



**Case No.: 13-1310 -EL-EEC**

**Mercantile Customer: TriHealth – Bethesda Oak Hospital**

**Electric Utility: Duke Energy**

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

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](mailto:ee-pdr@puc.state.oh.us).

## Section 1: Mercantile Customer Information

Name: **TriHealth Hospitals**

Principal address: **619 Oak Street Cincinnati Ohio 45206**

Address of facility for which this energy efficiency program applies:

**619 Oak Street Cincinnati Ohio 45206**

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 Attachment 1 - Appendix 1)**

## 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?

**2010, 2011, 2012**

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

**124 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 **\$12,390.00 (See Attachment 1 - Appendix 3).**

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 **\$92,925 (See Attachment 1 - Appendix 5).**

The utility's program costs were **\$8,540 (See Attachment 1 - Appendix 6).**

The utility's incentive costs/rebate costs were **\$12,390 (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**  
Mercantile Self Direct Program  
139 East Fourth Street  
Cincinnati, OH 45202  
513 629 5572 fax

May 13, 2013

Mr. Rick Volk  
TriHealth Bethesda Oak  
619 Oak Street  
Cincinnati, Ohio 45206

Subject: Your **Prescriptive Chiller Tune Up** Application for a Duke Energy Mercantile Self-Direct Rebate

Dear Mr. Volk:

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 \$12,390.00 has been proposed for your chiller tune up projects completed in the 2010 – 2012 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](mailto: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,

A handwritten signature in black ink, appearing to read 'Grady Reid, Jr.'.

Grady Reid, Jr  
Product Manager  
Mercantile Self Direct Rebates

cc: Mike Heath, Duke Energy  
Rob Jung, Ecova  
Dan Buchanan, Pathian

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

☒ Rebate is accepted.

☐ Rebate is declined.

By accepting this rebate, TriHealth Hospitals 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, TriHealth Hospitals 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, TriHealth Hospitals 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

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

Ruth Valters

Customer Signature

Ruthard Valters

Printed Name

5/16/13

Date

#### Proposed Rebate Amounts

Measure ID	Energy Conservation Measure (ECM)	Proposed Rebate Amount
ECM-1	Water Cooled Chiller Tune-Up - Year 2010 (Qty - 5)	\$4130.00
ECM-2	Water Cooled Chiller Tune-Up - Year 2011 (Qty - 5)	\$4130.00
ECM-3	Water Cooled Chiller Tune-Up - Year 2012 (Qty - 5)	\$4130.00
Total		\$12,390.00

# Ohio | Public Utilities Commission

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

Case No.: \_\_\_\_ - \_\_\_\_ -EL-EEC

State of OHIO :

Richard V. Vukobratovic, Affiant, being duly sworn according to law, deposes and says that:

1. I am the duly authorized representative of:

Bethesda Oak

[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.

Paul Vukobratovic Supervisor Engineer + Maintenance  
Signature of Affiant & Title

Sworn and subscribed before me this 22<sup>nd</sup> day of May,  
2013 Month/Year

[Signature]  
Signature of official administering oath

ANTHONY W WALDBILLIG  
Print Name and Title Dispatcher

ANTHONY W. WALDBILLIG  
Notary Public, State of Ohio

My commission expires on \_\_\_\_  
My Commission Expires 11-20-2013

## Attachment 1 –TriHealth Bethesda Oak Hospital

### Appendix 1 – Electric History

04900675 01		
Electric Meters 108044766 & 108044761 - Rate DP		
BETHESDA HOSPITAL		
619 OAK		
CINCINNATI, OH 45206		
combined consumption		
Date	Days	Actual KWH
11/28/2012	33	959,568
10/26/2012	29	1,034,724
9/27/2012	30	1,245,689
8/28/2012	29	1,268,030
7/30/2012	32	1,581,650
6/28/2012	29	1,243,097
5/30/2012	30	1,217,933
4/30/2012	32	1,052,923
3/29/2012	29	1,003,433
2/29/2012	29	849,842
1/31/2012	32	919,824
12/30/2011	30	884,801
<b>Total</b>		<b>13,261,514</b>

### Appendix 2 – Annual kWh savings and annual KW savings

Measure	Measure Amount	Unit of Measure	Annual kWh Gross with losses (per unit)	TOTAL Annual kWh Gross with losses	Saved Summer coincident kW with losses Per Unit	Total KW Gross with losses
Water Cooled Chiller Tune Up	6195	tons	64.46	399,330	0.02	124

<b>New Energy kWh (Per Unit)</b>	<b>kWh Savings (Per Unit)</b>	<b>Total kWh Savings</b>	<b>Existing Demand-kW (Per Unit)</b>	<b>New Demand (Per Unit)</b>	<b>kW Savings (Per Unit)</b>	<b>Total kW Savings</b>
540	60	371,700	0.60	0.55	0.048	297

Note: After consideration of line losses, total energy savings are **399,330 kWh and 124 summer coincident kW**. These values may also reflect minor DSMore software rounding error

### Appendix 3 – Cash Rebate

<b>Measure</b>	<b>Amount</b>
Water Cooled Chiller Tune Up	\$12,390

### Appendix 4 – Utility Cost Test

<b>Measure</b>	<b>UCT</b>
Water Cooled Chiller Tune Up	4.41

### Appendix 5 – Avoided Supply Costs

<b>Measure</b>	<b>T&amp;D</b>	<b>Production</b>	<b>Capacity</b>	<b>Quantity</b>	<b>Total Avoided Costs</b>
Water Cooled Chiller Tune Up	\$2.00	\$8.00	\$5.00	6195	\$92,925

### Appendix 6 – Utility Program Costs

<b>Measure</b>	<b>Qty</b>	<b>Admin Costs</b>	<b>Total Costs</b>
Water Cooled Chiller Tune Up	6195	\$1.38	\$8,540

# Ohio Mercantile Self Direct Program

## Application Guide & Cover Sheet

Questions? Call 1-866-380-9580 or visit [www.duke-energy.com](http://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](mailto:SelfDirect@Duke-Energy.com). You may also fax to 1-513-629-5572.

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 and/or billing history for other utilities as required):

Account Number	Annual Usage	Account Number	Annual Usage
04900501	13704046		

Self Direct rebates are available for completed Custom projects that have not previously received a Duke Energy Smart Saver® 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 Saver 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 Saver 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:

<input type="checkbox"/> All sections of appropriate application(s) are completed	<input type="checkbox"/> Proof of payment.*	<input type="checkbox"/> Manufacturer's Spec sheets	<input type="checkbox"/> Energy model/calculations and detailed inputs for Custom applications
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\* 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
<b>Lighting</b>	MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet <input type="checkbox"/>	MSD Prescriptive Lighting <input type="checkbox"/>	MSD Prescriptive Lighting <input type="checkbox"/>
		MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet <input type="checkbox"/>
<b>Heating &amp; Cooling</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Heating & Cooling <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
<b>Window Films, Programmable Thermostats, &amp; Guest Room Energy Management Systems</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General and/or EMS Worksheet(s) <input type="checkbox"/>	MSD Prescriptive Heating & Cooling <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General and/or EMS Worksheet(s) <input type="checkbox"/>
<b>Chillers &amp; Thermal Storage</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Chillers & Thermal Storage <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
<b>Chiller Tune-ups</b>	MSD Prescriptive Chiller Tune-ups <input type="checkbox"/>	MSD Prescriptive Chiller Tune-ups <input type="checkbox"/>	MSD Prescriptive Chiller Tune-ups <input checked="" type="checkbox"/>
<b>Motors &amp; Pumps</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Motors, Pumps & Drives <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
<b>VFDs</b>	Not Applicable	MSD Prescriptive Motors, Pumps & Drives <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom VFD Worksheet <input type="checkbox"/>
		MSD Custom Part 1 <input type="checkbox"/> MSD Custom VFD Worksheet <input type="checkbox"/>	
<b>Food Service</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Food Service <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
<b>Air Compressors</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom Compressed Air Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom Compressed Air Worksheet <input type="checkbox"/>	MSD Prescriptive Process <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom Compressed Air Worksheet <input type="checkbox"/>
<b>Process</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Process <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
		MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	
<b>Energy Management Systems</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom EMS Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom EMS Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom EMS Worksheet <input type="checkbox"/>
<b>Behavioral*** &amp; No/Low Cost</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>		

\*\* 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.

\*\*\*\* Behavioral energy efficiency and demand reduction projects must be both measurable and verifiable. Provide justification with your application.



# **MERCANTILE SELF DIRECT Ohio Chiller Tune-up Service Application**

Questions? Call 1-866-380-9580 or visit [www.duke-energy.com](http://www.duke-energy.com).

Email the complete, signed application with all required documents to [SelfDirect@duke-energy.com](mailto:SelfDirect@duke-energy.com) or fax to 513-629-5572.

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

## **Building Type – Required (check one)**

<input type="checkbox"/> Data Centers	<input type="checkbox"/> Full Service Restaurant	<input checked="" type="checkbox"/> Office
<input type="checkbox"/> Education/K-12	<input checked="" type="checkbox"/> Healthcare	<input type="checkbox"/> Public Assembly
<input type="checkbox"/> Education Other	<input type="checkbox"/> Industrial	<input type="checkbox"/> Public Order/Safety
<input type="checkbox"/> Elder Care/Nursing Home	<input type="checkbox"/> Lodging	<input type="checkbox"/> Religious Worship/Church
<input type="checkbox"/> Food Sales/Grocery	<input type="checkbox"/> Retail (Small Box)	<input type="checkbox"/> Service
<input type="checkbox"/> Fast Food Restaurant	<input type="checkbox"/> Retail (Big Box)	<input type="checkbox"/> Warehouse
<input type="checkbox"/> Other:		

## **How did you hear about the program? (check one)**

<input checked="" type="checkbox"/> Duke Energy Representative	<input type="checkbox"/> Web Site	<input type="checkbox"/> Radio
<input type="checkbox"/> Contractor / Vendor	<input type="checkbox"/> Other	

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

<input checked="" type="checkbox"/> All sections of application	<input checked="" type="checkbox"/> Invoice with make, model number, quantity and equipment manufacturer	<input checked="" type="checkbox"/> Tax ID number for payee	<input checked="" type="checkbox"/> Customer/vendor agree to Terms and Conditions
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## **Customer Information**

Customer/Business	TriHealth Hospitals -	Contact	Rick Volk
Phone	513-569-6321	Account Number	0490067501
Street Address (Where incentive should be mailed)	619 Oak Street		
City	Cincinnati	State	OH
Zip Code	45206		
Installation Street Address	619 Oak Street		
City	Cincinnati	State	OH
Zip Code	45206		
E-mail Address	rick_volk@trihealth.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	Pathian	Contact	Dan Buchanan
Phone	513-737-7430	Fax	513-737-1549
Street Address	11260 Chester Road, Suite 545		
City	Cincinnati	State	OH
Zip Code	45246		
E-mail Address	srohrs@pathian.com		

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

## **Payment Information**

Who should receive incentive payment?	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Vendor (Customer must sign below)
I hereby authorize payment of incentive directly to the vendor:	Customer Signature (written signature)	
	Date	
Provide Tax ID Number for Payee	Customer Tax ID #	31-127019
	Vendor Tax ID #	

## **Terms and Conditions**

I have read and hereby agree to the Terms & Conditions and Program Requirements.

Customer Signature	Rick Volk	Vendor Signature	[Signature]
Date	12/21/12	Date	12/21/12
Title	Director of Maintenance	Title	Owner

*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
Trane, PCV-3F-C2-D2	1	360	\$16,302.65	12/31/2010		\$720.00
York, YPCST-185-46-C-S-B, YTC3C3C1-CKD	2	575, 320	\$40,530.21	12/31/2010		\$1,790.00
Carrier, 19DG6667CP	1	385	\$17,434.78	12/31/2010		\$770.00
McQuay, WSC087-BAABM	1	425	\$19,246.19	12/31/2010		\$850.00
*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 =	\$4,130.00
B. Cost of service = \$93,513.83 x 50% of total service cost =	\$46,756.92
<b>Total Incentive (lesser amount of row A or row B)=</b>	<b>\$4,130.00</b>
*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):

<input type="checkbox"/> Air cooled condenser coil cleaning	<input type="checkbox"/> Compressor amp draw	<input type="checkbox"/> Low Pressure controls
<input type="checkbox"/> System Pressure check and adjust	<input type="checkbox"/> Supply motor amp draw	<input type="checkbox"/> High Pressure controls
<input type="checkbox"/> Filter inspect or replace	<input type="checkbox"/> Condenser fan(s) amp draw	<input type="checkbox"/> Crankcase heater operation
<input type="checkbox"/> Belt inspect or replace	<input type="checkbox"/> Liquid line temperature	<input type="checkbox"/> Water cooled chiller condenser tube cleaning
<input type="checkbox"/> Contactors condition	<input type="checkbox"/> Suction pressure & temperature	<input type="checkbox"/> Water cooled chiller evaporator tube cleaning
<input type="checkbox"/> Evaporator condition	<input type="checkbox"/> 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 3<sup>rd</sup> party vendor. The 3<sup>rd</sup> party vendor is responsible for mailing the 1099 form at the end of the calendar year for tax filing. Duke Energy and the 3<sup>rd</sup> 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.

**Terms and Conditions**

*I certify that this premise is served by Duke Energy (or an affiliate of Duke Energy), that the information provided herein is accurate and complete, and that I have purchased and installed the high efficiency equipment (indicated herein) for the business facility listed herein and not for resale. Attached is an itemized invoice for the indicated installed equipment. I understand that the proposed incentive payment from Duke Energy is subject to change based on verification and Duke Energy approval. I agree to Duke Energy verification of both the sales transaction and equipment installation which may include a site inspection from a Duke Energy representative or Duke Energy agent. I understand that I am not allowed to receive more than one incentive from Duke Energy on any piece of equipment. I also understand that my participation in the program may be taxable and that my company is solely responsible for paying all such taxes. I hereby agree to indemnify, hold harmless and release Duke Energy and its affiliates from any actions or claims in regards to the installation, operation and disposal of equipment (and related materials) covered herein including liability from an incidental or consequential damages. Duke Energy does not endorse any particular manufacturer, product or system design within these programs; does not expressly or implicitly warrant the performance of installed equipment (Contact your contractor for details regarding equipment warranties), and is not liable for any damage caused by the installation of the equipment or for any damage caused by the malfunction of the installed equipment.*



## Incentive Application Instructions

### IMPORTANT NOTICE

Delays in processing incentive payments will occur if required documentation is not included with completed application(s).

1. Contact Duke Energy toll free at 866-380-9580 to confirm customer eligibility. Applications are available for download at [www.duke-energy.com](http://www.duke-energy.com).
2. Review program and equipment requirements on the incentive application.
3. Purchase and install eligible energy-efficient equipment.
4. **The following items must be included to verify projects. If they are not included, it will delay payment of incentive.**
  - A. Itemized invoice for all equipment installed to include:
    - a. Equipment cost
    - b. Quantity per equipment type installed
    - c. Model # for each equipment type
    - d. Manufacturer's data sheet for each equipment model #.
  - B. **Make sure the account number provided on the cover page (customer information section) is associated with the location where the equipment was installed. If the account # does not match the address where the equipment was installed, the application will be rejected as ineligible.**
  - C. Provide required tax ID# for payee.
  - D. Customer must sign and date the application after reviewing the Terms and Conditions. If customer wishes to **assign payment of the incentive directly to the vendor**, the customer should circle the appropriate payee in the Payment Information section of the application and sign their name to authorize payment.
5. Duke Energy may require site verification of projects that have been self-installed, prior to payment of incentive.
6. Email the complete, signed application with all required documents to [SelfDirect@duke-energy.com](mailto:SelfDirect@duke-energy.com) or fax to 513-629-5572.
7. A percentage of equipment installations will be site verified for quality assurance purposes. Once selected, a Duke Energy representative will contact the customer to arrange for the inspection. All incentive payments related to the project will be withheld until site verification is complete. There is no charge to the customer for these inspections.

