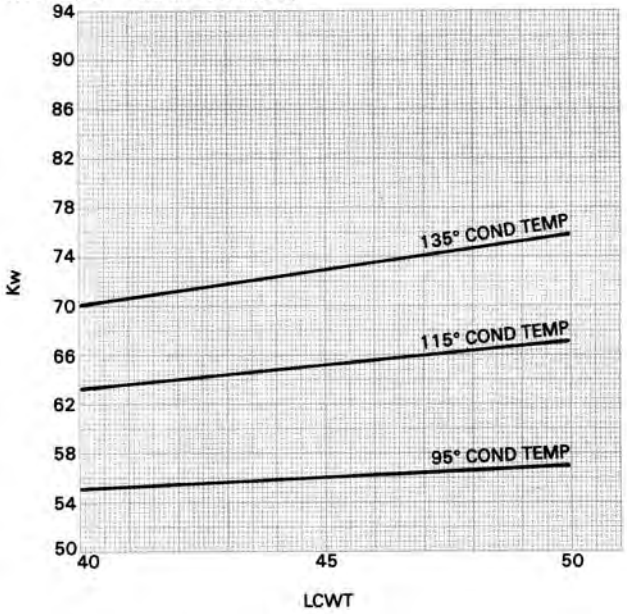


Chart 23-3 — CCAC C80R (MBH)

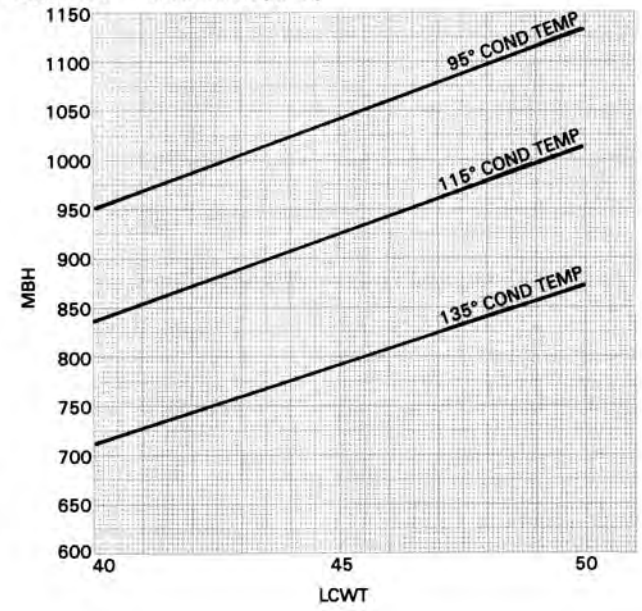
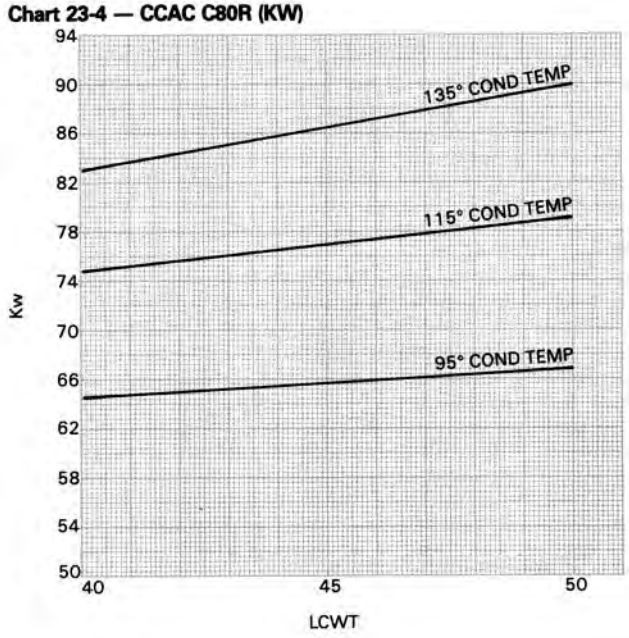


Chart 23-4 — CCAC C80R (KW)



Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI 590-86.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressors only.
5. Rated in accordance with ARI Standard 590.
6. Ratings based on evaporator temperature drop of 10 F.
7. Ratings are based on 10 F of subcooling.

Performance Data

Chart 24-1 — CCAC C90R (MBH)

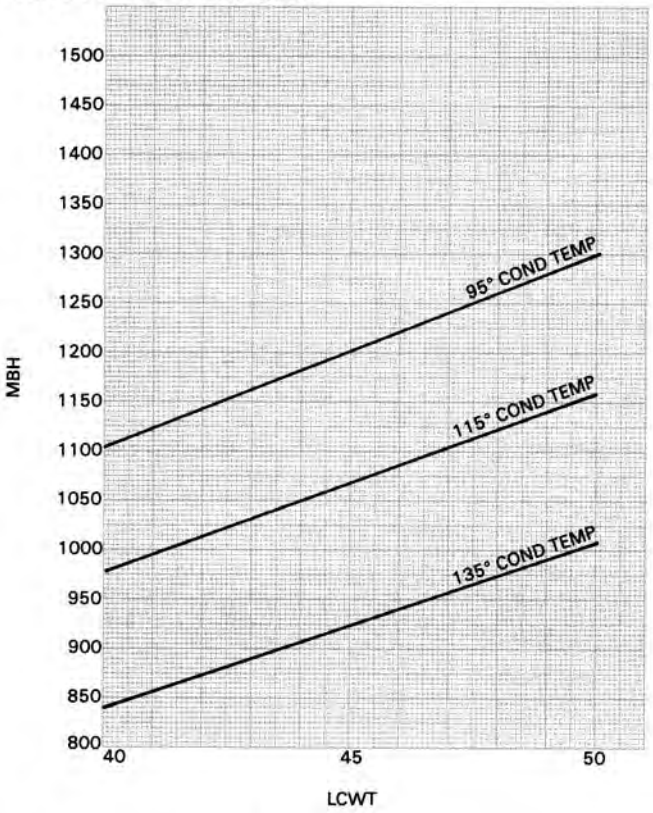


Chart 24-2 — CCAC C90R (KW)

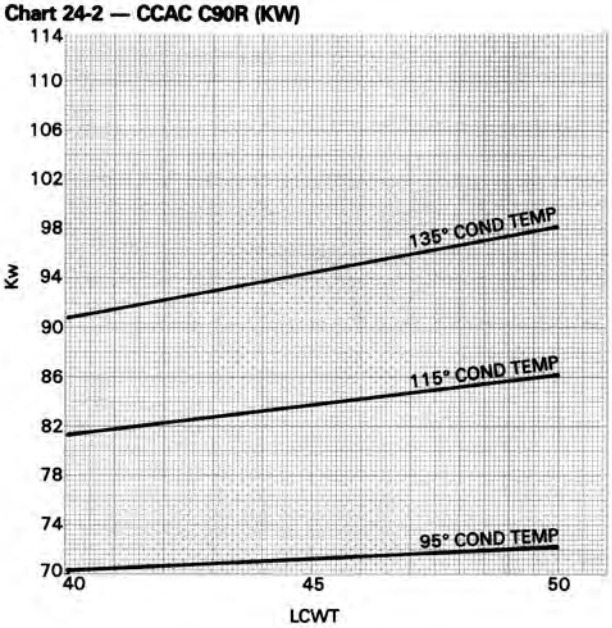


Chart 24-3 — CCAC D10R (MBH)

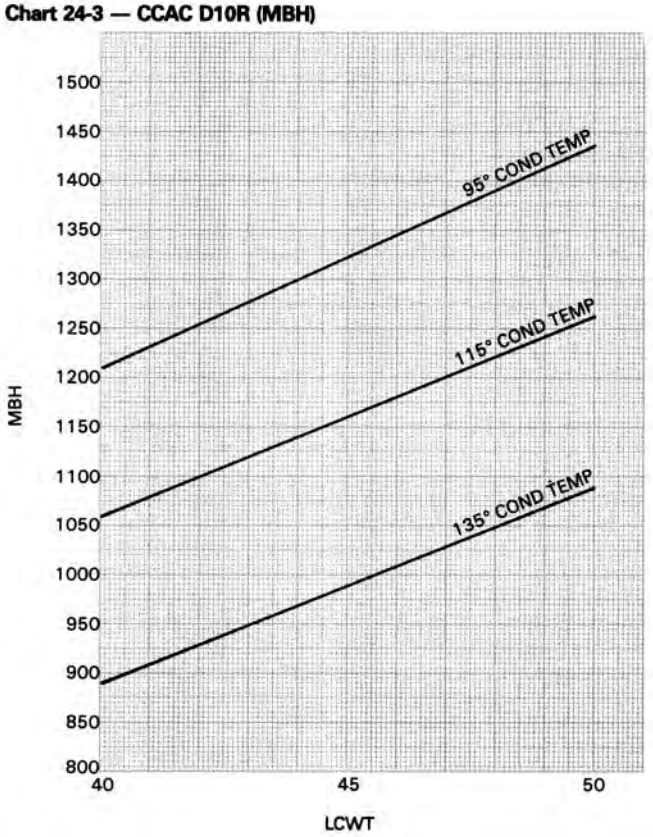
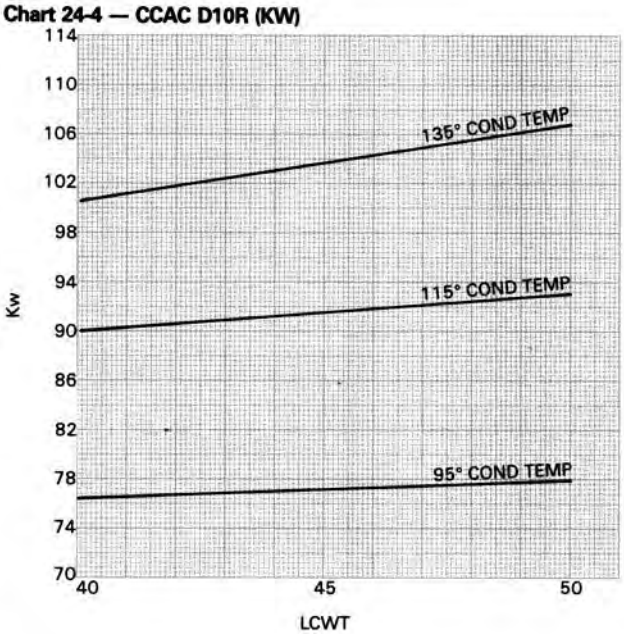