## Mercantile Self Direct Incentive Program Requirements for Vendor Participation

### Program Overview

- Duke Energy offers its eligible non-residential customers the opportunity to increase profitability through energy cost savings and contribute to a cleaner environment by participating in our Mercantile Self Direct Incentive Program.
  - Under the Duke Energy Mercantile Self Direct Incentive Program, Vendor is defined as any third party who:
    - Promotes the sale and installation of the high efficiency equipment for the customer. The Vendor will ensure that the eligible equipment is installed and operating before submitting the application or assisting the customer in completing the application.
    - Is responsible for the product sale only and is not required to ensure installation of the eligible equipment.
  - All license requirements, if any, are solely the Vendor's responsibility. Participating Vendors include equipment contractors, equipment Vendors, equipment manufacturers and distributors, energy service companies, etc. The typical Vendor role is to contact/solicit eligible customers building new or retrofitting existing facilities and encourage the installation of the energy-efficient equipment offered in Duke Energy's program.
  - Incentives are paid directly to customers unless the customer assigns the incentive to the Vendor. The assigned incentive must reduce the purchase price paid for the equipment by an equivalent amount. Incentives are taxable to the entity who receives the rebate check. Rebates greater than \$600 will be reported to the IRS unless documentation of tax exempt status is provided.
  - Vendors can sign up to be on Duke Energy's Web site as a participating Vendor and be added to Duke Energy's e-mail distribution by emailing the Vendor Participation Agreement (VPA) to [SelfDirect@duke-energy.com](mailto:SelfDirect@duke-energy.com) or faxing to 513-629-5572.
- ### Guidelines for Vendor Activities
- Vendors shall sign and return the attached VPA to Duke Energy prior to soliciting customer participation or when submitting an application. Rebate payments will not be released to a Vendor unless a signed VPA is on file.
  - Vendors shall not misrepresent the nature of their role in the program. In particular, Vendors shall not state or imply to customers, or any persons, that the Vendor is employed by or working on Duke Energy's behalf.
  - Vendors may not represent to customers that Duke Energy endorses their specific products or services. Duke Energy does not endorse specific products, services, or companies – only energy-efficient technologies.
  - Vendors may advise customers of their option to have Duke Energy make their rebate check(s) payable to the Vendor if the customer's rebate amount is being deducted from the total sale price in advance. The customer must complete and sign the Payment Release Authorization section of the Mercantile Self Direct Incentive Program Application.
  - Vendors may use the words "Duke Energy's Mercantile Self Direct Incentive Program" in promotional materials or advertisements. Vendors may use the name Duke Energy in a text format to describe the Mercantile Self Direct Incentive Program, but are not permitted to use Duke Energy's logos.
  - For Vendors who properly install the qualifying equipment, the equipment shall be installed and operating prior to an application being submitted. A percentage of each Vendor's installations will be subject to inspection by Duke Energy for verifying that the equipment is installed and operating. Vendors demonstrating high failure rates (based on a statistically significant sample) will have 100% of subsequent jobs inspected or may have their participation in the Mercantile Self Direct Incentive Program revoked by Duke Energy in its sole discretion.
  - Vendors shall provide customers with applicable equipment warranty information for all measures installed. Vendors shall provide the required documentation for customers to apply for the rebate (invoices with model numbers and quantities, specification sheets for installed equipment, etc.) and assist customers in filling out the application.
  - Vendors shall comply with all applicable local, state, and federal laws and codes when performing installation and related functions.
  - Duke Energy reserves the right to revoke a Vendor's participation in Mercantile Self Direct Incentive Program if, in Duke Energy's sole judgment, the Vendor fails to comply with the program's guidelines and requirements.
  - Mercantile Self Direct Incentive Program offerings may be modified or terminated without prior notice. Check Duke Energy's Web site for current program status.

For more information, call 1-866.380.9580 or visit [www.duke-energy.com](http://www.duke-energy.com).

## Mercantile Self Direct Rebate Program

Technology	Responsible for sales and <b>not</b> installs*	Responsible for sales <b>and</b> Installation*	Technology	Responsible for sales and <b>not</b> installs*	Responsible for sales <b>and</b> Installation*
Lighting	<input type="checkbox"/>	<input type="checkbox"/>	Thermal Storage	<input type="checkbox"/>	<input type="checkbox"/>
Heating Ventilation & Cooling	<input type="checkbox"/>	<input type="checkbox"/>	Pumps/Motors/VFD's	<input type="checkbox"/>	<input type="checkbox"/>
Food Service	<input type="checkbox"/>	<input type="checkbox"/>	Chillers	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Water Heating	<input type="checkbox"/>	<input type="checkbox"/>	Refrigeration	<input type="checkbox"/>	<input type="checkbox"/>
Process Equipment (air compressors, injection molding, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	Window Film	<input type="checkbox"/>	<input type="checkbox"/>

\* Check all that apply

Vendors who wish to be listed as a Mercantile Self Direct Incentive Program participating Vendor shall complete this form. A signed copy of this form must be on file at Duke Energy in order for the Vendor to receive incentive payments. Fax form to **513-629-5572** or email to [SelfDirect@duke-energy.com](mailto:SelfDirect@duke-energy.com).

I have read and understand the Mercantile Self Direct Incentive Program Requirements for Vendor Participation, and I agree to comply with all requirements set forth therein. By signing this agreement, I agree to provide my customers with information and documentation that is true and accurate to the best of my knowledge. I hereby represent and warrant that the Tax ID and Vendor Tax Status provided below are true and accurate. I agree that any confidential information concerning my customer, including but not limited to Duke Energy service account information, will be used for the sole purpose of facilitating the customer's participation in the Mercantile Self Direct Incentive Program. Further, I understand that I am responsible for making sure everyone working for me understands the requirements prior to soliciting customer participation.

Vendor Federal Tax ID Number	
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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 third-party vendor. The third-party vendor is responsible for mailing the 1099 form at the end of the calendar year for tax filing. Duke Energy and the third-party vendor have signed 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.

Vendor Tax Status	<input type="checkbox"/> Corporation	<input type="checkbox"/> Individual/Sole Proprietor	<input type="checkbox"/> Partnership	<input type="checkbox"/> Other
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Contact me via	<input checked="" type="checkbox"/> Phone	<input checked="" type="checkbox"/> E-Mail	<input type="checkbox"/> Mail	
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Company Name	Pathian
Mailing Address	11260 Chester Road, Suite 545
City, State, Zip	Cincinnati, OH, 45246
Phone/Fax	513-737-7430
Primary E-mail Address	srohrs@pathian.com
Secondary E-mail Address	
Vendor Signature	
Title	
Print Name	Dan Buchanan
Date	Owner

For more information, call 1-866-380-9580 or visit [www.duke-energy.com](http://www.duke-energy.com).

# Ohio Mercantile Self Direct Program

## Application Guide & Cover Sheet

Questions? Call 1-866-380-9580 or visit [www.duke-energy.com](http://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](mailto:SelfDirect@Duke-Energy.com). You may also fax to 1-513-629-5572.

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 and/or billing history for other utilities as required):

Account Number	Annual Usage	Account Number	Annual Usage
04900501	13704046		

Self Direct rebates are available for completed Custom projects that have not previously received a Duke Energy Smart Saver® 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 Saver 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 Saver 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:

<input type="checkbox"/> All sections of appropriate application(s) are completed	<input type="checkbox"/> Proof of payment.*	<input type="checkbox"/> Manufacturer's Spec sheets	<input type="checkbox"/> Energy model/calculations and detailed inputs for Custom applications
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\* 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
<b>Lighting</b>	MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet <input type="checkbox"/>	MSD Prescriptive Lighting <input type="checkbox"/>	MSD Prescriptive Lighting <input type="checkbox"/>
		MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet <input type="checkbox"/>
<b>Heating &amp; Cooling</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Heating & Cooling <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
<b>Window Films, Programmable Thermostats, &amp; Guest Room Energy Management Systems</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General and/or EMS Worksheet(s) <input type="checkbox"/>	MSD Prescriptive Heating & Cooling <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General and/or EMS Worksheet(s) <input type="checkbox"/>
<b>Chillers &amp; Thermal Storage</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Chillers & Thermal Storage <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
<b>Chiller Tune-ups</b>	MSD Prescriptive Chiller Tune-ups <input type="checkbox"/>	MSD Prescriptive Chiller Tune-ups <input type="checkbox"/>	MSD Prescriptive Chiller Tune-ups <input checked="" type="checkbox"/>
<b>Motors &amp; Pumps</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Motors, Pumps & Drives <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
<b>VFDs</b>	Not Applicable	MSD Prescriptive Motors, Pumps & Drives <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom VFD Worksheet <input type="checkbox"/>
		MSD Custom Part 1 <input type="checkbox"/> MSD Custom VFD Worksheet <input type="checkbox"/>	
<b>Food Service</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Food Service <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
<b>Air Compressors</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom Compressed Air Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom Compressed Air Worksheet <input type="checkbox"/>	MSD Prescriptive Process <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom Compressed Air Worksheet <input type="checkbox"/>
<b>Process</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Process <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
		MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	
<b>Energy Management Systems</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom EMS Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom EMS Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom EMS Worksheet <input type="checkbox"/>
<b>Behavioral*** &amp; No/Low Cost</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>		

\*\* 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.



\*\*\*\* Behavioral energy efficiency and demand reduction projects must be both measurable and verifiable. Provide justification with your application.

# **MERCANTILE SELF DIRECT Ohio Chiller Tune-up Service Application**

Questions? Call 1-866-380-9580 or visit [www.duke-energy.com](http://www.duke-energy.com).

Email the complete, signed application with all required documents to [SelfDirect@duke-energy.com](mailto:SelfDirect@duke-energy.com) or fax to 513-629-5572.

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

## **Building Type – Required (check one)**

<input type="checkbox"/> Data Centers	<input type="checkbox"/> Full Service Restaurant	<input checked="" type="checkbox"/> Office
<input type="checkbox"/> Education/K-12	<input checked="" type="checkbox"/> Healthcare	<input type="checkbox"/> Public Assembly
<input type="checkbox"/> Education Other	<input type="checkbox"/> Industrial	<input type="checkbox"/> Public Order/Safety
<input type="checkbox"/> Elder Care/Nursing Home	<input type="checkbox"/> Lodging	<input type="checkbox"/> Religious Worship/Church
<input type="checkbox"/> Food Sales/Grocery	<input type="checkbox"/> Retail (Small Box)	<input type="checkbox"/> Service
<input type="checkbox"/> Fast Food Restaurant	<input type="checkbox"/> Retail (Big Box)	<input type="checkbox"/> Warehouse
<input type="checkbox"/> Other:		

## **How did you hear about the program? (check one)**

<input checked="" type="checkbox"/> Duke Energy Representative	<input type="checkbox"/> Web Site	<input type="checkbox"/> Radio
<input type="checkbox"/> Contractor / Vendor	<input type="checkbox"/> Other	

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

<input checked="" type="checkbox"/> All sections of application	<input checked="" type="checkbox"/> Invoice with make, model number, quantity and equipment manufacturer	<input checked="" type="checkbox"/> Tax ID number for payee	<input checked="" type="checkbox"/> Customer/vendor agree to Terms and Conditions
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## **Customer Information**

Customer/Business	TriHealth Hospitals -	Contact	Rick Volk
Phone	513-569-6321	Account Number	0490067501
Street Address (Where incentive should be mailed)	619 Oak Street		
City	Cincinnati	State	OH
Zip Code	45206		
Installation Street Address	619 Oak Street		
City	Cincinnati	State	OH
Zip Code	45206		
E-mail Address	rick_volk@trihealth.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	Pathian	Contact	Dan Buchanan
Phone	513-737-7430	Fax	513-737-1549
Street Address	11260 Chester Road, Suite 545		
City	Cincinnati	State	OH
Zip Code	45246		
E-mail Address	srohrs@pathian.com		

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

## **Payment Information**

Who should receive incentive payment?	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Vendor (Customer must sign below)
I hereby authorize payment of incentive directly to the vendor:	Customer Signature (written signature)	
	Date	
Provide Tax ID Number for Payee	Customer Tax ID #	31-127019
	Vendor Tax ID #	

## **Terms and Conditions**

I have read and hereby agree to the Terms & Conditions and Program Requirements.

Customer Signature	Rick Volk	Vendor Signature	[Signature]
Date	12/21/12	Date	12/21/12
Title	Director of Maintenance	Title	Owner

*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
Trane, PCV-3F-C2-D2	1	360	\$7,016.37	12/19/2011		\$720.00
York, YPCST-185-46-C-S-B, YTC3C3C1-CKD	2	575, 320	\$17,443.47	12/19/2011		\$1,790.00
Carrier, 19DG6667CP	1	385	\$7,503.62	12/19/2011		\$770.00
McQuay, WSC087-BAABM	1	425	\$8,283.21	12/19/2011		\$850.00
*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 =	\$4,130.00
B. Cost of service = \$40,246.67 x 50% of total service cost =	\$20,123.34
<b>Total Incentive (lesser amount of row A or row B)=</b>	<b>\$4,130.00</b>
*Incentives cannot exceed 50% of total service invoice (external labor and equipment).	

#### Service Requirements:

- This incentive is available only once per unit in a 12 month period.**
- An individual chiller is considered one unit.
- Copy of paid invoice must be included with this application
- 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.
- Cooling service must include the following normal maintenance items **(please check if completed)**:

<input type="checkbox"/> Air cooled condenser coil cleaning	<input type="checkbox"/> Compressor amp draw	<input type="checkbox"/> Low Pressure controls
<input type="checkbox"/> System Pressure check and adjust	<input type="checkbox"/> Supply motor amp draw	<input type="checkbox"/> High Pressure controls
<input type="checkbox"/> Filter inspect or replace	<input type="checkbox"/> Condenser fan(s) amp draw	<input type="checkbox"/> Crankcase heater operation
<input type="checkbox"/> Belt inspect or replace	<input type="checkbox"/> Liquid line temperature	<input type="checkbox"/> Water cooled chiller condenser tube cleaning
<input type="checkbox"/> Contactors condition	<input type="checkbox"/> Suction pressure & temperature	<input type="checkbox"/> Water cooled chiller evaporator tube cleaning
<input type="checkbox"/> Evaporator condition	<input type="checkbox"/> 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 3<sup>rd</sup> party vendor. The 3<sup>rd</sup> party vendor is responsible for mailing the 1099 form at the end of the calendar year for tax filing. Duke Energy and the 3<sup>rd</sup> 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.

**Terms and Conditions**

*I certify that this premise is served by Duke Energy (or an affiliate of Duke Energy), that the information provided herein is accurate and complete, and that I have purchased and installed the high efficiency equipment (indicated herein) for the business facility listed herein and not for resale. Attached is an itemized invoice for the indicated installed equipment. I understand that the proposed incentive payment from Duke Energy is subject to change based on verification and Duke Energy approval. I agree to Duke Energy verification of both the sales transaction and equipment installation which may include a site inspection from a Duke Energy representative or Duke Energy agent. I understand that I am not allowed to receive more than one incentive from Duke Energy on any piece of equipment. I also understand that my participation in the program may be taxable and that my company is solely responsible for paying all such taxes. I hereby agree to indemnify, hold harmless and release Duke Energy and its affiliates from any actions or claims in regards to the installation, operation and disposal of equipment (and related materials) covered herein including liability from an incidental or consequential damages. Duke Energy does not endorse any particular manufacturer, product or system design within these programs; does not expressly or implicitly warrant the performance of installed equipment (Contact your contractor for details regarding equipment warranties), and is not liable for any damage caused by the installation of the equipment or for any damage caused by the malfunction of the installed equipment.*



## Incentive Application Instructions

### IMPORTANT NOTICE

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2. Review program and equipment requirements on the incentive application.
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4. **The following items must be included to verify projects. If they are not included, it will delay payment of incentive.**
  - A. Itemized invoice for all equipment installed to include:
    - a. Equipment cost
    - b. Quantity per equipment type installed
    - c. Model # for each equipment type
    - d. Manufacturer's data sheet for each equipment model #.
  - B. **Make sure the account number provided on the cover page (customer information section) is associated with the location where the equipment was installed. If the account # does not match the address where the equipment was installed, the application will be rejected as ineligible.**
  - C. Provide required tax ID# for payee.
  - D. Customer must sign and date the application after reviewing the Terms and Conditions. If customer wishes to **assign payment of the incentive directly to the vendor**, the customer should circle the appropriate payee in the Payment Information section of the application and sign their name to authorize payment.
5. Duke Energy may require site verification of projects that have been self-installed, prior to payment of incentive.
6. Email the complete, signed application with all required documents to [SelfDirect@duke-energy.com](mailto:SelfDirect@duke-energy.com) or fax to 513-629-5572.
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## Mercantile Self Direct Incentive Program Requirements for Vendor Participation

### Program Overview

- Duke Energy offers its eligible non-residential customers the opportunity to increase profitability through energy cost savings and contribute to a cleaner environment by participating in our Mercantile Self Direct Incentive Program.
  - Under the Duke Energy Mercantile Self Direct Incentive Program, Vendor is defined as any third party who:
    - Promotes the sale and installation of the high efficiency equipment for the customer. The Vendor will ensure that the eligible equipment is installed and operating before submitting the application or assisting the customer in completing the application.
    - Is responsible for the product sale only and is not required to ensure installation of the eligible equipment.
  - All license requirements, if any, are solely the Vendor's responsibility. Participating Vendors include equipment contractors, equipment Vendors, equipment manufacturers and distributors, energy service companies, etc. The typical Vendor role is to contact/solicit eligible customers building new or retrofitting existing facilities and encourage the installation of the energy-efficient equipment offered in Duke Energy's program.
  - Incentives are paid directly to customers unless the customer assigns the incentive to the Vendor. The assigned incentive must reduce the purchase price paid for the equipment by an equivalent amount. Incentives are taxable to the entity who receives the rebate check. Rebates greater than \$600 will be reported to the IRS unless documentation of tax exempt status is provided.
  - Vendors can sign up to be on Duke Energy's Web site as a participating Vendor and be added to Duke Energy's e-mail distribution by emailing the Vendor Participation Agreement (VPA) to [SelfDirect@duke-energy.com](mailto:SelfDirect@duke-energy.com) or faxing to 513-629-5572.
- ### Guidelines for Vendor Activities
- Vendors shall sign and return the attached VPA to Duke Energy prior to soliciting customer participation or when submitting an application. Rebate payments will not be released to a Vendor unless a signed VPA is on file.
  - Vendors shall not misrepresent the nature of their role in the program. In particular, Vendors shall not state or imply to customers, or any persons, that the Vendor is employed by or working on Duke Energy's behalf.
  - Vendors may not represent to customers that Duke Energy endorses their specific products or services. Duke Energy does not endorse specific products, services, or companies – only energy-efficient technologies.
  - Vendors may advise customers of their option to have Duke Energy make their rebate check(s) payable to the Vendor if the customer's rebate amount is being deducted from the total sale price in advance. The customer must complete and sign the Payment Release Authorization section of the Mercantile Self Direct Incentive Program Application.
  - Vendors may use the words "Duke Energy's Mercantile Self Direct Incentive Program" in promotional materials or advertisements. Vendors may use the name Duke Energy in a text format to describe the Mercantile Self Direct Incentive Program, but are not permitted to use Duke Energy's logos.
  - For Vendors who properly install the qualifying equipment, the equipment shall be installed and operating prior to an application being submitted. A percentage of each Vendor's installations will be subject to inspection by Duke Energy for verifying that the equipment is installed and operating. Vendors demonstrating high failure rates (based on a statistically significant sample) will have 100% of subsequent jobs inspected or may have their participation in the Mercantile Self Direct Incentive Program revoked by Duke Energy in its sole discretion.
  - Vendors shall provide customers with applicable equipment warranty information for all measures installed. Vendors shall provide the required documentation for customers to apply for the rebate (invoices with model numbers and quantities, specification sheets for installed equipment, etc.) and assist customers in filling out the application.
  - Vendors shall comply with all applicable local, state, and federal laws and codes when performing installation and related functions.
  - Duke Energy reserves the right to revoke a Vendor's participation in Mercantile Self Direct Incentive Program if, in Duke Energy's sole judgment, the Vendor fails to comply with the program's guidelines and requirements.
  - Mercantile Self Direct Incentive Program offerings may be modified or terminated without prior notice. Check Duke Energy's Web site for current program status.

For more information, call 1-866.380.9580 or visit [www.duke-energy.com](http://www.duke-energy.com).

## Mercantile Self Direct Rebate Program

Technology	Responsible for sales and <b>not</b> installs*	Responsible for sales <b>and</b> Installation*	Technology	Responsible for sales and <b>not</b> installs*	Responsible for sales <b>and</b> Installation*
Lighting	<input type="checkbox"/>	<input type="checkbox"/>	Thermal Storage	<input type="checkbox"/>	<input type="checkbox"/>
Heating Ventilation & Cooling	<input type="checkbox"/>	<input type="checkbox"/>	Pumps/Motors/VFD's	<input type="checkbox"/>	<input type="checkbox"/>
Food Service	<input type="checkbox"/>	<input type="checkbox"/>	Chillers	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Water Heating	<input type="checkbox"/>	<input type="checkbox"/>	Refrigeration	<input type="checkbox"/>	<input type="checkbox"/>
Process Equipment (air compressors, injection molding, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	Window Film	<input type="checkbox"/>	<input type="checkbox"/>

\* Check all that apply

Vendors who wish to be listed as a Mercantile Self Direct Incentive Program participating Vendor shall complete this form. A signed copy of this form must be on file at Duke Energy in order for the Vendor to receive incentive payments. Fax form to **513-629-5572** or email to [SelfDirect@duke-energy.com](mailto:SelfDirect@duke-energy.com).

I have read and understand the Mercantile Self Direct Incentive Program Requirements for Vendor Participation, and I agree to comply with all requirements set forth therein. By signing this agreement, I agree to provide my customers with information and documentation that is true and accurate to the best of my knowledge. I hereby represent and warrant that the Tax ID and Vendor Tax Status provided below are true and accurate. I agree that any confidential information concerning my customer, including but not limited to Duke Energy service account information, will be used for the sole purpose of facilitating the customer's participation in the Mercantile Self Direct Incentive Program. Further, I understand that I am responsible for making sure everyone working for me understands the requirements prior to soliciting customer participation.

Vendor Federal Tax ID Number	
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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 third-party vendor. The third-party vendor is responsible for mailing the 1099 form at the end of the calendar year for tax filing. Duke Energy and the third-party vendor have signed 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.

Vendor Tax Status	<input type="checkbox"/> Corporation	<input type="checkbox"/> Individual/Sole Proprietor	<input type="checkbox"/> Partnership	<input type="checkbox"/> Other
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Contact me via	<input checked="" type="checkbox"/> Phone	<input checked="" type="checkbox"/> E-Mail	<input type="checkbox"/> Mail	
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Company Name	Pathian
Mailing Address	11260 Chester Road, Suite 545
City, State, Zip	Cincinnati, OH, 45246
Phone/Fax	513-737-7430
Primary E-mail Address	srohrs@pathian.com
Secondary E-mail Address	
Vendor Signature	
Title	
Print Name	Dan Buchanan
Date	Owner

For more information, call 1-866-380-9580 or visit [www.duke-energy.com](http://www.duke-energy.com).

# Ohio Mercantile Self Direct Program

## Application Guide & Cover Sheet

Questions? Call 1-866-380-9580 or visit [www.duke-energy.com](http://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](mailto:SelfDirect@Duke-Energy.com). You may also fax to 1-513-629-5572.

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 and/or billing history for other utilities as required):

Account Number	Annual Usage	Account Number	Annual Usage
04900501	13704046		

Self Direct rebates are available for completed Custom projects that have not previously received a Duke Energy Smart Saver® 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 Saver 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 Saver 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:

<input type="checkbox"/> All sections of appropriate application(s) are completed	<input type="checkbox"/> Proof of payment.*	<input type="checkbox"/> Manufacturer's Spec sheets	<input type="checkbox"/> Energy model/calculations and detailed inputs for Custom applications
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\* 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
<b>Lighting</b>	MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet <input type="checkbox"/>	MSD Prescriptive Lighting <input type="checkbox"/>	MSD Prescriptive Lighting <input type="checkbox"/>
		MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet <input type="checkbox"/>
<b>Heating &amp; Cooling</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Heating & Cooling <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
<b>Window Films, Programmable Thermostats, &amp; Guest Room Energy Management Systems</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General and/or EMS Worksheet(s) <input type="checkbox"/>	MSD Prescriptive Heating & Cooling <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General and/or EMS Worksheet(s) <input type="checkbox"/>
<b>Chillers &amp; Thermal Storage</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Chillers & Thermal Storage <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
<b>Chiller Tune-ups</b>	MSD Prescriptive Chiller Tune-ups <input type="checkbox"/>	MSD Prescriptive Chiller Tune-ups <input type="checkbox"/>	MSD Prescriptive Chiller Tune-ups <input checked="" type="checkbox"/>
<b>Motors &amp; Pumps</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Motors, Pumps & Drives <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
<b>VFDs</b>	Not Applicable	MSD Prescriptive Motors, Pumps & Drives <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom VFD Worksheet <input type="checkbox"/>
		MSD Custom Part 1 <input type="checkbox"/> MSD Custom VFD Worksheet <input type="checkbox"/>	
<b>Food Service</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Food Service <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
<b>Air Compressors</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom Compressed Air Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom Compressed Air Worksheet <input type="checkbox"/>	MSD Prescriptive Process <input type="checkbox"/>
			MSD Custom Part 1 <input type="checkbox"/> MSD Custom Compressed Air Worksheet <input type="checkbox"/>
<b>Process</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Process <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>
		MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	
<b>Energy Management Systems</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom EMS Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom EMS Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom EMS Worksheet <input type="checkbox"/>
<b>Behavioral*** &amp; No/Low Cost</b>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>		

\*\* 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.

\*\*\*\* Behavioral energy efficiency and demand reduction projects must be both measurable and verifiable. Provide justification with your application.

# **MERCANTILE SELF DIRECT Ohio Chiller Tune-up Service Application**

Questions? Call 1-866-380-9580 or visit [www.duke-energy.com](http://www.duke-energy.com).

Email the complete, signed application with all required documents to [SelfDirect@duke-energy.com](mailto:SelfDirect@duke-energy.com) or fax to 513-629-5572.

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

## **Building Type – Required (check one)**

<input type="checkbox"/> Data Centers	<input type="checkbox"/> Full Service Restaurant	<input checked="" type="checkbox"/> Office
<input type="checkbox"/> Education/K-12	<input checked="" type="checkbox"/> Healthcare	<input type="checkbox"/> Public Assembly
<input type="checkbox"/> Education Other	<input type="checkbox"/> Industrial	<input type="checkbox"/> Public Order/Safety
<input type="checkbox"/> Elder Care/Nursing Home	<input type="checkbox"/> Lodging	<input type="checkbox"/> Religious Worship/Church
<input type="checkbox"/> Food Sales/Grocery	<input type="checkbox"/> Retail (Small Box)	<input type="checkbox"/> Service
<input type="checkbox"/> Fast Food Restaurant	<input type="checkbox"/> Retail (Big Box)	<input type="checkbox"/> Warehouse
<input type="checkbox"/> Other:		

## **How did you hear about the program? (check one)**

<input checked="" type="checkbox"/> Duke Energy Representative	<input type="checkbox"/> Web Site	<input type="checkbox"/> Radio
<input type="checkbox"/> Contractor / Vendor	<input type="checkbox"/> Other	

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

<input checked="" type="checkbox"/> All sections of application	<input checked="" type="checkbox"/> Invoice with make, model number, quantity and equipment manufacturer	<input checked="" type="checkbox"/> Tax ID number for payee	<input checked="" type="checkbox"/> Customer/vendor agree to Terms and Conditions
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## **Customer Information**

Customer/Business	TriHealth Hospitals -	Contact	Rick Volk
Phone	513-569-6321	Account Number	0490067501
Street Address (Where incentive should be mailed)	619 Oak Street		
City	Cincinnati	State	OH
Zip Code	45206		
Installation Street Address	619 Oak Street		
City	Cincinnati	State	OH
Zip Code	45206		
E-mail Address	rick_volk@trihealth.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	Pathian	Contact	Dan Buchanan
Phone	513-737-7430	Fax	513-737-1549
Street Address	11260 Chester Road, Suite 545		
City	Cincinnati	State	OH
Zip Code	45246		
E-mail Address	srohrs@pathian.com		

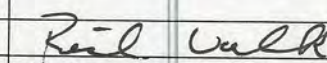
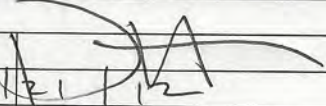
If Duke Energy has questions about this application, who should we contact? ☐ Customer ☒ Vendor

## **Payment Information**

Who should receive incentive payment?	<input checked="" type="checkbox"/> Customer	<input type="checkbox"/> Vendor (Customer must sign below)
I hereby authorize payment of incentive directly to the vendor:	Customer Signature (written signature)	
	Date	
Provide Tax ID Number for Payee	Customer Tax ID #	31-127019
	Vendor Tax ID #	

## **Terms and Conditions**

I have read and hereby agree to the Terms & Conditions and Program Requirements.

Customer Signature		Vendor Signature	
Date	12/21/12	Date	12/21/12
Title	Director of Maintenance	Title	Owner

*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
Trane, PCV-3F-C2-D2	1	360	\$8,350.61	10/16/2012		\$720.00
York, YPCST-185-46-C-S-B, YTC3C3C1-CKD	2	575, 320	\$20,760.53	10/16/2012		\$1,790.00
Carrier, 19DG6667CP	1	385	\$8,930.51	10/16/2012		\$770.00
McQuay, WSC087-BAABM	1	425	\$9,858.35	10/16/2012		\$850.00
*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 =	\$4,130.00
B. Cost of service = \$47,900.00 x 50% of total service cost =	\$23,950.00
<b>Total Incentive (lesser amount of row A or row B)=</b>	<b>\$4,130.00</b>
*Incentives cannot exceed 50% of total service invoice (external labor and equipment).	

#### Service Requirements:

- This incentive is available only once per unit in a 12 month period.**
- An individual chiller is considered one unit.
- Copy of paid invoice must be included with this application
- 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.
- Cooling service must include the following normal maintenance items **(please check if completed)**:

<input type="checkbox"/> Air cooled condenser coil cleaning	<input type="checkbox"/> Compressor amp draw	<input type="checkbox"/> Low Pressure controls
<input type="checkbox"/> System Pressure check and adjust	<input type="checkbox"/> Supply motor amp draw	<input type="checkbox"/> High Pressure controls
<input type="checkbox"/> Filter inspect or replace	<input type="checkbox"/> Condenser fan(s) amp draw	<input type="checkbox"/> Crankcase heater operation
<input type="checkbox"/> Belt inspect or replace	<input type="checkbox"/> Liquid line temperature	<input type="checkbox"/> Water cooled chiller condenser tube cleaning
<input type="checkbox"/> Contactors condition	<input type="checkbox"/> Suction pressure & temperature	<input type="checkbox"/> Water cooled chiller evaporator tube cleaning
<input type="checkbox"/> Evaporator condition	<input type="checkbox"/> 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 3<sup>rd</sup> party vendor. The 3<sup>rd</sup> party vendor is responsible for mailing the 1099 form at the end of the calendar year for tax filing. Duke Energy and the 3<sup>rd</sup> 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.



## Terms and Conditions

*I certify that this premise is served by Duke Energy (or an affiliate of Duke Energy), that the information provided herein is accurate and complete, and that I have purchased and installed the high efficiency equipment (indicated herein) for the business facility listed herein and not for resale. Attached is an itemized invoice for the indicated installed equipment. I understand that the proposed incentive payment from Duke Energy is subject to change based on verification and Duke Energy approval. I agree to Duke Energy verification of both the sales transaction and equipment installation which may include a site inspection from a Duke Energy representative or Duke Energy agent. I understand that I am not allowed to receive more than one incentive from Duke Energy on any piece of equipment. I also understand that my participation in the program may be taxable and that my company is solely responsible for paying all such taxes. I hereby agree to indemnify, hold harmless and release Duke Energy and its affiliates from any actions or claims in regards to the installation, operation and disposal of equipment (and related materials) covered herein including liability from an incidental or consequential damages. Duke Energy does not endorse any particular manufacturer, product or system design within these programs; does not expressly or implicitly warrant the performance of installed equipment (Contact your contractor for details regarding equipment warranties), and is not liable for any damage caused by the installation of the equipment or for any damage caused by the malfunction of the installed equipment.*

## Incentive Application Instructions

### IMPORTANT NOTICE

Delays in processing incentive payments will occur if required documentation is not included with completed application(s).

1. Contact Duke Energy toll free at 866-380-9580 to confirm customer eligibility. Applications are available for download at [www.duke-energy.com](http://www.duke-energy.com).
2. Review program and equipment requirements on the incentive application.
3. Purchase and install eligible energy-efficient equipment.
4. **The following items must be included to verify projects. If they are not included, it will delay payment of incentive.**
  - A. Itemized invoice for all equipment installed to include:
    - a. Equipment cost
    - b. Quantity per equipment type installed
    - c. Model # for each equipment type
    - d. Manufacturer's data sheet for each equipment model #.
  - B. **Make sure the account number provided on the cover page (customer information section) is associated with the location where the equipment was installed. If the account # does not match the address where the equipment was installed, the application will be rejected as ineligible.**
  - C. Provide required tax ID# for payee.
  - D. Customer must sign and date the application after reviewing the Terms and Conditions. If customer wishes to **assign payment of the incentive directly to the vendor**, the customer should circle the appropriate payee in the Payment Information section of the application and sign their name to authorize payment.
5. Duke Energy may require site verification of projects that have been self-installed, prior to payment of incentive.
6. Email the complete, signed application with all required documents to [SelfDirect@duke-energy.com](mailto:SelfDirect@duke-energy.com) or fax to 513-629-5572.
7. A percentage of equipment installations will be site verified for quality assurance purposes. Once selected, a Duke Energy representative will contact the customer to arrange for the inspection. All incentive payments related to the project will be withheld until site verification is complete. There is no charge to the customer for these inspections.

## Mercantile Self Direct Incentive Program Requirements for Vendor Participation

### Program Overview

- Duke Energy offers its eligible non-residential customers the opportunity to increase profitability through energy cost savings and contribute to a cleaner environment by participating in our Mercantile Self Direct Incentive Program.
  - Under the Duke Energy Mercantile Self Direct Incentive Program, Vendor is defined as any third party who:
    - Promotes the sale and installation of the high efficiency equipment for the customer. The Vendor will ensure that the eligible equipment is installed and operating before submitting the application or assisting the customer in completing the application.
    - Is responsible for the product sale only and is not required to ensure installation of the eligible equipment.
  - All license requirements, if any, are solely the Vendor's responsibility. Participating Vendors include equipment contractors, equipment Vendors, equipment manufacturers and distributors, energy service companies, etc. The typical Vendor role is to contact/solicit eligible customers building new or retrofitting existing facilities and encourage the installation of the energy-efficient equipment offered in Duke Energy's program.
  - Incentives are paid directly to customers unless the customer assigns the incentive to the Vendor. The assigned incentive must reduce the purchase price paid for the equipment by an equivalent amount. Incentives are taxable to the entity who receives the rebate check. Rebates greater than \$600 will be reported to the IRS unless documentation of tax exempt status is provided.
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- ### Guidelines for Vendor Activities
- Vendors shall sign and return the attached VPA to Duke Energy prior to soliciting customer participation or when submitting an application. Rebate payments will not be released to a Vendor unless a signed VPA is on file.
  - Vendors shall not misrepresent the nature of their role in the program. In particular, Vendors shall not state or imply to customers, or any persons, that the Vendor is employed by or working on Duke Energy's behalf.
  - Vendors may not represent to customers that Duke Energy endorses their specific products or services. Duke Energy does not endorse specific products, services, or companies – only energy-efficient technologies.
  - Vendors may advise customers of their option to have Duke Energy make their rebate check(s) payable to the Vendor if the customer's rebate amount is being deducted from the total sale price in advance. The customer must complete and sign the Payment Release Authorization section of the Mercantile Self Direct Incentive Program Application.
  - Vendors may use the words "Duke Energy's Mercantile Self Direct Incentive Program" in promotional materials or advertisements. Vendors may use the name Duke Energy in a text format to describe the Mercantile Self Direct Incentive Program, but are not permitted to use Duke Energy's logos.
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  - Vendors shall comply with all applicable local, state, and federal laws and codes when performing installation and related functions.
  - Duke Energy reserves the right to revoke a Vendor's participation in Mercantile Self Direct Incentive Program if, in Duke Energy's sole judgment, the Vendor fails to comply with the program's guidelines and requirements.
  - Mercantile Self Direct Incentive Program offerings may be modified or terminated without prior notice. Check Duke Energy's Web site for current program status.