Chart 24-4 — CCAC D10R (KW)



Notes:
1. Ratings for evaporator based on a 0.0005 fouling factor per ARI 590-81 or .00025 per ARI.
2. Interpolation between points is permissible.
3. Extrapolation is not permitted.
4. Kw input is for compressors only.
5. Rated in accordance with ARI Standard 590.
6. Ratings based on evaporator temperature drop of 10 F.
7. Ratings are based on 10 F of subcooling.

Performance Data

Chart 25-1 — CCAC D11R (MBH)

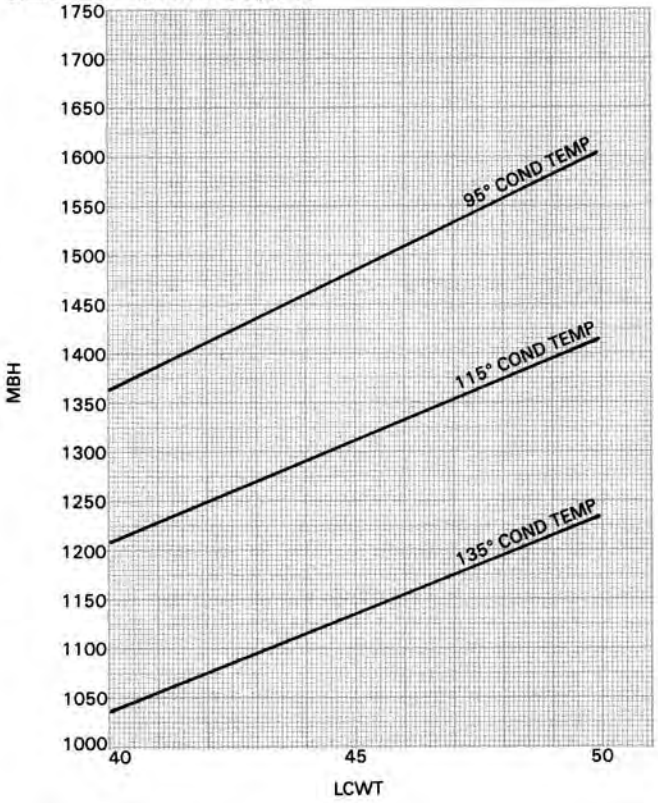


Chart 25-2 — CCAC D11R (KW)

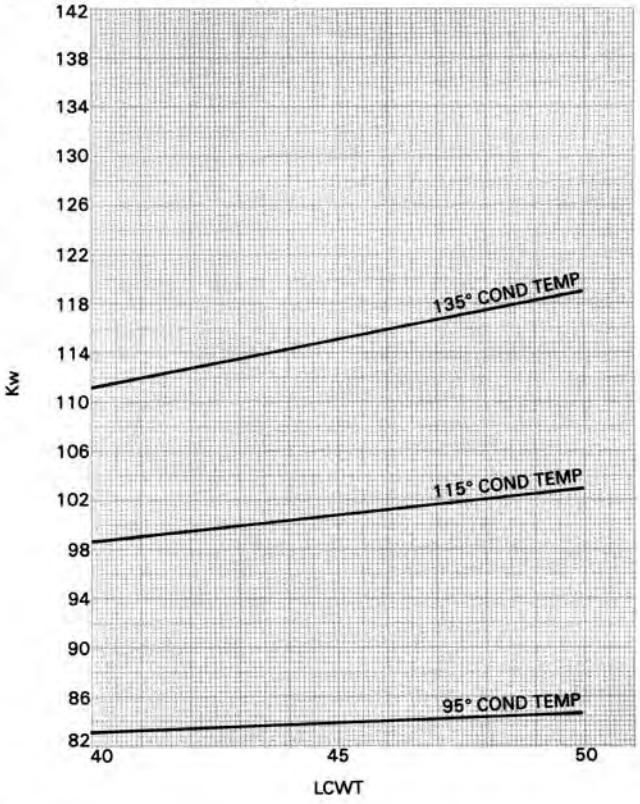


Chart 25-3 — CCAC D12R (MBH)

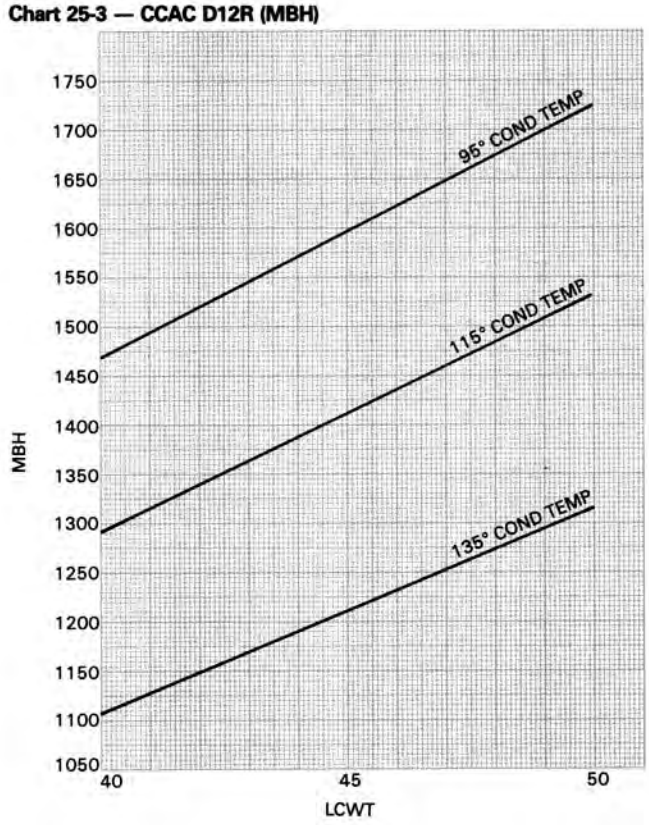
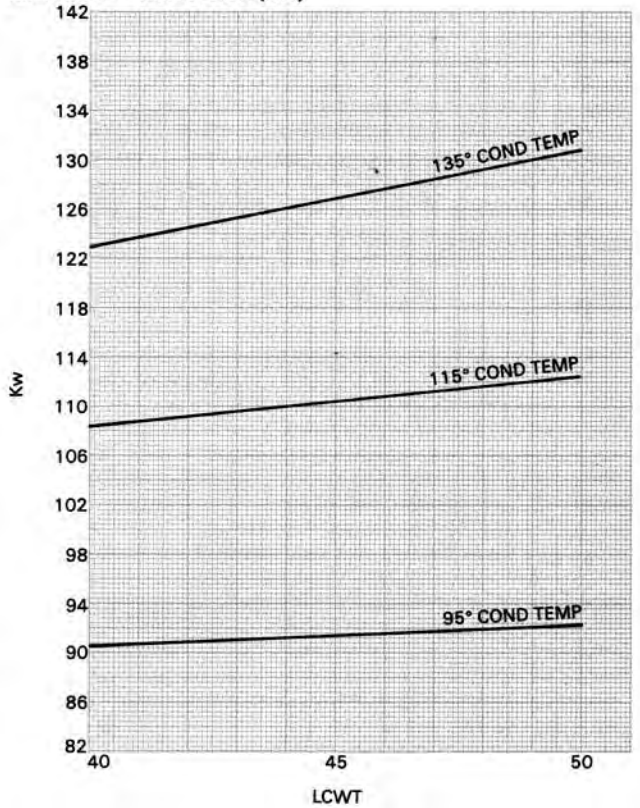


Chart 25-4 — CCAC D12R (KW)