For more information, call 1-866.380.9580 or visit [www.duke-energy.com](http://www.duke-energy.com).

## Mercantile Self Direct Rebate Program

Technology	Responsible for sales and <b>not</b> installs*	Responsible for sales <b>and</b> Installation*	Technology	Responsible for sales and <b>not</b> installs*	Responsible for sales <b>and</b> Installation*
Lighting	<input type="checkbox"/>	<input type="checkbox"/>	Thermal Storage	<input type="checkbox"/>	<input type="checkbox"/>
Heating Ventilation & Cooling	<input type="checkbox"/>	<input type="checkbox"/>	Pumps/Motors/VFD's	<input type="checkbox"/>	<input type="checkbox"/>
Food Service	<input type="checkbox"/>	<input type="checkbox"/>	Chillers	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Water Heating	<input type="checkbox"/>	<input type="checkbox"/>	Refrigeration	<input type="checkbox"/>	<input type="checkbox"/>
Process Equipment (air compressors, injection molding, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	Window Film	<input type="checkbox"/>	<input type="checkbox"/>

\* Check all that apply

Vendors who wish to be listed as a Mercantile Self Direct Incentive Program participating Vendor shall complete this form. A signed copy of this form must be on file at Duke Energy in order for the Vendor to receive incentive payments. Fax form to **513-629-5572** or email to [SelfDirect@duke-energy.com](mailto:SelfDirect@duke-energy.com).

I have read and understand the Mercantile Self Direct Incentive Program Requirements for Vendor Participation, and I agree to comply with all requirements set forth therein. By signing this agreement, I agree to provide my customers with information and documentation that is true and accurate to the best of my knowledge. I hereby represent and warrant that the Tax ID and Vendor Tax Status provided below are true and accurate. I agree that any confidential information concerning my customer, including but not limited to Duke Energy service account information, will be used for the sole purpose of facilitating the customer's participation in the Mercantile Self Direct Incentive Program. Further, I understand that I am responsible for making sure everyone working for me understands the requirements prior to soliciting customer participation.

Vendor Federal Tax ID Number	
------------------------------	--

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 third-party vendor. The third-party vendor is responsible for mailing the 1099 form at the end of the calendar year for tax filing. Duke Energy and the third-party vendor have signed 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.

Vendor Tax Status	<input type="checkbox"/> Corporation	<input type="checkbox"/> Individual/Sole Proprietor	<input type="checkbox"/> Partnership	<input type="checkbox"/> Other
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Contact me via	<input checked="" type="checkbox"/> Phone	<input checked="" type="checkbox"/> E-Mail	<input type="checkbox"/> Mail	
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Company Name	Pathian
Mailing Address	11260 Chester Road, Suite 545
City, State, Zip	Cincinnati, OH, 45246
Phone/Fax	513-737-7430
Primary E-mail Address	srohrs@pathian.com
Secondary E-mail Address	
Vendor Signature	
Title	
Print Name	Dan Buchanan
Date	Owner

For more information, call 1-866-380-9580 or visit [www.duke-energy.com](http://www.duke-energy.com).

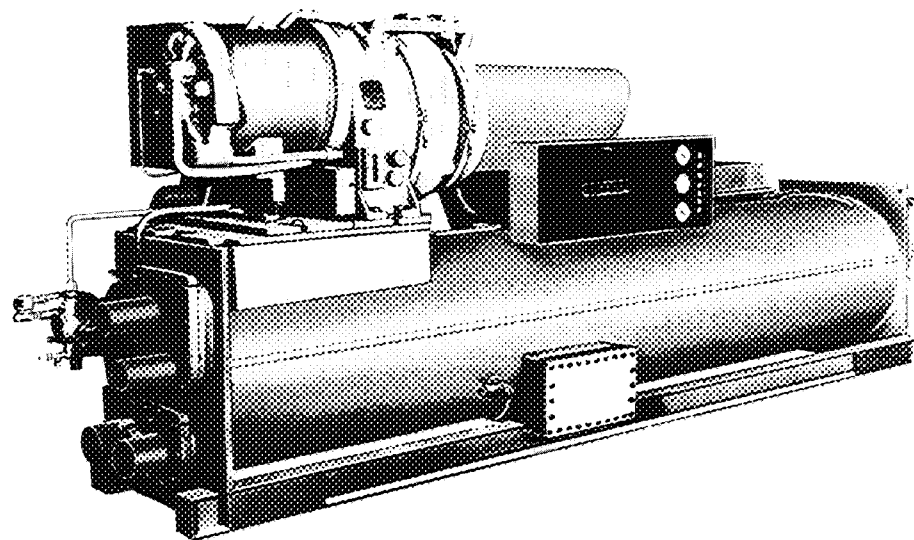


**Carrier**

# Hermetic Centrifugal Liquid Chillers

100 thru 400 Tons

**19DG**



## DESCRIPTION

Carrier 19DG Hermetic Centrifugal Liquid Chilling Units are compact, large capacity centrifugal refrigeration machines of hermetic design. They provide chilled water for air conditioning, or process liquid cooling. Thirteen standard sizes provide nominal capacities of 100 thru 400 tons. Within these standard sizes many combinations of

compressor, motor and cooler-condenser components are computer matched to provide the exact equipment selection for your refrigeration requirements. Their quiet operation and low vibration level permit installation on roofs and upper floors of buildings. Installations may consist of single machines or multiple-unit systems.

## FEATURES

- **Solid State Control** is highly accurate, responsive and reliable. By continually monitoring machine operation, it maintains the system at peak efficiency. Machine capacity is automatically modulated to match the required cooling load throughout a range of 100 percent to 10 percent. Modular control components allow easy assembly and servicing. Once control points are set and calibrated, control settings may be changed without additional field calibration. The control gives precise response to either electronic or pneumatic temperature signaling devices.
- **Dynapoise® Transmission** — This unique system keeps gears and pinions in perfect alignment, providing smooth, quiet compressor-motor operation and long service life.
- **Hermetic Design** prevents leakage of costly refrigerant. The most advanced methods are used to leak test the 19DG unit at the factory.
- **Modern Retention System** — Compressor and motor components are coupled and retained by jet-engine type V-bands. A positive leak-proof seal and equal loading around the entire flange periphery is ensured.
- **Minimum Floor Space** is required for this compact and complete refrigeration machine. The cooler and condenser are contained in a single shell, which in turn supports the compressor, controls, and purge unit.
- **Easy Installation** — Permanent shipping skids facilitate moving, function as unit supports and eliminate need for concrete bases or foundation.

- **Rugged Construction** includes unishell of carbon steel welded to steel tube sheets, carbon steel divider plate separating cooler and condenser portions of unishell, structural steel skids, copper tubes with extruded fins.
- **Automatic Thermal Purge** ensures peak operating efficiency by removing air, water and other noncondensables from the system automatically.
- **Refrigerant Agitation** increases refrigerant level in the cooler during partial load conditions to maintain maximum heat transfer conditions.
- **Refrigerant-Cooled Motor** — Subcooled refrigerant keeps motor temperatures low and ensures long motor life and high electrical efficiency.
- **Modular Lubrication Package** includes pump, motor, filter, cooler, pressure controls and electric terminals, reliable and easy to service.
- **Pressure Lubrication System** provides oil to bearings and transmission before, during, and immediately after compressor operation to ensure positive lubrication at all times.
- **Reduced Power Costs** — During low cooling load seasons, Electrical Demand Control may be preset to limit compressor motor current demands.
- **Elapsed Time Indicator** provides an immediate and constant record of machine operating hours.

## ACCESSORIES

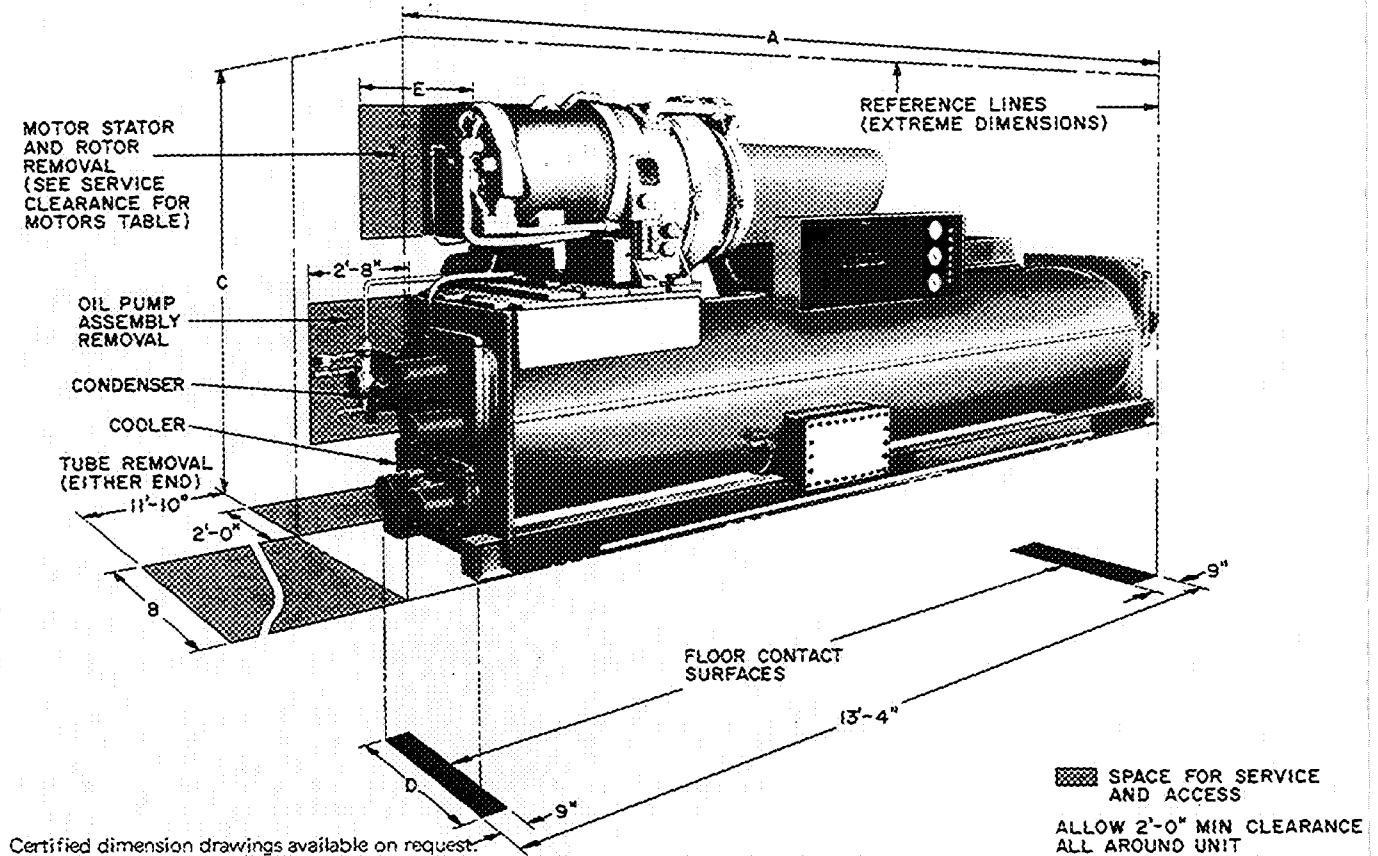
**Autostart Kit** provides for machine automatic start and stop in response to outside air thermostat, time clock or other control.

## OPTIONAL EQUIPMENT

**250 psi Water Boxes** may be specified in place of standard 150 psi design.

**Selective Insulation** — Motor-Compressor insulation is standard. Insulation of compressor suction elbow and the cooler portion of the unishell may also be requested

## DIMENSIONS



## DIMENSIONS

UNIT 19DG	DIMENSIONS (ft.-in.)				NOZZLE SIZE (in.)					
	Lgth A*	Width B	Ht C	D	Cooler Passes			Condenser Passes		
					1	2	3	1	2	
100, 110, 130, 145	13-9	3-7½	5-5½	3-3	6	4	—	6	4	
160, 180, 200, 225	13-9	4-5¼	6-5	3-8½	8	6	—	8	6	
255, 285, 325	13-9	4-9¼	7-7	4-5½	8	6	6	10	8	
365, 400	13-9	5-0	8-3¼	5-1	10	8	8	10	8	

\*Machine length including nozzles. Add 0'-7" if nozzles are on both ends

## SERVICE CLEARANCE FOR MOTORS (ft.-in.)

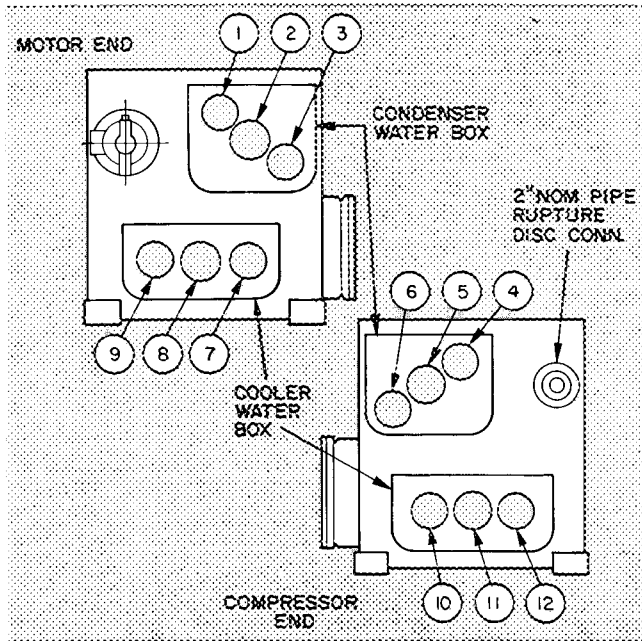
UNIT 19DG	MOTOR SIZE	VOLTAGE	CLEARANCE (E)
100 thru 145	A2 thru A6	208-575	1-1
160 thru 225	A6 & C1 thru C4	208-575	1-0
	C1 thru C4	2400 & 4160	3-1
255 thru 325	C1 thru C4	208-575	1-5
	C5 thru C9	208-575	2-0
	C1 thru C4	2400 & 4160	2-9
	C5 thru C9	2400 & 4160	3-3
365, 400	C5 thru C9	208-575	1-8
	C4 thru C9	2400 & 4160	3-0

## OIL COOLER NOTE

Oil Cooler water side working pressure = 200 psi max.

## DIMENSIONS (Cont)

### NOZZLE ARRANGEMENTS



COOLER NOZZLE NO.			ARR	CONDENSER NOZZLE NO.			ARR
Pass	In	Out		Pass	In	Out	
1	11	8	P	1	2	5	W
	8	11	Q		5	2	X
2	12	10	R	2	4	6	Y
	9	7	S		1	3	Z
3*	12	7	T				
	9	10	U				

\*3-pass cooler available on 255 thru 400 ton sizes only

Complete nozzle arrangement consists of the cooler arrangement followed by the condenser arrangement. For example:

2-pass cooler with leaving nozzle Number 10 = arr R

1-pass condenser with leaving nozzle Number 2 = arr X

Complete nozzle arrangement = RX

### PERFORMANCE DATA NOTE

Performance Data tables are based on 2-pass cooler and condenser, 0005 fouling factor and 10 F water temperature rise. They contain ratings representative of nominal selection points. Additional selection points are available from Carrier. Ask your local representative.

Use 38 and 39 F data only when pass arrangement, rise and fouling adjustments place unit selection in that area. Do not select actual temperatures below 40 F without consulting Carrier.

### ELECTRICAL DATA NOTE

Listed motor voltages are design center voltages. Motors are suitable for use with supply voltages as noted, and will operate satisfactorily at 10 percent below the minimum and at 10 percent above the maximum supply voltage.

208 v — for use on 200 to 208 v systems

230 v — for use on 220 to 240 v systems

460 v — for use on 440 to 480 v systems

575 v — for use on 550 to 600 v systems

2400 v — for use on 2300 to 2500 v systems

4160 v — for use on 4000 to 4300 v systems

## ELECTRICAL DATA

MTR	MAX KW	VOLTS	208	230	460	575	2400	4160
A2	82	FLA per KW	3.08	2.79	1.39	1.11	—	—
		LRA Star	410	370	180	150	—	—
		LRA Delta	1280	1150	580	460	—	—
A3	90	FLA per KW	3.08	2.79	1.39	1.11	—	—
		LRA Star	440	400	200	160	—	—
		LRA Delta	1390	1260	630	500	—	—

FLA — Full Load Amps

KW — Compressor Power Input (kilowatts)

LRA — Locked Rotor Amps

MTR — Motor

Note:

Overload trip amps = FLA x 1.11

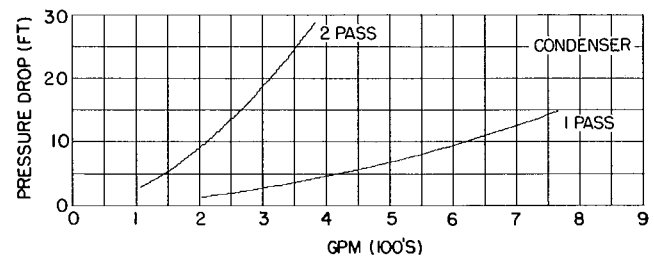
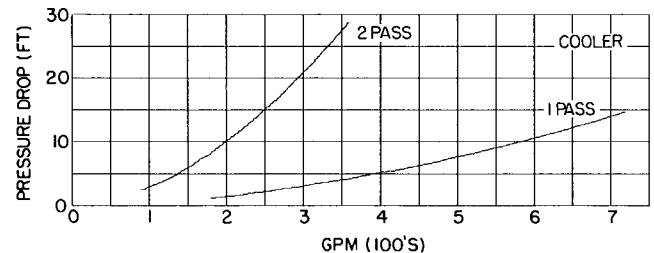
## PERFORMANCE DATA

# 19DG100

ADJ LVG COND WTR TEMP (F)		ADJUSTED LVG CHILLED WATER TEMP (F)										
		38	39	40	41	42	43	44	45	46	47	48
90	TONS	102	102	102	102	102	102	102	102	102	102	102
	CS	135	135	133	133	131	131	131	155	155	153	153
	KW	98	96	90	89	85	83	82	86	86	81	80
91	TONS	102	102	102	102	102	102	102	102	102	102	102
	CS	135	135	133	133	131	131	131	155	155	153	153
	KW	98	97	91	90	89	84	83	82	81	86	81
92	TONS	102	102	102	102	102	102	102	102	102	102	102
	CS	137	135	135	133	133	131	131	131	131	131	131
	KW	104	98	96	91	90	85	84	83	82	81	80
93	TONS	102	102	102	102	102	102	102	102	102	102	102
	CS	137	135	135	133	133	133	131	131	131	131	131
	KW	105	99	97	91	90	89	85	84	83	82	81
94	TONS	102	102	102	102	102	102	102	102	102	102	102
	CS	137	137	135	135	133	133	131	131	131	131	131
	KW	106	104	98	97	91	90	86	85	83	82	81
95	TONS	102	102	102	102	102	102	102	102	102	102	102
	CS	137	137	135	135	133	133	133	131	131	131	131
	KW	107	105	99	97	92	91	90	85	84	83	82
96	TONS	100	102	102	102	102	102	102	102	102	102	102
	CS	137	137	137	135	135	133	133	133	131	131	131
	KW	104	106	105	98	97	91	90	90	85	84	83
97	TONS	97	102	102	102	102	102	102	102	102	102	102
	CS	137	137	137	135	135	133	133	133	133	131	131
	KW	102	107	105	99	98	96	91	90	89	85	84
98	TONS	95	100	102	102	102	102	102	102	102	102	102
	CS	137	137	137	137	135	135	133	133	133	133	133
	KW	100	105	106	105	99	97	92	91	90	89	88
99	TONS	—	97	102	102	102	102	102	102	102	102	102
	CS	—	137	137	137	135	135	135	133	133	133	133
	KW	—	102	107	106	100	98	97	92	91	90	89
100	TONS	—	—	100	102	102	102	102	102	102	102	102
	CS	—	—	137	137	137	135	135	135	135	133	133
	KW	—	—	105	107	105	99	98	97	96	91	90

CS — Compressor Size

KW — Kilowatt Input



## PHYSICAL DATA

WEIGHT (lb) . . . . . Oper, 7461; Rigging, 6700

OUTSIDE TUBE SURF. (sq ft) . . . . . Cooler, 508; Condenser, 534

OPER CHARGE, R-11 (lb) . . . . . 400

AREA TO INSULATE (sq ft) . . . . . 107

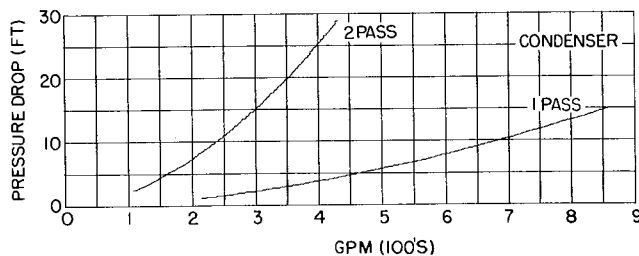
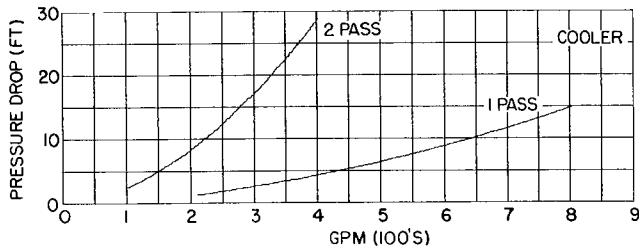
# PERFORMANCE DATA

## 19DG110

ADJ LVG COND WTR TEMP (F)		ADJUSTED LVG CHILLED WATER TEMP (F)										
		38	39	40	41	42	43	44	45	46	47	48
90	TONS	112	112	112	112	112	112	112	112	112	112	112
	CS	155	155	155	153	153	153	153	151	151	151	151
	KW	102	101	100	94	93	92	90	90	85	84	83
91	TONS	112	112	112	112	112	112	112	112	112	112	112
	CS	155	155	155	155	155	153	153	153	153	151	151
	KW	103	102	101	99	98	92	91	90	90	89	84
92	TONS	112	112	112	112	112	112	112	112	112	112	112
	CS	157	155	155	155	155	155	153	153	153	153	153
	KW	109	103	102	100	99	98	92	91	90	89	88
93	TONS	112	112	112	112	112	112	112	112	112	112	112
	CS	157	157	157	157	155	155	155	155	153	153	153
	KW	110	109	107	106	100	99	97	96	91	90	89
94	TONS	112	112	112	112	112	112	112	112	112	112	112
	CS	157	157	157	157	157	155	155	153	155	155	153
	KW	111	110	108	107	106	100	98	93	96	95	90
95	TONS	107	110	112	112	112	112	112	112	112	112	112
	CS	137	137	137	157	157	157	133	133	131	131	155
	KW	113	115	117	108	106	105	99	98	93	91	95
96	TONS	104	107	112	112	112	112	112	112	112	112	112
	CS	137	137	137	137	135	157	133	133	131	131	131
	KW	110	111	118	116	108	106	100	99	93	92	91
97	TONS	102	107	110	112	112	112	112	112	112	112	112
	CS	137	137	137	137	135	135	133	133	131	131	131
	KW	107	112	114	117	109	107	106	100	98	93	92
98	TONS	99	104	110	112	112	112	112	112	112	112	112
	CS	137	137	137	137	135	135	133	133	133	133	131
	KW	104	110	115	117	115	108	106	101	99	98	93
99	TONS	96	102	107	112	112	112	112	112	112	112	112
	CS	137	137	137	137	137	135	135	135	133	133	131
	KW	102	107	112	118	116	109	107	106	100	99	94
100	TONS	94	99	104	110	112	112	112	112	112	112	112
	CS	137	137	137	137	137	137	135	135	133	133	133
	KW	99	104	110	115	117	115	108	107	101	100	98

CS — Compressor Size

KW — Kilowatt Input



### PHYSICAL DATA

WEIGHT (lb.) . . . . . Oper, 7583; Rigging, 6800  
 OUTSIDE TUBE SURF. (sq ft) . . . . . Cooler, 560; Condenser, 600  
 OPER CHARGE, R-11 (lb.) . . . . . 400  
 AREA TO INSULATE (sq ft) . . . . . 107

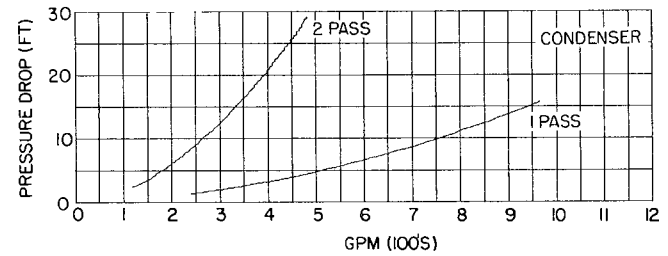
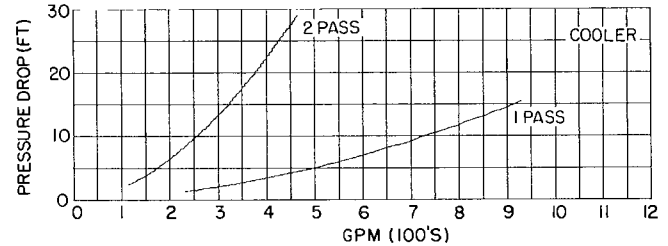
# PERFORMANCE DATA

## 19DG130

ADJ LVG COND WTR TEMP (F)		ADJUSTED LVG CHILLED WATER TEMP (F)										
		38	39	40	41	42	43	44	45	46	47	48
90	TONS	131	131	131	131	131	131	131	131	131	131	131
	CS	175	173	173	173	173	173	171	171	171	171	171
	KW	123	117	114	112	107	105	103	101	100	99	97
91	TONS	131	131	131	131	131	131	131	131	131	131	131
	CS	175	173	173	173	173	173	171	171	171	171	151
	KW	125	118	115	113	111	106	104	102	101	100	98
92	TONS	128	131	131	131	131	131	131	131	131	131	131
	CS	175	175	173	173	173	173	151	151	151	151	151
	KW	122	123	117	114	112	108	106	104	102	101	99
93	TONS	128	131	131	131	131	131	131	131	131	131	131
	CS	175	175	175	175	173	173	151	151	151	151	151
	KW	123	125	122	120	114	111	107	105	103	101	100
94	TONS	122	125	131	131	131	131	131	131	131	131	131
	CS	177	155	175	175	153	153	173	151	151	151	151
	KW	121	118	124	121	115	113	111	106	104	103	101
95	TONS	122	125	125	131	131	131	131	131	131	131	131
	CS	157	177	155	175	175	153	153	153	151	151	151
	KW	123	124	117	123	120	114	112	111	106	104	102
96	TONS	122	122	125	125	128	131	131	131	131	131	131
	CS	157	157	155	155	155	153	153	153	153	153	151
	KW	124	122	119	116	118	116	114	112	110	109	103
97	TONS	119	122	122	125	128	128	131	131	131	131	131
	CS	157	157	157	155	155	155	153	153	153	153	153
	KW	121	123	121	118	120	118	115	113	111	110	108
98	TONS	104	122	122	125	125	128	128	131	131	131	131
	CS	137	157	157	157	155	155	155	153	153	153	153
	KW	108	125	122	124	117	119	117	114	112	111	109
99	TONS	104	107	110	122	125	125	128	128	131	131	131
	CS	137	137	137	157	157	157	155	155	155	153	153
	KW	109	112	114	122	124	122	118	116	116	112	111
100	TONS	100	107	110	113	116	125	125	128	128	131	131
	CS	137	137	137	137	137	157	157	155	155	155	155
	KW	106	112	115	118	121	123	121	118	116	118	116

CS — Compressor Size

KW — Kilowatt Input



### PHYSICAL DATA

WEIGHT (lb.) . . . . . Oper, 7740; Rigging, 6900  
 OUTSIDE TUBE SURF. (sq ft) . . . . . Cooler, 654; Condenser, 680  
 OPER CHARGE, R-11 (lb.) . . . . . 425  
 AREA TO INSULATE (sq ft) . . . . . 107

### ELECTRICAL DATA

MTR	MAX KW	VOLTS	208	230	460	575	2400	4160
A2	82	FLA per KW	3.08	2.79	1.39	1.11	—	—
		LRA Star	410	370	180	150	—	—
		LRA Delta	1280	1150	580	460	—	—
A3	90	FLA per KW	3.08	2.79	1.39	1.11	—	—
		LRA Star	440	400	200	160	—	—
		LRA Delta	1390	1260	630	500	—	—
A4	102	FLA per KW	3.08	2.78	1.39	1.11	—	—
		LRA Star	490	440	220	180	—	—
		LRA Delta	1530	1380	690	550	—	—

MTR	MAX KW	VOLTS	208	230	460	575	2400	4160
A5	111	FLA per KW	3.08	2.78	1.39	1.11	—	—
		LRA Star	530	480	240	190	—	—
		LRA Delta	1670	1510	750	600	—	—
A6	125	FLA per KW	3.08	2.78	1.39	1.11	—	—
		LRA Star	600	550	270	220	—	—
		LRA Delta	1890	1710	850	680	—	—

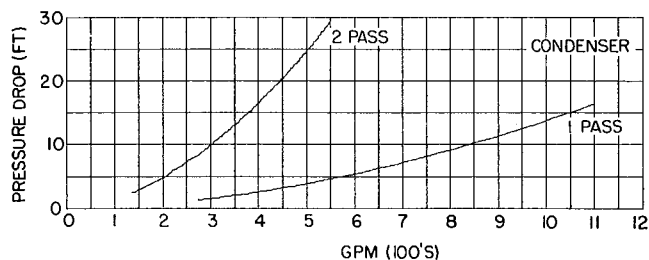
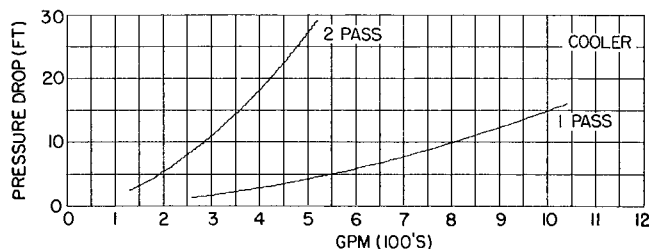
# PERFORMANCE DATA

# 19DG145

ADJ LVG COND WTR TEMP (F)		ADJUSTED LVG CHILLED WATER TEMP (F)										
		38	39	40	41	42	43	44	45	46	47	48
90	TONS	134	137	140	140	144	147	147	147	147	147	147
	CS	173	173	173	173	171	171	171	171	171	171	171
	KW	120	122	124	121	120	121	118	116	113	111	110
91	TONS	130	137	137	140	144	147	147	147	147	147	147
	CS	173	173	173	173	171	171	171	171	171	171	171
	KW	116	124	120	122	124	123	120	117	115	112	111
92	TONS	130	134	137	140	140	144	147	147	147	147	147
	CS	173	173	173	173	171	171	171	171	171	171	171
	KW	118	120	122	124	118	120	122	119	116	114	112
93	TONS	130	130	137	137	140	144	147	147	147	147	147
	CS	175	173	173	173	173	171	171	151	171	171	171
	KW	123	117	124	121	123	125	123	120	117	115	113
94	TONS	130	130	134	137	140	140	144	147	147	147	147
	CS	175	175	173	173	173	171	171	171	171	171	171
	KW	125	122	120	122	124	119	120	122	119	116	114
95	TONS	123	130	130	137	137	140	144	147	147	147	147
	CS	155	175	175	173	173	173	173	171	171	171	171
	KW	117	123	121	124	121	123	125	124	121	118	116
96	TONS	123	127	130	134	137	140	140	144	147	147	147
	CS	177	177	175	175	173	173	173	171	151	171	171
	KW	123	125	122	124	123	125	122	124	122	119	117
97	TONS	123	123	127	127	134	134	140	147	147	147	147
	CS	157	155	155	155	175	153	173	173	171	171	171
	KW	125	117	120	117	123	117	123	121	124	121	119
98	TONS	120	123	123	127	127	134	137	140	144	144	147
	CS	157	157	155	155	155	175	153	173	173	173	151
	KW	121	124	116	119	116	125	121	122	124	122	120
99	TONS	106	123	123	127	127	130	137	137	144	144	144
	CS	137	157	157	155	155	155	153	153	173	151	151
	KW	110	125	123	120	118	116	118	120	118	123	118
100	TONS	102	109	123	123	127	130	130	137	137	114	114
	CS	137	137	157	157	157	155	155	153	153	151	151
	KW	106	114	124	122	125	117	119	117	119	117	119

CS — Compressor Size

KW — Kilowatt Input



## PHYSICAL DATA

WEIGHT (lb). . . . . Oper, 7897; Rigging, 7000  
 OUTSIDE TUBE SURF. (sq ft) . . Cooler, 734; Condenser, 774  
 OPER CHARGE, R-11 (lb). . . . 450  
 AREA TO INSULATE (sq ft) . . . 107

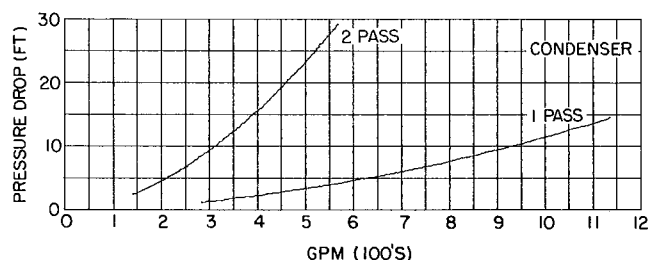
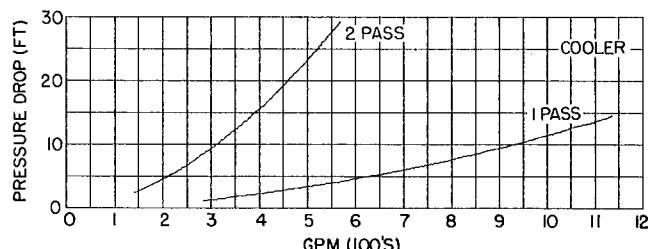
# PERFORMANCE DATA