Electrical Data

Table 26-1 — Water-Cooled Liquid Chillers, CGWC Models, Electrical Data

	Wiring Data 60 Cycle, 3-Phase				Motor Electrical Data 60 Cycle, 3 Phase					
	Unit Supply				Compressor (EA)					Controls
Unit Size	Rated Voltage	Minimum Circuit Ampacity	Max. Fuse Size	Recommended Dual Element Fuse Size	Qty.	RLA		LRA		KW
	200	257	350	300	2	114		729		.53
	230	223	300	250	2	99		631		.53
C70R	460	113	150	125	2	50		315		.53
	575	90	125	100	2	40		245		.53
	200	308	400	350	2	137		729		.53
	230	268	350	300	2	119		631		.53
C80R	460	135	175	150	2	60		315		.53
	575	108	150	125	2	48		245		.53
	200	321	450	400	2	137	147	729	910	.53
	230	279	400	350	2	119	128	631	792	.53
C90R	460	140	200	175	2	60	64	315	396	.53
	575	112	150	125	2	48	51	245	315	.53
	200	331	450	400	2	147		910		.53
	230	288	400	350	2	128		792		.53
D10R	460	144	200	175	2	64		396		.53
	575	115	150	150	2	51		315		.53
	200	375	500	450	2	147	182	910	990	.53
	230	326	450	400	2	128	158	792	860	.53
D11R	460	163	225	200	2	64	79	396	430	.53
	575	131	175	150	2	51	64	315	346	.53
	200	410	500	500	2	182		990		.53
	230	356	500	400	2	158		860		.53
D12R	460	178	250	200	2	79		430		.53
	575	144	200	175	2	64		346		.53

Notes:
1. MCA: Minimum Circuit Ampacity is 125% of the largest compressor RLA, plus 100% of the second compressor RLA, per NEC 440-32 and NEC 440-33.
2. MAXIMUM FUSE SIZE: 225% of the largest compressor RLA, plus 100% of the second compressor RLA, per NEC 440-33.
3. RECOMMENDED DUAL ELEMENT FUSE SIZE: 150% of the largest compressor RLA, plus 100% of the second compressor RLA, per NEC 440-33.
4. RLA: Rated Load Amps in accordance with ARI Standard 590-86.
5. Use copper conductors only.
6. Local codes may take precedence.
7. LRA based on full winding of part winding start units. Part winding start is standard on all units.
8. VOLTAGE UTILIZATION RANGE:

Rated Voltage	Utilization Range
200	180-220
230	207-253
460	414-506
575	517-633

Electrical Data

Table 27-1 — Compressor Chillers, CCAC Models, Electrical Data

	Wiring Data 60 Cycle, 3-Phase				Motor Electrical Data 60 Cycle, 3 Phase					
	Unit Supply				Compressor (EA)					Controls
Unit Size	Rated Voltage	Minimum Circuit Ampacity	Max. Fuse Size	Recommended Dual Element Fuse Size	Qty.	RLA		LRA		KW
	200	279	400	350	2	124		729		.53
	230	243	350	300	2	108		631		.53
C70R	460	122	175	150	2	54		315		.53
	575	97	125	125	2	43		245		.53
	200	335	450	400	2	149		729		.53
	230	293	400	350	2	130		631		.53
C80R	460	146	200	175	2	65		315		.53
	575	117	150	150	2	52		245		.53
	200	353	500	400	2	149	163	729	910	.53
	230	308	400	350	2	130	142	631	792	.53
C90R	460	154	200	175	2	65	71	315	396	.53
	575	123	175	150	2	52	57	245	315	.53
	200	367	500	450	2	163		910		.53
	230	320	450	400	2	142		792		.53
D10R	460	160	225	200	2	71		396		.53
	575	128	175	150	2	57		315		.53
	200	420	600	500	2	163	205	910	990	.53
	230	364	500	450	2	142	178	792	860	.53
D11R	460	182	250	225	2	71	89	396	430	.53
	575	146	200	175	2	57	71	315	346	.53
	200	461	600	600	2	205		990		.53
	230	401	500	450	2	178		860		.53
D12R	460	200	250	225	2	89		430		.53
	575	160	225	200	2	71		346		.53

Notes:
1. MCA: Minimum Circuit Ampacity is 125% of the largest compressor RLA, plus 100% of the second compressor RLA, per NEC 440-32 and NEC 440-33.
2. MAXIMUM FUSE SIZE: 225% of the largest compressor RLA, plus 100% of the second compressor RLA, per NEC 440-33.
3. RECOMMENDED DUAL ELEMENT FUSE SIZE: 150% of the largest compressor RLA, plus 100% of the second compressor RLA, per NEC 440-33.
4. RLA: Rated Load Amps in accordance with ARI Standard 590-86.
5. Use copper conductors only.
6. Local codes may take precedence.
7. LRA based on full winding of part winding start units. Part winding start is standard on all units.
8. VOLTAGE UTILIZATION RANGE:

Rated Voltage	Utilization Range
200	180-220
230	207-253
460	414-506
575	517-633

Control System

A typical Trane Cold Generator® electric control system schematic is shown on page 30. Before describing the sequence of unit operation, it is necessary to understand the purpose and function of certain control devices that are shown on the wiring diagram.

1

Compressor Current Overloads (1U1, 1U2)

The compressor current overloads are located in the control panel. The normally closed contacts open to stop compressor operation if the compressor current exceeds operational limits.

2

Compressor Winding Temperature Sensors (2B1RT1-3B2RT3)

The compressor winding temperature sensors, embedded in the compressor motor windings, vary their resistance based on motor temperature. They are connected to the solid-state motor protectors (1U22, 1U23).

3

Compressor Oil Pressure Switch (2B1S1, 3B2S2)

The oil pressure switches are located on the compressors. The normally open contacts close when oil pressure develops in the compressor. These switches are connected to the solid-state motor protectors (1U22, 1U23).

4

Solid-State Motor Protector (1U22, 1U23)

The solid-state motor protectors are located in the control panel. They are fed by the compressor winding temperature sensors and oil pressure switches. If any of these devices indicates a dangerous condition the motor protector contacts open, shutting down the affected compressor.

5

Reset Relays (1K16, 1K17)

The reset relays lockout compressor operation if the compressor current overloads (1U1, 1U2), the high pressure cutouts (2S10, 3S13), the freezestat relay (1UK29), or the solid-state motor protectors (1U22, 1U23) contacts open. If any of the above contacts open, the reset relay coil (1K16, 1K17) is energized. This opens the normally closed reset relay contacts, locking out compressor operation. To restart the compressor, reset the relay contacts by opening the compressor service switch (1S5, 1S6) in the control panel.

6

Chilled Waterflow Sensor

A flow sensor (flow switch or pressure differential switch) used in conjunction with a chilled water pump starter interlock is required to prevent the chiller from operating when there is no waterflow through the evaporator. If a mechanical flow sensing device is used, it should be installed in the leaving chilled water piping.

7

Microprocessor Chiller Control (1U12) and Auxiliary Relay Module (1U12, 1U13)

The primary purpose of the chiller control and the auxiliary relay module is to control the leaving chilled water temperature to a desired value. It also provides the following functions

a

Evaporator Freeze Protection: Prevents the unit from operating if the leaving chilled water solution temperature approaches freezing. This feature is provided through the 1UK29 contacts on the auxiliary relay module.

b

Compressor Antirecycle Protection: Timer will not allow the compressors to start more than once every five minutes preventing rapid recycling of the compressors.

c

Load Limiting: This feature prevents nuisance compressor overload tripouts by unloading each compressor one step whenever the leaving chilled water temperature is above 64 F. Normal operation will occur when the leaving chilled water temperature reaches 56 F.

d

Automatic Compressor Lead-Lag Sequencing: Equalizes compressor run time by changing the compressor lead-lag sequencing each time the unit shuts down due to no call for cooling.

e

Low Ambient Time Delay: Allows the low pressure control to be bypassed for a period of three minutes after a compressor start to allow the discharge pressure to build and permit the thermal expansion valve to properly feed liquid refrigerant to the evaporator.

f

Loss of Charge Protection: Prevents compressor from continuously cycling when the low pressure control is closed due to a loss of refrigerant. This helps to prevent compressor failure when refrigerant leaks occur.

g

Timed Periodic Pumpout: Allows the compressors to start once per hour if the low pressure control is closed indicating the presence of liquid refrigerant in the evaporator. This prevents compressor slugging and oil dilution on start-up.

h

Chilled Water Reset (Optional): Provides the ability to reset the leaving chilled water temperature based on a remote temperature sensor input. This provides energy savings since the chiller will operate more efficiently at higher leaving chilled water temperatures.

i

Hot Gas Bypass (Optional): The chiller will operate in the hot gas bypass mode when the system load is below the minimum stage of compressor loading. When the cooling load goes away the chiller will shut off. If the load returns, the chiller will restart immediately. This method of hot gas bypass will reduce energy consumption when compared to units that will not automatically shut off when the load goes away.

8

Part Winding Start Timer (1DL1, 1D12)

The part winding start timer is a 115 volt, solid-state, 0.5 second time delay. When the first compressor contactor (1K3, 1K4) closes, a set of auxiliary contacts will close to energize the timer and provide a 0.5 second-time delay before pulling in the second compressor contactor (1K5, 1K6).