# 19DG160

ADJ LVG COND WTR TEMP (F)		ADJUSTED LVG CHILLED WATER TEMP (F)										
		38	39	40	41	42	43	44	45	46	47	48
90	TONS	161	161	161	161	161	161	161	161	161	161	161
	CS	235	235	233	233	231	231	231	231	253	253	171
	KW	147	144	136	134	127	125	123	123	123	122	123
91	TONS	161	161	161	161	161	161	161	161	161	161	161
	CS	235	235	235	233	233	231	231	231	231	255	171
	KW	148	146	143	135	133	126	125	123	123	129	124
92	TONS	161	161	161	161	161	161	161	161	161	161	161
	CS	237	235	235	233	233	233	231	231	231	231	231
	KW	157	147	145	137	135	133	126	124	124	122	121
93	TONS	161	161	161	161	161	161	161	161	161	161	161
	CS	237	235	235	235	233	233	231	231	231	231	231
	KW	158	148	146	144	136	134	127	126	124	124	122
94	TONS	161	161	161	161	161	161	161	161	161	161	161
	CS	237	237	235	235	233	233	233	231	231	231	231
	KW	159	157	147	145	137	135	134	127	125	124	123
95	TONS	161	161	161	161	161	161	161	161	161	161	161
	CS	237	237	235	235	235	233	233	231	231	231	231
	KW	160	158	149	146	145	137	135	128	127	125	123
96	TONS	157	161	161	161	161	161	161	161	161	161	161
	CS	237	237	237	235	235	233	233	233	231	231	231
	KW	157	159	157	148	146	138	136	135	133	126	125
97	TONS	153	161	161	161	161	161	161	161	161	161	161
	CS	237	237	237	237	235	235	233	233	233	233	233
	KW	153	161	159	156	147	145	138	136	134	133	131
98	TONS	149	157	161	161	161	161	161	161	161	161	161
	CS	237	237	237	237	235	235	235	233	233	233	233
	KW	151	157	160	158	149	147	145	137	136	134	132
99	TONS	108	153	161	161	161	161	161	161	161	161	161
	CS	137	237	237	237	237	235	235	235	233	233	233
	KW	111	154	161	159	157	148	146	145	137	135	134
100	TONS	104	123	157	161	161	161	161	161	161	161	161
	CS	137	157	237	237	237	235	235	235	235	235	233
	KW	107	124	158	161	158	149	148	146	144	143	135

CS — Compressor Size

KW — Kilowatt Input



## PHYSICAL DATA

WEIGHT (lb). . . . . Oper, 11,083; Rigging, 10,000  
 OUTSIDE TUBE SURF. (sq ft) . . Cooler, 800; Condenser, 829  
 OPER CHARGE, R-11 (lb). . . . 525  
 AREA TO INSULATE (sq ft) . . . 130

## ELECTRICAL DATA

MTR	MAX KW	VOLTS	208	230	460	575	2400	4160
C1	139	FLA per KW	3.05	2.76	1.38	1.10	257	146
		LRA Star	670	600	300	240	65	30
		LRA Delta	2080	1880	940	750	200	110
C2	151	FLA per KW	3.05	2.76	1.38	1.10	263	148
		LRA Star	720	650	330	260	75	40
		LRA Delta	2250	2030	1020	810	210	120
C3	166	FLA per KW	3.05	2.76	1.38	1.10	262	151
		LRA Star	760	720	360	290	75	40
		LRA Delta	2370	2260	1130	900	240	130

FLA — Full Load Amps

KW — Compressor Power Input (kilowatts)

LRA — Locked Rotor Amps

MTR — Motor

Note: Overload trip amps = FLA x 1.11

# PERFORMANCE DATA

# 19DG180

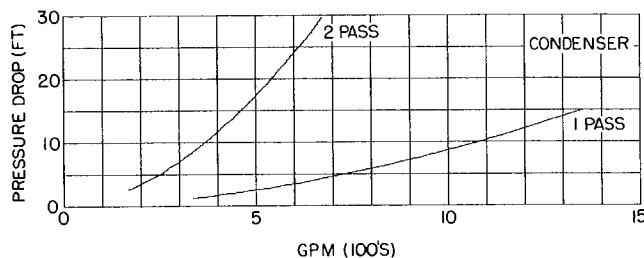
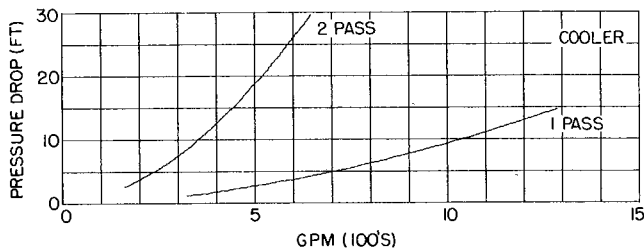
# PERFORMANCE DATA

# 19DG200

ADJ LVG COND WTR TEMP (F)	TONS CS KW	ADJUSTED LVG CHILLED WATER TEMP (F)										
		38	39	40	41	42	43	44	45	46	47	48
90	TONS CS KW	182 255 161	182 253 153	182 253 151	182 253 148	182 253 146	182 253 143	182 251 137	182 251 135	182 251 133	182 251 131	182 251 129
91	TONS CS KW	182 255 163	182 255 160	182 255 152	182 255 150	182 253 147	182 253 145	182 253 143	182 253 141	182 251 134	182 251 132	182 251 130
92	TONS CS KW	182 255 165	182 255 162	182 255 159	182 255 157	182 253 149	182 253 147	182 253 144	182 253 142	182 251 140	182 251 139	182 251 132
93	TONS CS KW	182 255 166	182 255 164	182 255 161	182 255 158	182 255 156	182 253 154	182 253 152	182 253 150	182 251 148	182 251 146	182 251 143
94	TONS CS KW	182 257 174	182 257 172	182 255 163	182 255 160	182 255 158	182 255 155	182 255 153	182 255 151	182 253 143	182 253 142	182 253 140
95	TONS CS KW	182 257 176	182 257 173	182 257 171	182 255 168	182 255 159	182 255 157	182 255 155	182 253 152	182 253 151	182 253 143	182 253 141
96	TONS CS KW	165 237 165	182 257 175	182 257 172	182 257 170	182 257 167	182 257 165	182 257 163	182 257 161	182 253 154	182 253 152	182 253 149
97	TONS CS KW	161 237 161	170 237 169	174 237 173	182 257 171	182 257 169	182 257 167	182 257 165	182 257 163	182 253 155	182 253 153	182 253 151
98	TONS CS KW	157 237 157	165 237 165	174 237 174	178 237 177	182 257 181	182 257 168	182 257 166	182 257 164	182 253 154	182 253 152	182 253 151
99	TONS CS KW	152 237 153	161 237 161	170 237 169	178 237 179	182 257 182	182 257 179	182 257 167	182 257 165	182 253 163	182 253 154	182 253 152
100	TONS CS KW	148 237 150	157 237 157	165 237 165	174 237 174	178 237 177	182 257 181	182 257 178	182 257 166	182 257 165	182 253 155	182 253 153

CS — Compressor Size

KW — Kilowatt Input



## PHYSICAL DATA

WEIGHT (lb). . . . . Oper, 11,302; Rigging, 10,150  
 OUTSIDE TUBE SURF. (sq ft) . . Cooler, 910; Condenser, 950  
 OPER CHARGE, R-11 (lb). . . . 550  
 AREA TO INSULATE (sq ft) . . . 130

## ELECTRICAL DATA

MTR	MAX KW	VOLTS	208	230	460	575	2400	4160
C1	139	FLA per KW	3.05	2.76	1.38	1.10	257	146
		LRA Star	670	600	300	240	65	30
		LRA Delta	2080	1880	940	750	200	110
C2	151	FLA per KW	3.05	2.76	1.38	1.10	263	148
		LRA Star	720	650	330	260	75	40
		LRA Delta	2250	2030	1020	810	210	120

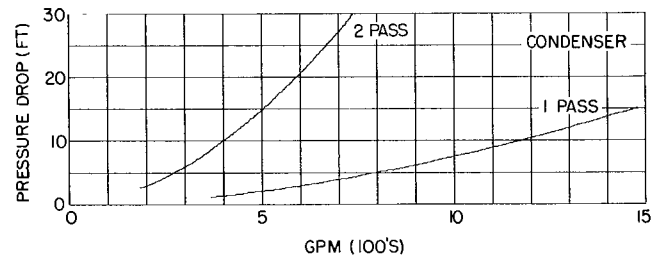
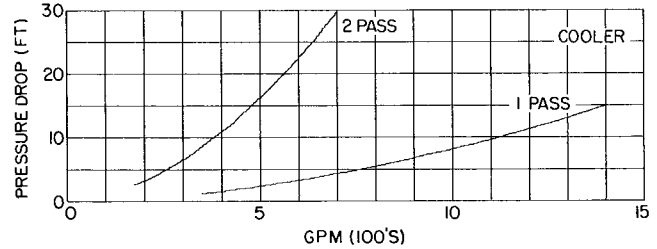
FLA — Full Load Amps  
 KW — Compressor Power Input (kilowatts)

LRA — Locked Rotor Amps  
 MTR — Motor

ADJ LVG COND WTR TEMP (F)	TONS CS KW	ADJUSTED LVG CHILLED WATER TEMP (F)										
		38	39	40	41	42	43	44	45	46	47	48
90	TONS CS KW	198 273 170	198 273 167	198 273 165	198 273 161	198 273 154	198 273 152	198 273 150	198 271 147	198 271 144	198 271 142	198 271 140
91	TONS CS KW	198 275 178	198 275 174	198 275 165	198 273 163	198 273 160	198 273 154	198 273 151	198 271 149	198 271 146	198 271 144	198 271 142
92	TONS CS KW	198 275 180	198 275 176	198 275 173	198 273 165	198 273 163	198 273 156	198 273 153	198 271 150	198 271 148	198 271 145	198 271 143
93	TONS CS KW	198 277 190	198 277 178	198 275 175	198 273 167	198 273 165	198 273 162	198 273 154	198 271 152	198 271 150	198 271 147	198 271 145
94	TONS CS KW	198 277 192	198 277 188	198 275 179	198 273 174	198 273 166	198 273 164	198 273 161	198 271 159	198 271 151	198 271 149	198 271 147
95	TONS CS KW	189 257 183	198 277 190	198 277 187	198 275 177	198 275 168	198 275 165	198 275 163	198 273 160	198 273 158	198 273 155	198 273 148
96	TONS CS KW	189 257 185	194 257 188	198 257 191	198 255 179	198 255 176	198 255 167	198 255 165	198 253 162	198 253 160	198 253 157	198 253 155
97	TONS CS KW	184 257 180	194 257 190	198 257 193	198 255 181	198 255 178	198 255 175	198 255 172	198 253 164	198 253 161	198 253 159	198 253 156
98	TONS CS KW	166 237 166	189 257 183	194 257 188	198 257 192	198 255 180	198 255 177	198 255 174	198 255 171	198 255 169	198 255 161	198 255 158
99	TONS CS KW	156 237 156	166 237 163	194 257 191	194 257 187	198 257 190	198 255 179	198 255 176	198 255 173	198 255 170	198 255 168	198 255 166
100	TONS CS KW	156 237 158	166 237 166	170 237 170	175 237 174	198 257 192	198 257 189	198 257 186	198 255 186	198 255 175	198 255 172	198 255 167

CS — Compressor Size

KW — Kilowatt Input



## PHYSICAL DATA

WEIGHT (lb). . . . . Oper, 11,509; Rigging, 10,300  
 OUTSIDE TUBE SURF. (sq ft) . . Cooler, 989; Condenser, 1044  
 OPER CHARGE, R-11 (lb). . . . 575  
 AREA TO INSULATE (sq ft) . . . 130

MTR	MAX KW	VOLTS	208	230	460	575	2400	4160
C3	166	FLA per KW	3.05	2.76	1.38	1.10	262	151
		LRA Star	760	720	360	290	75	40
		LRA Delta	2370	2260	1130	900	240	130
C4	193	FLA per KW	3.05	2.76	1.38	1.10	265	150
		LRA Star	930	840	420	340	85	50
		LRA Delta	2910	2640	1320	1050	270	150

Note:  
 Overload trip amps = FLA x 1.11



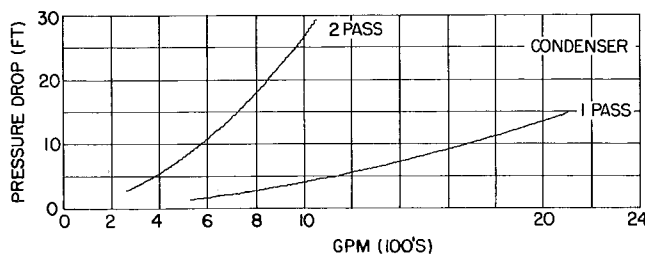
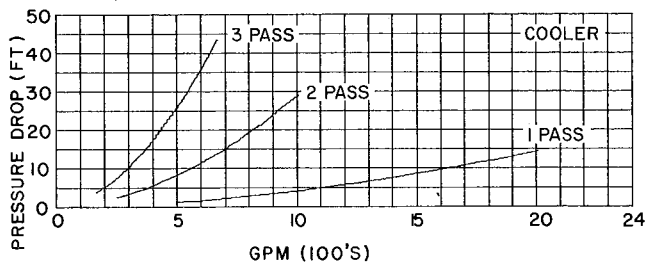


# PERFORMANCE DATA

# 19DG285

ADJ LVG COND WTR TEMP (F)		ADJUSTED LVG CHILLED WATER TEMP (F)										
		38	39	40	41	42	43	44	45	46	47	48
90	TONS	285	285	285	285	285	285	285	285	285	285	285
	CS	353	353	353	353	351	351	351	351	351	351	351
91	TONS	285	285	285	285	285	285	285	285	285	285	285
	CS	353	353	353	353	353	353	351	351	351	351	351
92	TONS	285	285	285	285	285	285	285	285	285	285	285
	CS	355	355	353	353	353	353	353	353	351	351	351
93	TONS	285	285	285	285	285	285	285	285	285	285	285
	CS	355	355	355	355	353	353	353	353	353	353	351
94	TONS	285	285	285	285	285	285	285	285	285	285	285
	CS	355	355	355	355	355	353	353	353	353	353	353
95	TONS	285	285	285	285	285	285	285	285	285	285	285
	CS	357	357	355	355	355	355	355	355	353	353	353
96	TONS	285	285	285	285	285	285	285	285	285	285	285
	CS	357	357	357	357	355	355	355	355	355	355	353
97	TONS	264	285	285	285	285	285	285	285	285	285	285
	CS	337	357	357	357	357	355	353	333	331	355	355
98	TONS	258	271	278	285	285	285	285	285	285	285	285
	CS	337	337	337	357	357	357	335	333	333	331	331
99	TONS	258	264	271	285	285	285	285	285	285	285	285
	CS	337	337	337	337	337	357	335	333	333	333	331
100	TONS	251	258	271	278	285	285	285	285	285	285	285
	CS	337	337	337	337	335	335	335	333	333	333	331
KW		257	261	276	281	287	267	259	244	241	229	

CS - Compressor Size KW - Kilowatt Input



## PHYSICAL DATA

WEIGHT (lb). . . . . Oper, 15,746; Rigging, 13,950  
 OUTSIDE TUBE SURF. (sq ft) . . . Cooler, 1417; Condenser, 1484  
 OPER CHARGE, R-11 (lb). . . . . 760  
 AREA TO INSULATE (sq ft) . . . . . 213

## ELECTRICAL DATA

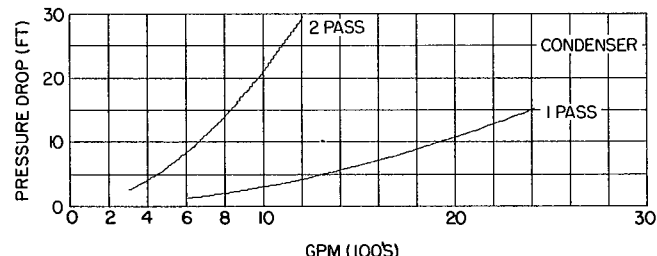
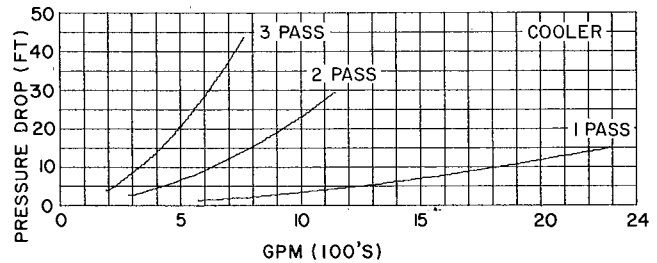
MTR	MAX KW	VOLTS	208	230	460	575	2400	4160
C5	212	FLA per KW	3.05	2.76	1.38	1.10	265	151
		LRA Star	1000	910	450	360	95	50
		LRA Delta	3140	2840	1420	1130	290	160
C6	234	FLA per KW	3.06	2.76	1.38	1.10	264	152
		LRA Star	1130	1020	510	410	105	60
		LRA Delta	3530	3190	1590	1280	335	180
C7	258	FLA per KW	3.05	2.76	1.38	1.10	263	150
		LRA Star	1240	1120	560	450	115	70
		LRA Delta	3890	3510	1760	1410	365	200

# PERFORMANCE DATA

# 19DG325

ADJ LVG COND WTR TEMP (F)		ADJUSTED LVG CHILLED WATER TEMP (F)										
		38	39	40	41	42	43	44	45	46	47	48
90	TONS	325	325	325	325	325	325	325	325	325	325	325
	CS	373	373	371	371	371	371	371	371	371	371	351
91	TONS	325	325	325	325	325	325	325	325	325	325	325
	CS	373	373	371	371	371	371	371	371	371	371	351
92	TONS	325	325	325	325	325	325	325	325	325	325	325
	CS	373	373	371	371	371	371	371	371	371	371	351
93	TONS	325	325	325	325	325	325	325	325	325	325	325
	CS	375	373	373	373	373	351	371	371	351	351	351
94	TONS	325	325	325	325	325	325	325	325	325	325	325
	CS	375	373	373	373	373	351	351	351	351	351	351
95	TONS	325	325	325	325	325	325	325	325	325	325	325
	CS	375	375	375	375	373	373	351	351	351	351	351
96	TONS	309	325	325	325	325	325	325	325	325	325	325
	CS	377	375	375	375	375	353	353	351	351	351	351
97	TONS	309	325	325	325	325	325	325	325	325	325	325
	CS	377	375	375	375	375	353	353	353	351	351	351
98	TONS	302	309	317	325	325	325	325	325	325	325	325
	CS	357	357	377	355	375	353	353	353	353	353	351
99	TONS	302	309	317	317	325	325	325	325	325	325	325
	CS	357	357	377	355	355	353	353	353	353	353	353
100	TONS	264	309	309	317	317	325	325	325	325	325	325
	CS	337	357	357	355	355	355	355	353	353	353	353
KW		270	312	305	297	292	296	291	276	271	267	263