Customer-Supplied Components

The chilled water pump (5B1) is typically operated by a start/stop push-button switch. When button 5S is pushed, the magnetic pump starter (5K7) will be energized and the pump(s) will start. Once the pump has started, the auxiliary contacts of the pump starter (5K7-Aux.) provide a holding for the starter. It is recommended that another set of auxiliary contacts on the pump starter be installed in series with the flow sensor to provide an interlock to assure that water is flowing through the evaporator whenever the chiller is operating.

Control sequence

Close the line voltage fused disconnect and the manual disconnect switch (1S1, optional) in the control panel. The compressor crankcase heaters (2B1 HR1, 3B2HR2) are energized when the disconnect switch is closed.

Close the chilled water pump disconnect and start the pump at the push-button station (55). The flow sensor and chilled water pump starter interlock will then close. Ensure that the compressor service switch (1S41) in the control panel is in the “on” position. This will energize control relay (1K45). The (1K45) normally open contacts close to send power to the output side of the chiller control. The (1K45) normally closed (1K45) contacts open which de-energizes the (1DL7) timer. The (1DL7) contacts then close allowing power to the 24 volt control transformer for the chiller control.

Loading The Compressor
On an increase in load, chilled water temperature rises and the chiller control (1U12) closes its first step contacts to energize the cooling relay (1K13). One pair of (1K13) contacts close to energize the condenser water pump or air-cooled condenser, contactor (5K8). Power flows through the compressor service switch (1S5), motor protector fuse (1F2), condenser water pump or air-cooled condenser contactor (5K8), high-pressure control (151 O), freezestat contactor, (1UK29), compressor current overload (1U1), solid-state motor protector (1U22), reset relay contacts (1K1 6), and through another pair of (1K13) contacts to energize the solenoid valve (4L1) which opens allowing refrigerant to the evaporator. At the same time, the chiller control (1U12) causes the auxiliary relay module (1U13) to close its (1UK30) contacts. This energizes the compressor contactor (1K3), and the start windings of the first compressor.

When the compressor contactor (1K3) closes, the time delay (1DL1) is energized.

One-half second later, the contacts of (1DL1) close to energize compressor contactor (1K5) and the run windings of the compressor.

If the supply water temperature does not remain within the control dead band, the chiller control (1U12) will open its second (and third) stage contacts to de-energize the compressor unloader solenoids (2B1L3, 2B1L5) as necessary to load the compressor and maintain the leaving water temperature. Compressors on 80 and 90 ton chillers do not have a third stage of unloading.

Loading The Second Compressor
On a further rise in load, indicated by a rise in leaving water temperature, the (1U12) chiller control will close its first stage contacts for the second compressor which energizes the cooling relay (1K14). If all safety controls are satisfied, the second solenoid valve (4L2) will open allowing refrigerant to the second circuit of the evaporator. At the same time the chiller control (1U12) causes the auxiliary relay module (1U13) to close its (1UK31) contacts. This energizes the compressor contactor (1K4) and the start windings of the second compressor.

The second compressor will continue to load similar to the first compressor, as necessary, based on leaving chilled water temperature.

Condenser Water Pump/Fan Operation
When either cooling relay (1K13, 1K14) is energized, a set of contacts on the relay closes, energizing the condenser water pump or air-cooled condenser contactor (5K8).

Unloading The Compressor
As cooling load decreases, chilled water temperature will drop. On 100, 110, and 120 ton chillers the number two compressor third stage (and second stage if necessary) contacts on the chiller control (1U12) close, energizing the compressor unloader solenoid valves (3B2L6, 3B2L4) unloading the second compressor. On a further drop in chilled water temperature, the number one compressor third stage contacts on the chiller control (1U12) close energizing the compressor unloader solenoid valve (2B1L5), partially unloading the number one compressor.

On a further decrease in the chilled water temperature, the number two compressor first stage contacts of the chiller control open de-energizing the cooling relay (1K14) and closing the liquid line solenoid valve (4L2). The compressor will continue to run and pump down the evaporator until the low pressure control (3S12) opens.

When the low pressure control opens, the chiller control will signal the auxiliary relay module (1U13) to open its (1UK31) contact and shut down the number two compressor. As the compressor contactor is de-energized, the crankcase heater (3B2HR2) is energized by the normally closed contacts of the compressor contactor.

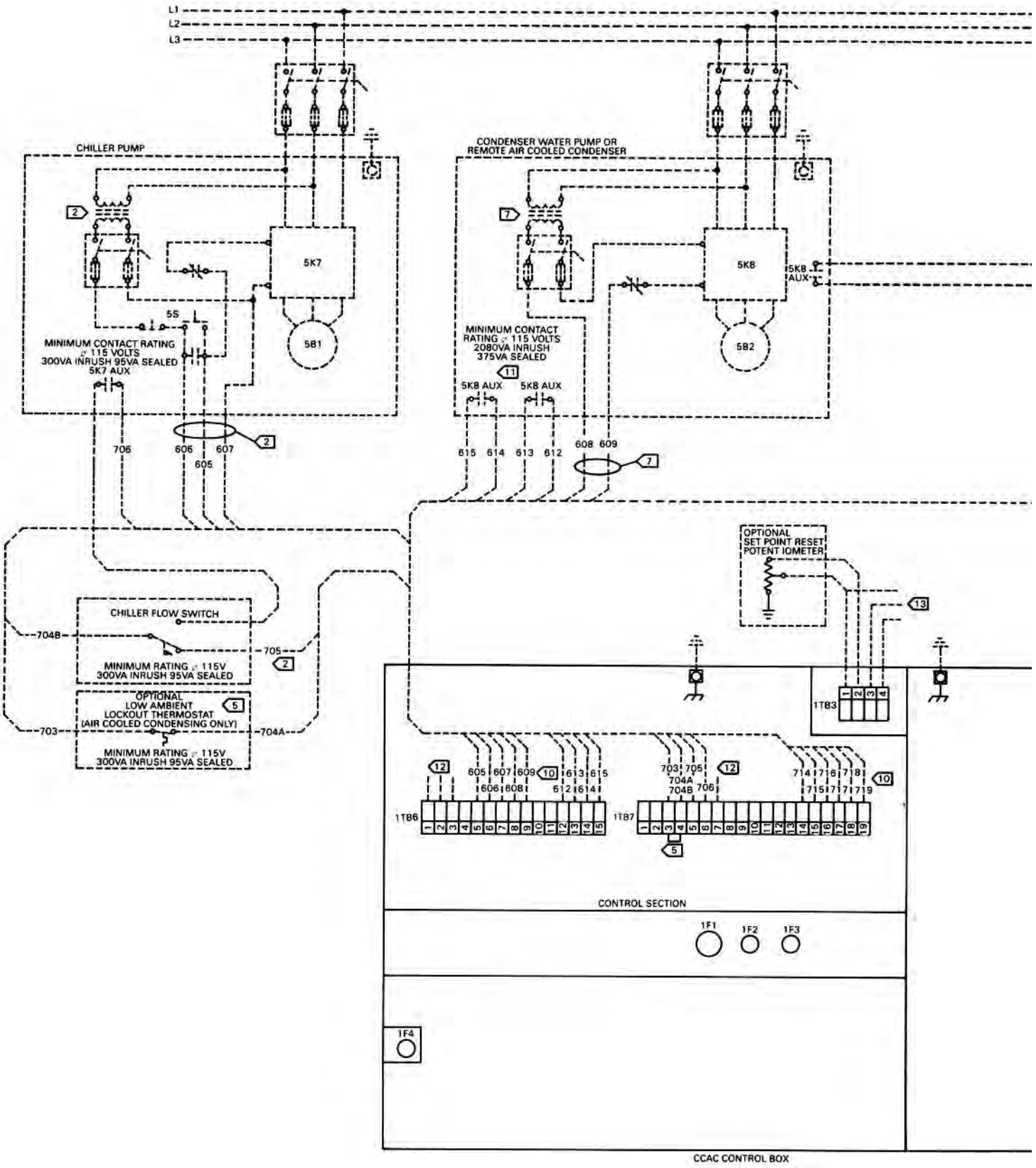
On a further drop in chilled water temperature, the number one compressor second stage contacts on the chiller control close, energizing the compressor unloader solenoid valve (2B1L3) further unloading the number one compressor. If the chilled water temperature continues to decrease, the number one compressor first stage contacts of the chiller control (1U12) open de-energizing the cooling relay (1K13) and closing the liquid line solenoid valve (4L1). The condenser water pump/air-cooled condenser contactor (5K8) is de-energized as the (1K13) contacts open. The compressor will continue to run and pump down the evaporator until the low pressure control (2S11) opens signaling the compressor to stop and energizing the crankcase heater (2B1HR1).

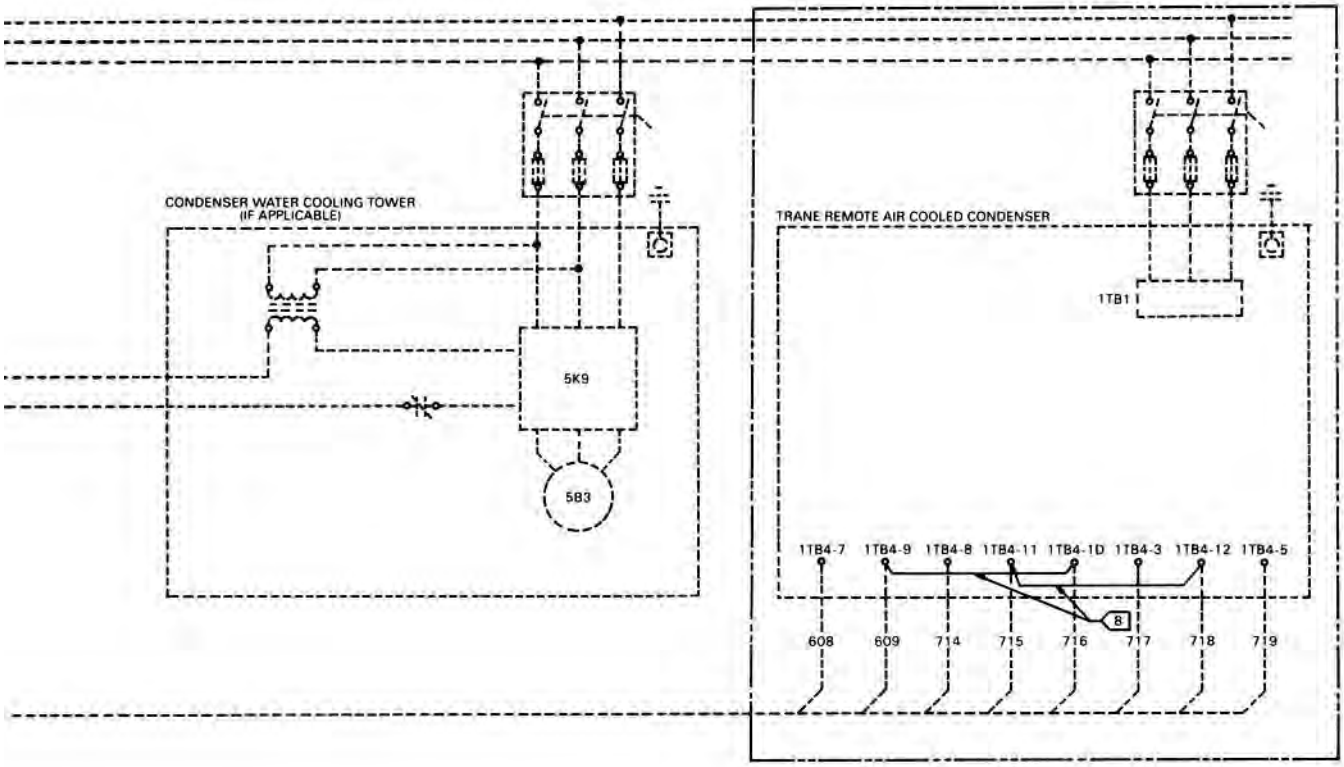
After complete unloading of the number one compressor, the automatic lead-lag feature will cause the number two compressor to be the first to start the next time there is a demand for cooling.

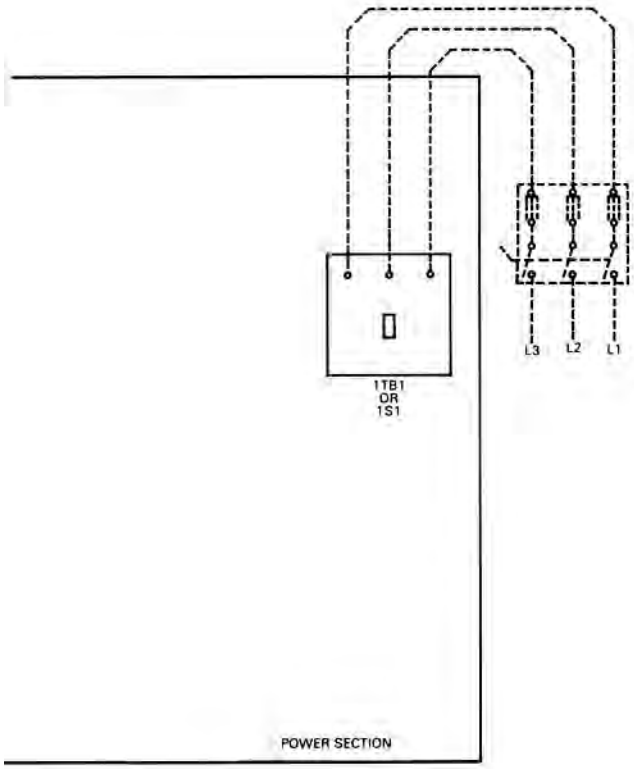
For 80 and 90 ton chillers, the unloading operation is the same as for 100, 110 and 120 ton chillers except compressors on 80 and 90 ton units have no third stage of loading. These chillers unload in the sequence

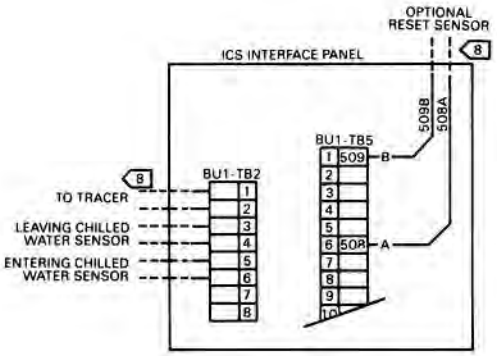
#2 compressor second stage, #1 compressor second stage, #2 compressor first stage, #1 compressor first stage.

Typical Wiring Diagrams









CUSTOMER NOTE:

1. SOLID LINES INDICATE TRANE WIRING. DASHED LINES INDICATE FIELD WIRING. PHANTOM LINES INDICATE OPTIONAL FEATURES.
2. IF OPTIONAL ALARM PACKAGE IS ORDERED, 115 VOLT POWER FOR ALARM PACKAGE AND CHILLER PUMP STARTER COIL MUST BE CUSTOMER SUPPLIED. MAXIMUM FUSE SIZE IS 15 AMPS. ALARM PACKAGE POWER REQUIREMENTS ARE 65 VA INRUSH 40 VA SEALED. IF ALARM PACKAGE IS NOT ORDERED LEADS 605, 606, 607 AND 705 ARE NOT REQUIRED AND STARTER MAY BE WIRED FOR DESIRED CONTROL VOLTAGE. IN EITHER CASE CHILLER PUMP AUXILLARY (5K7) IS STILL REQUIRED.
3. ALL 3-PHASE MOTORS ARE PROTECTED UNDER PRIMARY SINGLE PHASE FAILURE CONDITIONS.
4. CAUTION - DO NOT ENERGIZE UNIT UNTIL CHECK-UP AND START-UP PROCEDURES HAVE BEEN COMPLETED.
5. WARNING - REMOVE JUMPER WHEN LOW AMBIENT LOCK-OUT THERMOSTAT IS USED.
6. REMOVE JUMPER WIRES IN CAUC UNIT BETWEEN TERMINALS 1TB4-9 & 1D AND 1TB4-11 & 12.
7. TRANSFORMER IF REQUIRED. MAXIMUM FUSE SIZE IS 15 AMPS. LEADS 608 AND 609 GO TO CONTROL CIRCUIT CONTACTS WITH MAXIMUM CONTACT RATING AT 115 VAC, 54 AMPS INRUSH, 9 AMPS SEALED.
8. ALL CUSTOMER WIRING TO BE COPPER CONDUCTORS ONLY. USE BELDON WIRE CATALOG #8760 U.L. STYLE 2092 FOR 2 CONDUCTOR APPLICATION, AND CATALOG #8735 U.L. STYLE 2096 FOR 3 CONDUCTOR APPLICATIONS OR USE CLASS 1 WIRING.
9. SEE NAMEPLATE MARKING FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM FUSE SIZE.
10. TO AIR CONDENSER MAXIMUM RATING OF 54 AMPS INRUSH, 9 AMPS SEALED AT 115 VAC.
11. INTERLOCKS (5K8 AUXILIARY) ARE REQUIRED ONLY ON UNITS USED WITH CONDENSER WATER PUMPS.
12. TO OPTIONAL MULTIPLE UNIT CONTROL PANEL RELAY BOARD (IF USED) 115 VAC, 60 HERTZ, 7 VA.
13. CONTACT CLOSURE INPUT FROM OPTIONAL MULTIPLE UNIT CONTROL PANEL. VOLTAGE RATING 24 VOLTS DC @ 3.5 MILLIAMPS.
14. FOR CANADIAN INSTALLATION (CSA) ONLY. LOCAL INSPECTION AUTHORITIES MAY REQUIRE SINGLE POWER SOURCE DISCONNECTING MEANS.