CS - Compressor Size KW - Kilowatt Input



## PHYSICAL DATA

WEIGHT (lb). . . . . Oper, 16,114; Rigging, 14,200  
 OUTSIDE TUBE SURF. (sq ft) . . . Cooler, 1618; Condenser, 1698  
 OPER CHARGE, R-11 (lb). . . . . 800  
 AREA TO INSULATE (sq ft) . . . . . 213

MTR	MAX KW	VOLTS	208	230	460	575	2400	4160
C8	285	FLA per KW	3.05	2.76	1.38	1.10	264	149
		LRA Star	1380	1250	620	500	135	70
		LRA Delta	4300	3890	1950	1560	410	230
C9	313	FLA per KW	3.05	2.76	1.38	1.10	264	152
		LRA Star	1480	1340	670	540	135	80
		LRA Delta	4640	4190	2100	1680	440	240



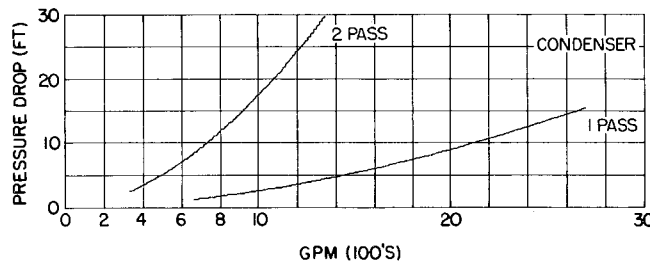
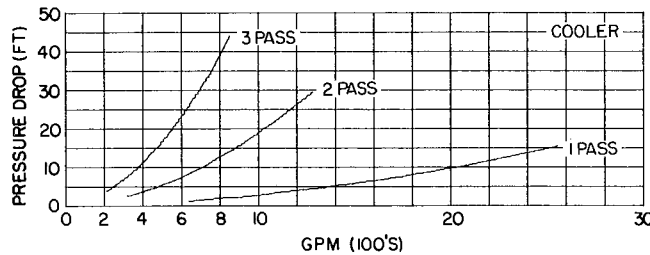
# PERFORMANCE DATA

# 19DG365

ADJ LVG COND WTR TEMP (F)		ADJUSTED LVG CHILLED WATER TEMP (F)										
		38	39	40	41	42	43	44	45	46	47	48
90	TONS	336	345	353	362	362	362	362	362	362	362	362
	CS	373	373	373	373	371	371	371	371	371	371	371
	KW	291	296	301	306	290	283	277	271	266	261	257
91	TONS	336	345	353	362	362	362	362	362	362	362	362
	CS	373	373	373	373	371	371	371	371	371	371	371
	KW	295	300	305	310	294	287	280	274	269	264	259
92	TONS	336	345	353	353	362	362	362	362	362	362	362
	CS	375	373	373	373	373	371	371	371	371	371	371
	KW	309	304	309	301	305	290	284	277	272	267	262
93	TONS	336	336	345	353	362	362	362	362	362	362	362
	CS	375	373	373	373	373	371	371	371	371	371	371
	KW	313	295	300	305	309	294	287	281	275	270	265
94	TONS	328	336	345	353	362	362	362	362	362	362	362
	CS	375	373	373	373	373	371	371	371	371	371	371
	KW	303	299	304	309	313	299	291	285	278	273	268
95	TONS	328	336	336	353	353	362	362	362	362	362	362
	CS	375	375	373	373	373	373	371	371	371	371	371
	KW	307	312	295	313	305	309	295	288	282	276	271
96	TONS	328	328	336	345	353	353	362	362	362	362	362
	CS	375	375	373	373	373	373	371	371	351	371	371
	KW	311	303	300	304	309	302	299	292	285	280	274
97	TONS	319	328	336	345	353	353	362	362	362	362	362
	CS	375	375	375	373	373	373	373	371	371	371	371
	KW	302	307	312	309	313	305	310	296	289	283	278
98	TONS	311	328	328	336	345	353	353	362	362	362	362
	CS	377	375	375	375	373	373	373	371	371	351	371
	KW	305	311	304	309	305	312	303	300	293	287	281
99	TONS	311	311	328	336	336	345	353	362	362	362	362
	CS	377	377	375	375	375	373	373	373	371	371	371
	KW	309	303	308	313	306	302	307	311	297	291	285
100	TONS	302	311	319	319	336	336	353	353	362	362	362
	CS	357	357	377	355	375	375	373	373	373	373	351
	KW	302	308	312	295	310	304	311	304	308	302	289

CS — Compressor Size

KW — Kilowatt Input



The 19DG unit conforms with ARI standa

## PHYSICAL DATA

WEIGHT (lb). . . . . Oper, 18,223, Rigging, 16,100  
 OUTSIDE TUBE SURF. (sq ft) . . Cooler, 1806, Condenser, 1907  
 OPER CHARGE, R-11 (lb). . . . 935  
 AREA TO INSULATE (sq ft) . . . 218

## ELECTR

MTR	MAX KW	VOLTS	208	230	460	575	2400	4160
C7	258	FLA per KW	3.05	2.76	1.38	1.10	263	150
		LRA Star	1240	1120	560	450	115	70
		LRA Delta	3890	3510	1760	1410	365	200
C8	285	FLA per KW	3.05	2.76	1.38	1.10	264	149
		LRA Star	1380	1250	620	500	135	70
		LRA Delta	4300	3890	1950	1560	410	230
C9	313	FLA per KW	3.05	2.76	1.38	1.10	264	152
		LRA Star	1480	1340	670	540	135	80
		LRA Delta	4640	4190	2100	1680	440	240

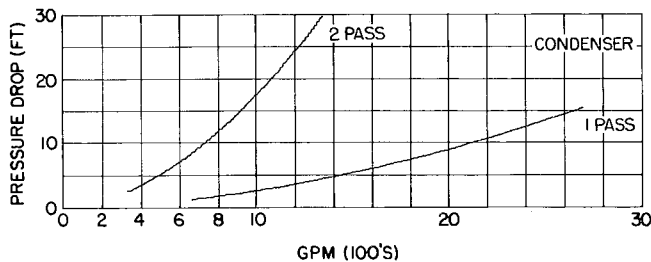
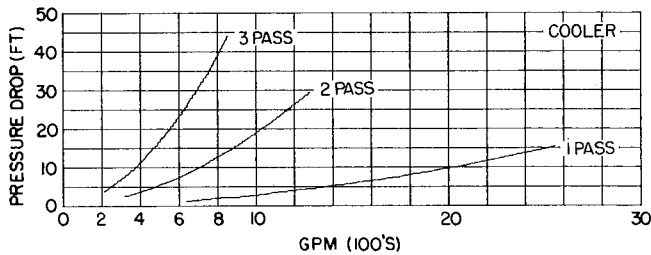
# PERFORMANCE DATA

## 19DG365

ADJ LVG COND WTR TEMP (F)		ADJUSTED LVG CHILLED WATER TEMP (F)										
		38	39	40	41	42	43	44	45	46	47	48
90	TONS	336	345	353	362	362	362	362	362	362	362	362
	CS	373	373	373	373	371	371	371	371	371	371	371
	KW	291	296	301	306	290	283	277	271	266	261	257
91	TONS	336	345	353	362	362	362	362	362	362	362	362
	CS	373	373	373	373	371	371	371	371	371	371	371
	KW	295	300	305	310	294	287	280	274	269	264	259
92	TONS	336	345	353	362	362	362	362	362	362	362	362
	CS	375	373	373	373	373	371	371	371	371	371	371
	KW	309	304	309	301	305	290	284	277	272	267	262
93	TONS	336	336	345	353	362	362	362	362	362	362	362
	CS	375	373	373	373	373	371	371	371	371	371	371
	KW	313	295	300	305	309	294	287	281	275	270	265
94	TONS	328	336	345	353	362	362	362	362	362	362	362
	CS	375	373	373	373	373	371	371	371	371	371	371
	KW	303	299	304	309	313	299	291	285	278	273	268
95	TONS	328	336	336	353	353	362	362	362	362	362	362
	CS	375	375	373	373	373	373	371	371	371	371	371
	KW	307	312	295	313	305	309	295	288	282	276	271
96	TONS	328	328	336	345	353	353	362	362	362	362	362
	CS	375	375	373	373	373	373	371	371	351	371	371
	KW	311	303	300	304	309	302	299	292	285	280	274
97	TONS	319	328	336	345	353	353	362	362	362	362	362
	CS	375	375	375	373	373	373	373	371	371	371	371
	KW	302	307	312	309	313	305	310	296	289	283	278
98	TONS	311	328	328	336	345	353	353	362	362	362	362
	CS	377	375	375	375	373	373	373	371	371	351	371
	KW	305	311	304	309	305	310	303	300	293	287	281
99	TONS	311	311	328	336	336	345	353	362	362	362	362
	CS	377	377	375	375	375	373	373	373	371	371	371
	KW	309	303	308	313	306	302	307	311	297	291	285
100	TONS	302	311	319	319	336	336	353	353	362	362	362
	CS	357	357	377	355	375	375	373	373	373	373	351
	KW	302	308	312	295	310	304	311	304	308	302	289

CS — Compressor Size

KW — Kilowatt Input



The 19DG unit conforms with ARI standard 550-66 for centrifugal water chilling packages

## PHYSICAL DATA

WEIGHT (lb). . . . . Oper, 18,223; Rigging, 16,100  
 OUTSIDE TUBE SURF. (sq ft) . . . Cooler, 1806; Condenser, 1907  
 OPER CHARGE, R-11 (lb). . . . 935  
 AREA TO INSULATE (sq ft) . . . 218

## ELECTRICAL DATA

MTR	MAX KW	VOLTS	208	230	460	575	2400	4160
C7	258	FLA per KW	3.05	2.76	1.38	1.10	263	150
		LRA Star	1240	1120	560	450	115	70
		LRA Delta	3890	3510	1760	1410	365	200
C8	285	FLA per KW	3.05	2.76	1.38	1.10	264	149
		LRA Star	1380	1250	620	500	135	70
		LRA Delta	4300	3890	1950	1560	410	230
C9	313	FLA per KW	3.05	2.76	1.38	1.10	264	152
		LRA Star	1480	1340	670	540	135	80
		LRA Delta	4640	4190	2100	1680	440	240

FLA — Full Load Amps

KW — Compressor Power Input (kilowatts)

LRA — Locked Rotor Amps

MTR — Motor

Note Overload trip amps = FLA x 1.11

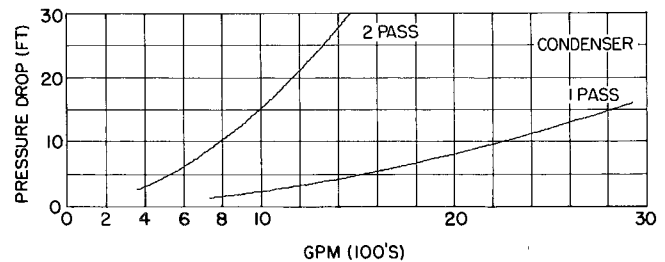
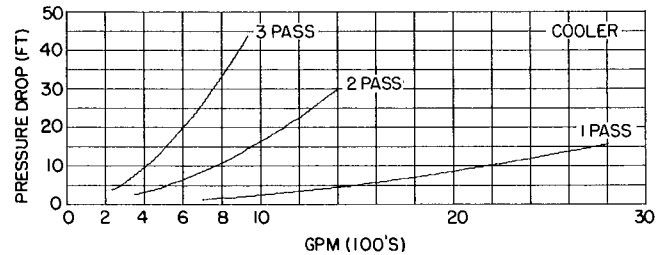
# PERFORMANCE DATA

## 19DG400

ADJ LVG COND WTR TEMP (F)		ADJUSTED LVG CHILLED WATER TEMP (F)										
		38	39	40	41	42	43	44	45	46	47	48
90	TONS	341	350	360	369	369	378	388	397	397	397	397
	CS	373	373	373	373	371	371	371	371	371	371	371
	KW	293	299	305	311	295	300	305	310	302	295	289
91	TONS	341	350	360	360	369	378	388	388	397	397	397
	CS	373	373	373	373	371	371	371	371	371	371	371
	KW	297	303	309	301	299	304	308	301	306	299	292
92	TONS	341	350	360	360	369	369	378	388	397	397	397
	CS	373	373	373	373	371	371	371	371	371	371	371
	KW	301	307	313	305	311	295	300	305	309	302	295
93	TONS	332	341	350	360	360	369	378	388	397	397	397
	CS	373	373	373	373	371	371	371	371	371	371	371
	KW	290	296	303	308	294	299	304	308	313	306	299
94	TONS	332	341	350	360	360	369	378	388	388	397	397
	CS	373	373	373	373	371	371	371	371	371	371	371
	KW	294	300	307	312	305	303	308	313	305	309	302
95	TONS	332	332	350	350	360	360	369	378	388	388	397
	CS	375	373	373	373	373	371	371	371	371	371	371
	KW	307	291	311	303	308	294	299	304	309	301	306
96	TONS	332	332	341	350	360	360	369	378	388	388	397
	CS	375	373	373	373	373	373	371	371	371	371	371
	KW	311	295	301	307	313	305	303	308	313	305	310
97	TONS	322	332	332	350	350	360	360	378	378	388	388
	CS	375	375	373	373	373	373	373	371	371	371	371
	KW	301	307	292	311	303	309	295	312	304	309	302
98	TONS	322	332	332	341	350	360	360	369	378	378	388
	CS	375	375	375	373	373	373	373	371	371	371	371
	KW	305	311	304	302	307	313	299	304	309	301	306
99	TONS	313	322	332	341	350	350	360	360	378	378	388
	CS	377	375	375	373	373	373	373	371	371	371	371
	KW	307	302	308	306	312	304	310	296	313	306	310
100	TONS	313	313	332	332	341	350	350	360	369	378	378
	CS	377	377	375	375	375	373	373	373	371	371	371
	KW	311	305	312	305	312	308	302	307	305	310	303

CS — Compressor Size

KW — Kilowatt Input



## SELECTION PROCEDURE (With Example)

### I Determine design conditions:

Required capacity . . . . . 264 tons  
 Leaving chilled water temperature (LCWT) . . . . . 42 F  
 Leaving condenser water temperature (LWT) . . . . . 97.5 F  
 Chilled water temperature rise . . . . . 5 F  
 Condenser water temperature rise . . . . . 10 F  
 Water quantity (cooler/condenser) . . . . . 1269 gpm/765 gpm  
 Fouling factor (cooler/condenser) . . . . . 0005/.001  
 Pressure drop limits (cooler/condenser) . . . . . 10 ft/18 ft

### II Adjust leaving water temperatures for fouling factor:

For each .0005 fouling condition above first .0005

Cooler — subtract 2.0 F from LCWT

Condenser — add 2.5 F to LWT

42 F — 0° F = 42 F (adj LCWT)

97.5 F + 2.5 F = 100 F (adj LWT)

### III Make preliminary selection of unit with nominal capacity equal to or higher than required capacity

Enter Performance Data table and find that:

19DG285 with an adjusted LCWT of 42 F and an adjusted cond LWT of 100 F has a rated capacity of 285 tons

### IV Determine number of passes for cooler and condenser in this selected unit:

Enter cooler and condenser pressure drop curves and find that at 1269 gpm (cooler), 1 pass will satisfy pressure drop requirements, and at 765 gpm (condenser), 2 passes are satisfactory

### V Readjust leaving water temperature for number of passes selected and for temperature rise

Enter Pass-Rise Temperature Adjustment table at 5 F rise and 1 pass (cooler) and find:

42 F (LCWT) — 2 F = 40 F final adjusted LCWT

Repeating for condenser (10 F rise and 2 passes)

100 F (LWT) + 0° F = 100 F final adjusted LWT

### VI Make final unit selection and determine compressor size and power input (kw)

Reenter Performance Data table for 19DG285 with 40 F final adjusted LCWT and 100 F final adjusted cond LWT and find final unit capacity is 271 tons; compressor size is 337; power input is 276 kw

If the selected capacity is less than the required capacity, select the next larger unit and repeat steps III thru VI.

### VII Power input corrections — Should the selected capacity be greater than the required capacity, the required power input (kw) may be estimated thus

$$276 \text{ rated kw} \times \frac{264 \text{ tons required capacity}}{271 \text{ tons selected capacity}} = 269 \text{ kw}$$

Actual kw input may vary slightly from the estimated value. For exact kw requirement, contact your local Carrier representative.