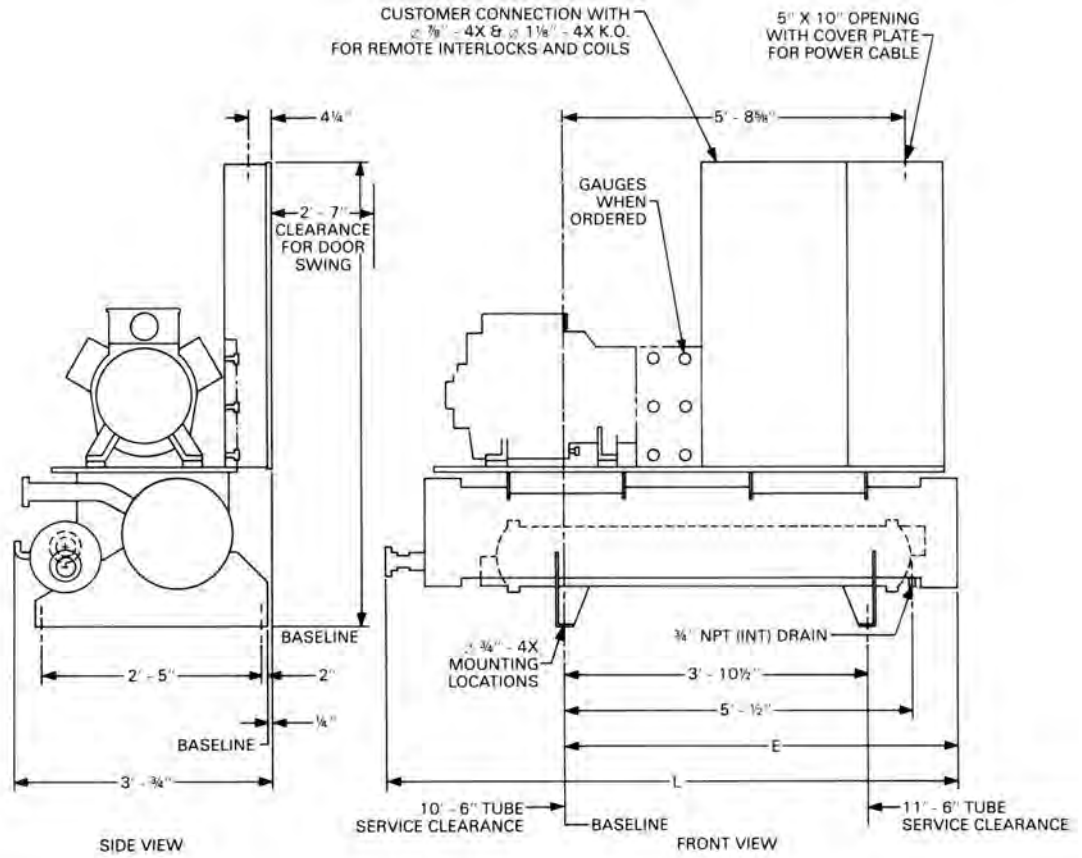
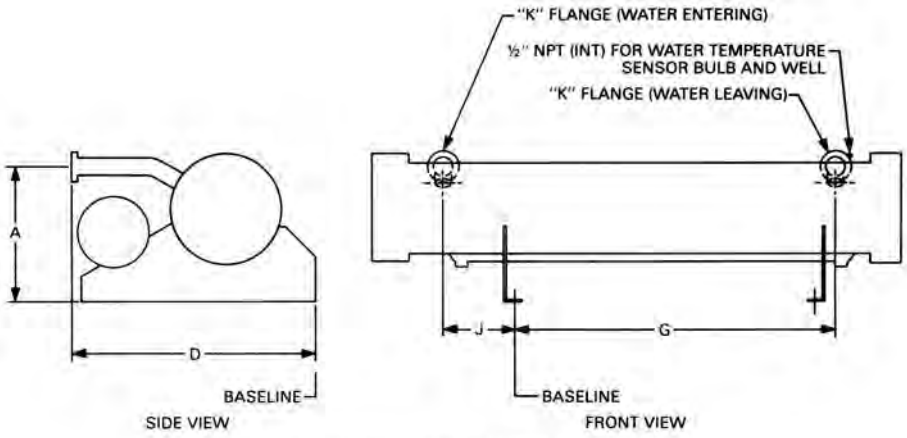


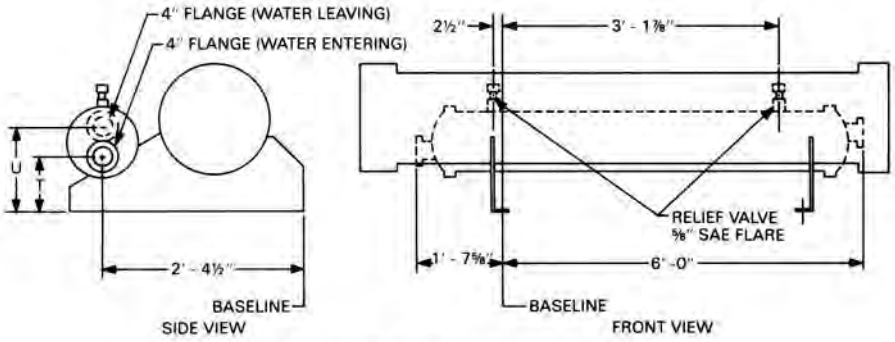
Table 32-1 — CGWC Dimensions

Unit Size	Evaporator Size	Condenser Size	L	H	A	D	E	G	J	K	T	U
C70	J	J	9' 8⅜"	6' 3⅞"	2' 1"	2' 10⅛"	6' 9⅝"	5' 11½"	1' 2⅛"	4"	11½"	1' 5"
C80	J	J	9' 8⅜"	6' 3⅞"	2' 1"	2' 10⅛"	6' 9⅝"	5' 11½"	1' 2⅛"	4"	11½"	1' 5"
C90	J	K	9' 8⅜"	6' 3⅞"	2' 1"	2' 10⅛"	6' 9⅝"	5' 11½"	1' 2⅛"	4"	11½"	1' 5"
D10	K	K	9' 8⅜"	6' 3⅞"	2' 1"	2' 10⅛"	6' 9⅝"	5' 10¼"	1' 2⅛"	5"	11½"	1' 5"
D11	K	K	9' 8⅜"	6' 3⅞"	2' 1"	2' 10⅛"	6' 9⅝"	5' 11½"	1' 2⅛"	5"	11½"	1' 5"
D12	L	L	9' 10⅜"	6' 4⅜"	2 1½"	2' 11"	6' 10⅞"	5' 10"	1' 1⅛"	5"	1' 0"	1' 5½"

Dimensional Data



EVAPORATOR WATER CONNECTIONS



CONDENSER WATER CONNECTIONS

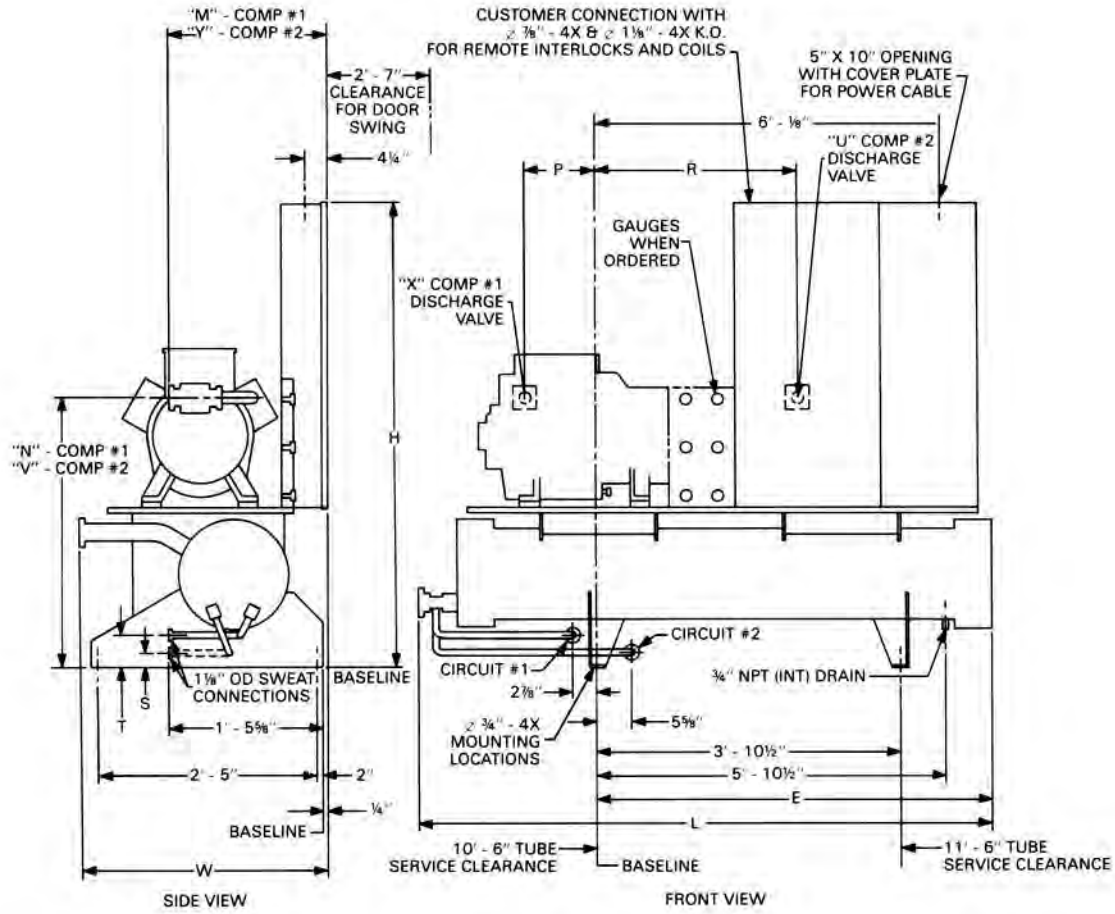
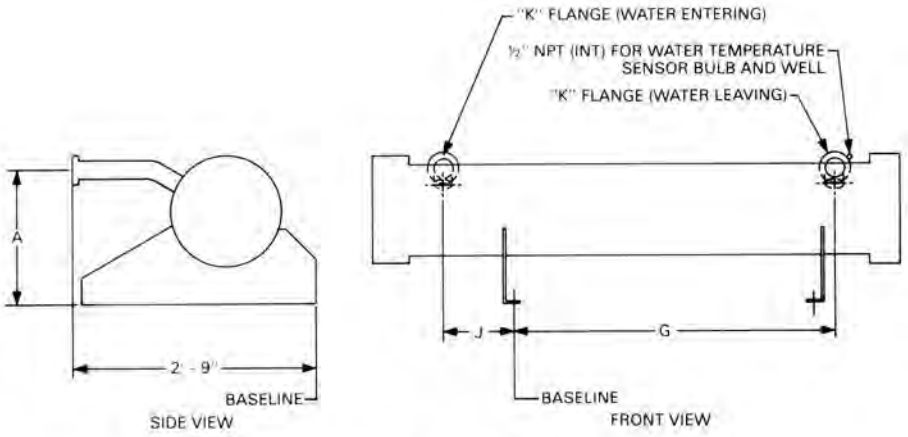


Table 34-1 — CCAC Dimensions

Unit Size	Evaporator Size	L	W	H	A	E	G	J	K	M	N
C70	J	9' 8⅜"	2' 10⅜"	6' 3⅞"	2' 1"	6' 9½"	5' 11½"	1' 2⅛"	4"	1' 11¼"	3' 10½"
C80	J	9' 8⅜"	2' 10⅜"	6' 3⅞"	2' 1"	6' 9½"	5' 11½"	1' 2⅛"	4"	1' 11¼"	3' 10½"
C90	J	9' 8⅜"	2' 10⅜"	6' 3⅞"	2' 1"	6' 9½"	5' 11½"	1' 1⅛"	4"	1' 11¼"	4' ⅛"
D10	K	9' 8⅜"	2' 10⅜"	6' 3⅞"	2' 1"	6' 9½"	5' 10¼"	1' 1⅛"	5"	2' ⅜"	4' ⅛"
D11	K	9' 8⅜"	2' 10⅜"	6' 3⅞"	2' 1"	6' 9½"	5' 11½"	1' 2⅛"	5"	1' 11⅞"	4' ⅛"
D12	L	9' 10⅜"	2' 11¼"	6' 4⅜"	2 1½"	6' 10⅞"	5' 10"	1' 1⅛"	5"	2' ⅜"	4' ⅝"

Dimensional Data



EVAPORATOR WATER CONNECTIONS

Table 34-1 — CCAC Dimensions (Continued)

Unit Size	Evaporator Size	P	R	S	T	U	V	X	Y
C70	J	1' 4⅝"	2' 7⅝"	2"	4½"	1⅝"	3' 10½"	1⅝"	1' 11¼"
C80	J	1' 4⅝"	2' 7⅝"	2"	4½"	1⅝"	3' 10½"	1⅝"	1' 11¼"
C90	J	1' 5"	2' 7⅝"	2⅜"	4⅞"	1⅝"	3' 10½"	2⅛"	1' 11⅝"
D10	K	1' 4⅝"	2' 7⅛"	2"	4½"	2⅛"	4' ⅛"	2⅛"	2' ⅜"
D11	K	1' 4⅝"	2' 7⅛"	2¼"	4¾"	2⅛"	4' ⅛"	2⅛"	1' 11⅞"
D12	L	1' 5⅛"	2' 7⅛"	2½"	5"	2⅛"	4' ⅝"	2⅛"	2' ⅜"

Weights

Table 36-1 — Weights

CGWC Chillers	Unit	C70R	C80R	C90R	D10R	D11R	D12R
Operating wt (1)	LB	4352	4352	4558	4738	4834	5203
	KG.	1974	1974	2068	2149	2193	2360
Shipping wt	LB	4398	4398	4558	4835	4914	5177
	KG.	1995	1995	2068	2193	2229	2348

Notes:
1. Operating weights include water in the unit, and refrigerant.
2. Shipping weights include refrigerant in the unit, and the skid.

Table 36-2 — Weights

CCAC Chillers	Unit	C70R	C80R	C90R	D10R	D11R	D12R
Operating wt (1)	LB	3513	3513	3648	3803	3835	4199
	KG.	1594	1594	1655	1725	1740	1905
Shipping wt	LB	3633	3633	3768	3990	4022	4280
	KG.	1648	1648	1709	1810	1824	1941

Notes:
1. Operating weights include water in the unit, and refrigerant.
2. Shipping weights include refrigerant in the unit, and the skid.

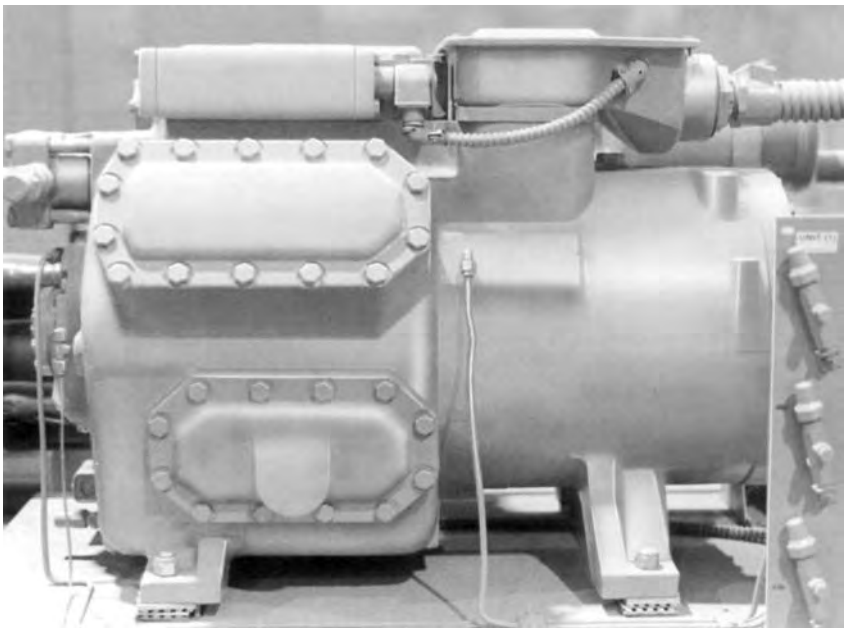
Options

- **Unit-Mounted Disconnect Switch:** Molded case switch located inside control panel door for customer disconnect of unit power.
- **Alarm Package:** Includes electronic horn with loudness rating of 103 db-3500 Hz at 10 feet and pilot lights indicating loss of evaporator flow, low temperature thermostat operation, power on, compressors on, compressor malfunction, a push-to-test button and a lock-on feature to note which control operated. Light will remain on regardless of the position of the control unit until reset.
- **Sound Attenuator:** Acoustically-lined compartment of 16-gauge metal 1-inch, 1 1/2 - pound density fiber.
- **Hot Gas Bypass:** Hot gas bypass option allows unit operation below the minimum step of unit unloading. The regulator valve, along with all associated refrigerant piping and electrical wiring, are factory installed and tested on both refrigeration circuits. Unit does not start in hot gas bypass mode. If the unit operates in bypass mode for 30 minutes without a call for cooling, it will pump down and shut off. Unit starts immediately upon a further call for cooling.

Alarm Package

- **Flow Switch:** Recommended as safety interlock to prevent operation of machine without evaporator water flow. Available for field-installation.
- **Isolators:** Rubber-in-shear or spring isolators available for field-installation beneath unit frame.
- **Gauges:** Gauge board with shut-off valves are furnished as standard. Suction, discharge and oil pressure gauges are available for field installation.
- **Cycle Counter and Hour Meter:** Records number of compressor starts and operating hours.
- **Power Supply Monitor:** Provides protection against phase loss/reversal, phase imbalance, incorrect phase sequence and low voltage.
- **Mufflers (CCAC):** Hot gas mufflers, tuned to the dominant frequencies of each compressor size are available for field-installation.
- **Filter Driers (CCAC):** Replaceable core-type filter driers are available for field-installation.
- **Chilled Water Reset:** Field installed sensor resets leaving water temperature based on ambient or zone temperature when they are at less than design conditions to reduce energy consumption.
- **Sequence Panel:** Remote mounted microprocessor-based panel allows multiple units to operate in series or parallel. Chilled water reset is available on this panel to reset the chiller system set point based on indoor zone or outdoor temperature.
- **Integrated Comfort™ System (ICS) Interface:** Panel equipped with necessary relays, transformers, and Tracer® Interface Module to interface with a Trane building automation system via a twisted wire pair. Binary inputs include compressor #1 and #2 on/off status and chiller fail input. Binary output points include chiller enable/disable, demand limit compressor unloaders, chilled water reset override, and (3) spares. Analog inputs include evaporator entering water temperature sensor, evaporator leaving chilled water temperature sensor, and one spare.
- **Water Regulating Valves:** Field-installed valves provide means for control of head pressure.
- **CLIMATICE™ Ice Panel:** Field-installed add-on control panel enables chiller to make ice during off-peak hours and to make standard temperature chilled water during high-energy demand hours.

Features Summary



Standard Features

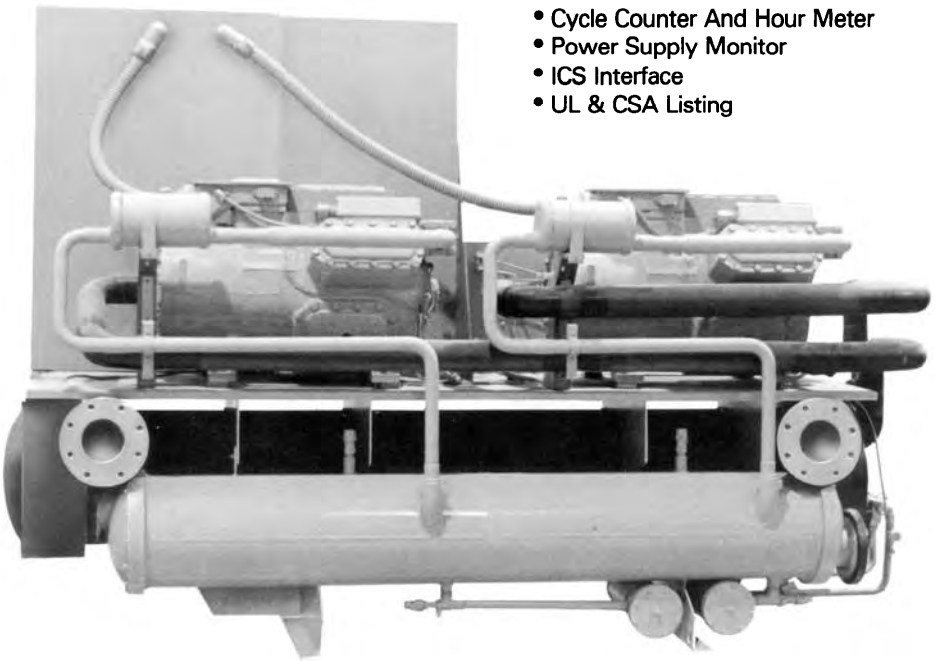
- Rugged Proven Trane Model R Compressors
- Microprocessor Leaving Chilled Water Temperature Control
- Automatic Lead-Lag
- Solid-State Motor Protection
- Compressor Anti-Recycle Timer
- Periodic Pumpout
- Low Ambient Start Logic
- Low Oil Pressure Safety
- Soft Start Logic
- Part-Winding Starters
- (Single Source) Power And Control Power Connection
- Control Power Transformer
- Mufflers (CGWC)
- Filter/Dryers (CGWC)
- Single Water Side Connections On Condenser And Evaporator

Optional Features
Factory Installed

- Smart Hot Gas Bypass
- Unit-Mounted Disconnect Switch
- Alarm Package Unit With Alarm Panel
- Sound Attenuator
- Cycle Counter And Hour Meter
- Power Supply Monitor
- ICS Interface
- UL & CSA Listing

Field Installed

- Flow Switch
- Isolators (Rubber Or Spring)
- Gauges
- CLIMATICE™ Ice Panel
- Sequence Panel
- Chilled Water Reset
- Mufflers (CCAC)
- Filter/Dryers (CCAC)
- Water Regulating Valve



Mechanical Specifications

Water-Cooled Liquid Chillers and Compressor Chillers CGWC and CCAC Models 70 to 120 Tons

General
All Cold Generator® chillers ship with a full operating charge of oil. CGWC units ship with a full charge of refrigerant and are run-tested and monitored for power and control operation. Exposed surfaces are painted with an air-dry beige primer-finisher prior to shipment.

Compressor-Motor
Two direct-drive, 1750 rpm, Trane Model R semihermetic reciprocating compressors. Each compressor has Spring-loaded, positive displacement oil pump, self-relieving to the suction side; oil strainer and magnetic plugs; oil level sightglass; oil charging valve; two-point lubrication for each bearing and connecting rod; immersible crankcase heater, double-mesh suction inlet screen; high strength, nonflexing ring type suction and discharge valves, electric-actuated, gas operated cylinder head unloading; removable discharge heads and hand-hole covers; discharge service valves and rubber-in-shear isolators.

Motor is suction gas-cooled and suitable for a voltage utilization range of + or -10 percent from nameplate voltage. One sensor embedded in each motor winding protects against excessive winding temperatures.

Evaporator
Dual-circuited, shell and tube design with seamless copper tubes roller expanded into tube sheets. Designed, tested and stamped in accordance with ASME Code for refrigerant side working pressure of 225 psig. Water side working pressure is 150 psig. One water pass with a series of internal baffles. Each shell includes drain connections, bulbwell for low temperature cutout and temperature controller, and 3/4-inch insulation (K= 0.28)

Condenser (CGWC Only)
Shell and tube design with seamless internally enhanced copper tubes expanded into tube sheets. Designed, tested and stamped in accordance with ASME Code for refrigerant side working pressure of 300 psig. Water side working pressure is 150 psig. Each condenser includes a subcooler circuit. Tubes are cleanable and replaceable.

Refrigerant Circuit
All units have two completely independent refrigeration circuits. Each circuit includes liquid line and discharge line service valves, filter dryer, combination moisture indicator-sightglass, charging port, insulated suction line, liquid line solenoid valve, thermal expansion valve and hot gas mufflers. Condenserless units (CCAC) are less condenser, filter dryers, liquid line, service valves and mufflers.

Control Panel
The unit control panel contains both a control section as well as a starter section. This panel is a painted NEMA 1 enclosure with the starter section containing the following: top access for power wiring, single point power hook-up, three-phase solid-state overload protection, part-winding start relays, customer wired grounding lug, and control power transformer with fused protection.

The refrigeration section contains the reset relays, compressor service switch, control relay, cooling relays, auxiliary relay module, and the microprocessor chiller control. The chiller control controls the leaving chilled water temperature, compressor antirecycle function, low water temperature cutout, loss of charge protection, timed periodic pumpout, load limiting, automatic lead-lag, low ambient start logic and has self-diagnostic checkout capability.

The Trane Company
Commercial Systems Group
3600 *Pammel Creek Road*
La Crosse, WI 54601-7599

An American-Standard Company

Library	**Product Literature**
Product Section	**Refrigeration**
Product	**Cold Generator® Chillers**
Model	**000**
Literature Type	**Data Sales catalog**
Sequence	**4**
Date	**June 1990**
File No.	**PL-RF-CG000-DS-4-690**
Supersedes	**CG-D-4 888**
Ordering No.	**CG-DS-4**

Katy Dietz

From: Haun, Tom <thaun@elitaire.com>
Sent: Wednesday, June 20, 2012 8:42 AM
To: Katy Dietz
Subject: RE: Spec Sheets

Hey Katy,

I don't have anything I can send you, but the unit is 200 tons.

480 GPM on evaporator, 54 degree Entering Water/44 degree leaving water
600 GPM on condenser, 85 degree entering water/95 degree leaving water

What other information do you need?

Thanks,

Tom Haun
ElitAire, Inc.
11325 Reed Hartman Highway, Suite 100
Cincinnati, OH 45241
Direct Line: (513) 475-3806
Cell: (513) 280-2446
Fax: (513) 475-3810
thaun@elitaire.com
CHECK OUT OUR UPDATED WEBSITE: www.ElitAire.com

From: Katy Dietz [mailto:kdietz@engineeringexcellence.com]
Sent: Tuesday, June 19, 2012 1:40 PM
To: Haun, Tom
Subject: Spec Sheets

Tom,

Could you please send me the spec sheets that show what size the following unit is in order to complete a Duke rebate:

McQuay #PEH063-CCBC

Katy Dietz,
Enervise, LLC
PH: (513)761-6000
FX: (513)761-7741
www.Enervise.us

P Please consider the environment before printing this email