### VIII Select motor whose maximum kw equals or exceeds the required power input (kw)

Required power input (kw) — 269

Max kw of C8 motor — 285

C8 motor is satisfactory

## SELECTION FORMULAS

- 1 Lvg chilled water temp = entering temp minus temp drop
- 2 Lvg cond water temp = entering temp plus temp rise
- 3 Cooler water flow rate (gpm) =  $\frac{\text{cooling load (tons)} \times 24}{\text{temp drop}}$
- 4 Cond water flow rate (gpm) =  $\frac{\text{cooling load (tons)} \times 29}{\text{temp rise}}$

## PASS-RISE TEMPERATURE ADJUSTMENT (F)

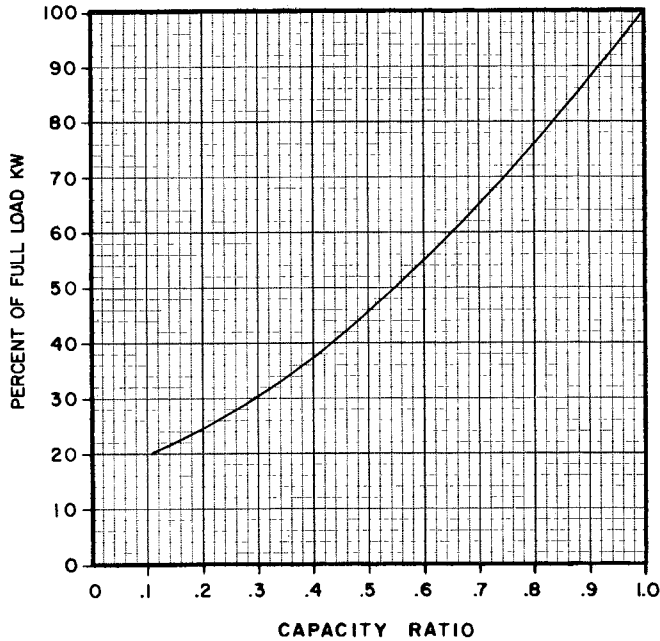
WATER TEMP RISE	COOLER			CONDENSER	
	1 Pass	2 Pass	3 Pass	1 Pass	2 Pass
5	-2.0	0	+1.5	+2.0	0
6	-2.5	0	+1.5	+2.5	0
8	-3.5	0	+1.5	+3.0	0
10	-4.0	0	+1.5	+3.0	0
12	-5.0	0	+2.0	+4.0	0
14	-5.5	0	+2.0	+4.5	0
15	-6.0	0	+2.0	+4.5	0
20	—	-5	+2.0	+5.5	0
25	—	-10	+2.0	+6.0	0

NOTE: Add to (+) or subtract from (-) design leaving water temp before entering Performance Data table

## ELECTRICAL DATA

### PARTIAL LOAD POWER REQUIREMENT

When unit is to operate at partial load due to cooling requirement less than design capacity, power requirement can be estimated from partial load power requirement curve and formula below.



$$\text{Capacity ratio} = \frac{\text{partial load (tons)}}{\text{design capacity}}$$

$$\text{Actual kw input} = \text{design kw input} \times \frac{\text{percent of full load kw}}{100}$$

Design capacity is the capacity for which machine is selected (100 percent load).

### OIL PUMP ELECTRICAL DATA

(3-Phase/60-Hz)

VOLTS	208	220	440	480	550	600
FLA	1 66	1 66	83	85	64	64
LRA	11 6	12.3	6 22	6 77	4 9	4 73

FLA — Full Load Amps

LRA — Locked Rotor Amps

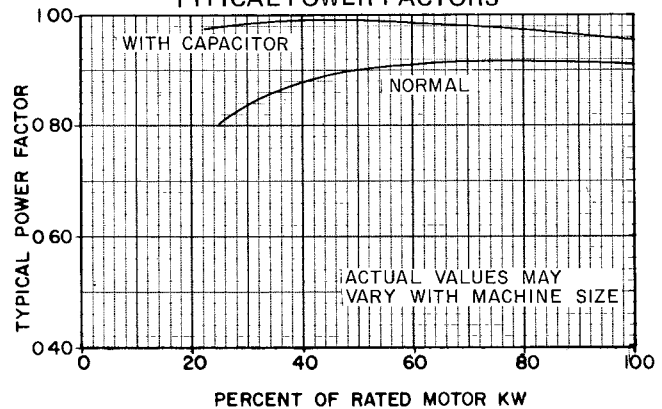
### COMPRESSOR MOTOR CONTROLLERS

Compressor motor controllers operate from 19DG control circuit and require special interlocks. Consult local representative before selecting controller.

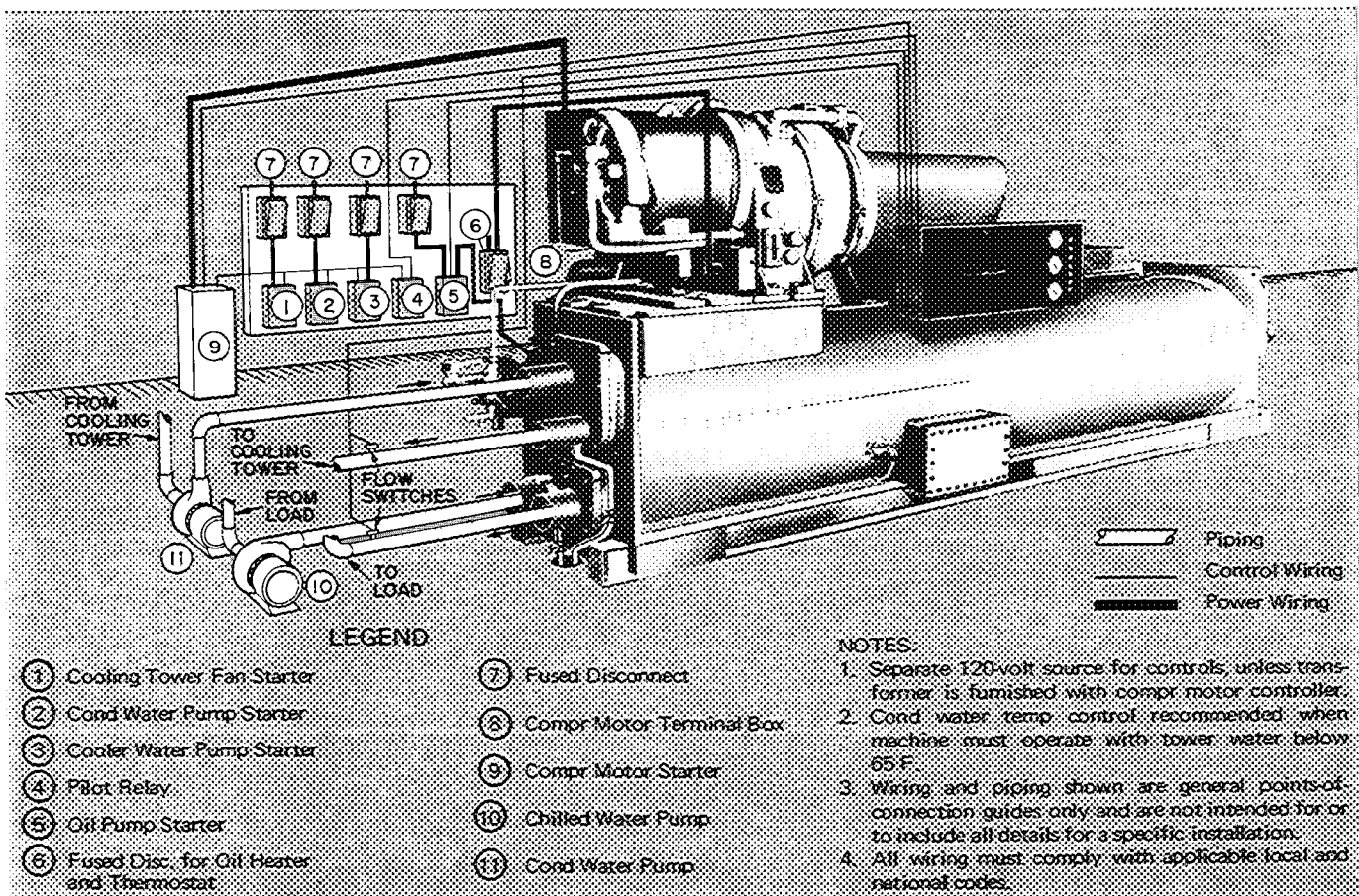
### CAPACITORS

Power factor considerations may indicate use of capacitors. Properly sized capacitors will improve power factors (see Typical Power Factors curves) and may permit use of a smaller compressor motor controller. Before selecting compressor motor controller, consult Carrier to determine capacitor size.

### TYPICAL POWER FACTORS



### TYPICAL PIPING AND WIRING



## CONTROLS

### CONTROL SYSTEM

Controls are solid state and electric. Compressor guide vane position controls capacity. Signal from chilled water probe is received by control module. Module in turn initiates response of guide vane operator. Decrease in chilled water temperature closes vanes, reducing compressor capacity. Rise in chilled water temperature opens vanes, increasing compressor capacity. Guide vanes remain closed until compressor start-up occurs, ensuring unloaded starting.

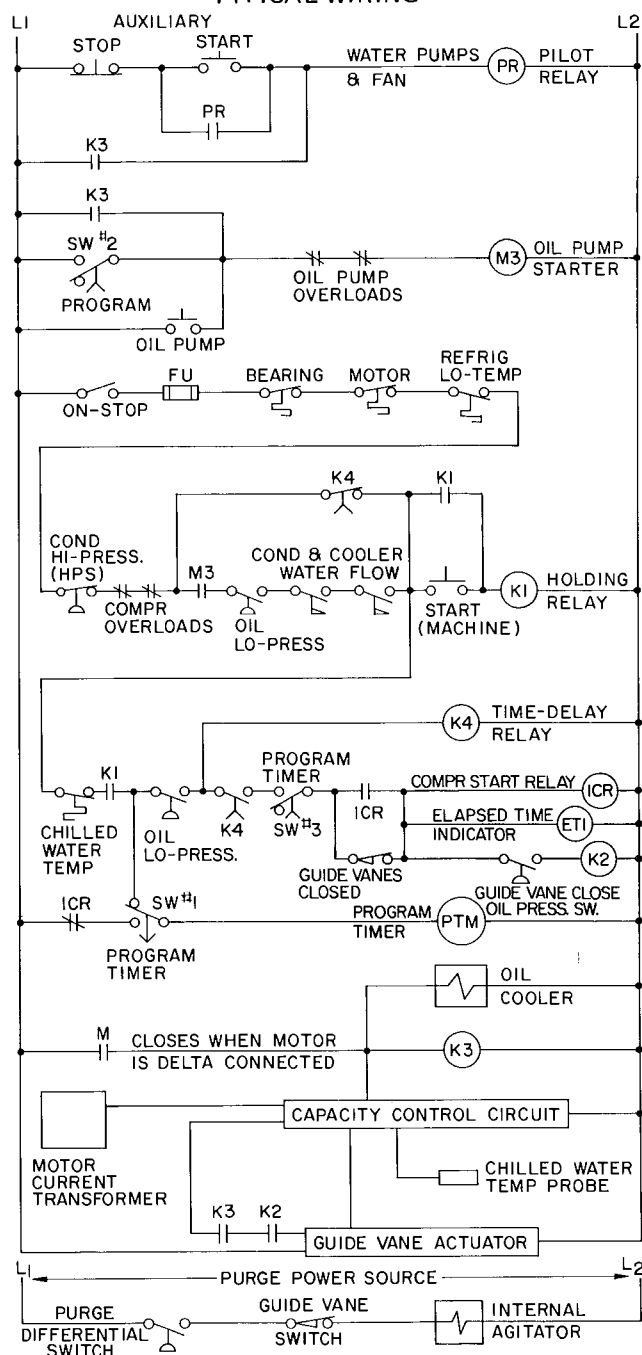
When units are used in multiples, each unit is controlled by its individual chilled water thermostat, and water flow may be a series or a parallel arrangement. Lag lead operation may be used.

### CONTROL SEQUENCE

Before starting machine, condenser and chilled water pumps and cooling tower fan must be started. Pilot relay is used as shown in schematic.

Pressing the ON-STOP switch energizes the temperature control circuits in the compressor motor safety circuit and permits machine

### TYPICAL WIRING



control circuit to be energized. If HPS and chilled water temperature switch are closed, the machine control circuit may be energized by pushing machine START button. The program timer then executes a series of timed steps (SW1, SW2 and SW3 consecutively) during which the oil pump and the compressor start. The compressor starts on star connections but, after coming up to speed, automatically changes to delta connected windings. Contact M now closes to energize relay K3. This ensures control circuit power to oil pump and water pump motors whenever compressor is operating. Energizing K3 also permits capacity control circuit to position compressor guide vanes (for capacity control) in response to leaving chilled water temperature. Program timer ensures a minimum of 14.5 minutes between compressor stop and restart.

The machine is stopped by pressing the ON-STOP switch. The auxiliary water pumps and fan are stopped by pushing STOP button.

### CONTROL COMPONENTS

**Condenser High-Pressure Cutout** (manual reset) — Shuts compressor off if condenser pressure reaches set point.

**Bearing High-Temperature Cutout** (manual reset) — Prevents compressor from starting or shuts compressor off if temperature reaches set point.

**Motor Winding High-Temperature Cutout** (manual reset) — Prevents compressor from starting or shuts compressor off if temperature reaches set point.

**Refrigerant Low-Temperature Cutout** (manual reset) — Shuts compressor off if refrigerant temperature drops below set point.

**Chilled Water Low-Temperature Switch** — Prevents compressor from starting if leaving chilled water temperature drops below set point. Automatically recycles compressor to start when leaving chilled water temperature rises above set point.

**Low-Oil Pressure Cutout** — Prevents compressor from starting until oil pressure reaches required level. Automatically stops compressor if oil pressure falls to set point.

**Vane Closed Switch** — Prevents compressor from starting unless guide vanes are closed. Ensures no load starting.

**Capacity Control Module (Solid State)** — Receives signal from temperature sensing element in leaving chilled water line and signals guide vane actuator to position guide vanes for proper capacity control. A motor load control receives signals from a current transformer in the compressor motor starter. This control overrides the chilled water temperature control to prevent compressor motor overload.

**Guide Vane Actuator** — Positions guide vanes in response to signal from capacity control circuit.

**Program Timer** — Sequences starting of oil pump and compressor motor and provides at least 14.5-minute delay between compressor stop and restart.

**Time Delay Relay** — Prevents compressor starting for at least 10 seconds after oil pressure has been established.

**Relay K3 (Capacity Control Circuit)** — Permits capacity control circuit to open guide vanes during compressor operation only. Prevents water pumps, cooling tower fan and oil pump from being shut down while compressor is running.

**Motor Start Relay (ICR)** — Energizes compressor motor controller at start-up and acts as holding relay for compressor motor. When compressor shuts down, normally closed relay contacts energize program timer which then completes the timer cycle.

**Elapsed Time Indicator** — Indicates actual machine running time in hours and tenths to 10,000 hours.

### CONTROL TRANSFORMER REQUIREMENTS

Transformers shall meet the requirements of NEMA Standard ST 1 (ASA C89) for general purpose transformers.

**Control Circuit:** 500 va

**Oil Heater:** 1000 va; separate source from control circuit

**Purge System:** 2695 va inrush, 520 va sealed

## GUIDE SPECIFICATIONS

**Furnish and Install** \_\_\_\_\_ Carrier Model 19DG Hermetic Centrifugal Liquid Chilling Package(s), suitable for chilling \_\_\_\_\_ gpm water from \_\_\_\_\_ F to \_\_\_\_\_ F when supplied with \_\_\_\_\_ gpm condenser water at \_\_\_\_\_ F and \_\_\_\_\_ kw maximum power input. Electric power shall be supplied to the machine at \_\_\_\_\_ volts, 3-phase, 60-Hertz.

**Selection of the Machine(s)** shall be based on scale factors of \_\_\_\_\_ in the cooler and \_\_\_\_\_ in the condenser. Water pressure drop shall not exceed \_\_\_\_\_ ft in the cooler and \_\_\_\_\_ ft in the condenser.

**Full Load Operation** of the motor shall not exceed nameplate rating. Motor shall be built for connection to star-delta type (or \_\_\_\_\_ type) reduced voltage starters (under 600 v). High-voltage motors shall start across-the-line.

**Machine** shall consist of motor-compressor, cooler, condenser, and purge unit, with controls necessary for automatic machine operation mounted on each machine. Initial charges of refrigerant and lubricating oil shall be furnished.

**Compressor** shall be of high performance, single-stage design. Motor, transmission, and compressor shall be hermetically sealed into a common assembly and arranged for easy servicing. Babbitt lined journal bearings shall be pressure lubricated. The compressor motor shall be cooled by subcooled refrigerant in intimate contact with all internal motor components. Compressor transmission gears must be arranged for visual inspection without disassembly or removal of compressor casing or impeller. Motor stator shall be arranged for service with only minor compressor disassembly and without requiring the breaking of main refrigerant piping connections.

**Cooler and Condenser** shall be of unishell construction, provided with water boxes having drains and covers to permit tube cleaning. Suitable tappings shall be provided in the motor boxes and nozzles for control bulb and gages. Water boxes shall be designed for 150-lb maximum working pressure. Machine construction and safety devices shall conform with the most recent ASA B9.1 Code.

**Capacity Control** shall be automatic and accomplished by controlled rotation of airfoil-shaped guide vanes located in compressor suction. Capacity modulation shall be from 100 percent to 10 percent of full load under normal operating conditions.

**Controls** shall be solid state, fully automatic and shall be failsafe. Machine shall shut down for oil low pressure, condenser high pressure, chilled water low temperature, bearing high temperature, motor high temperature, and motor overload.

**Motor** shall be protected against drawing more than rated full load amperes.

**Demand Limiter Device** shall be provided so that maximum current may be set to any percentage between 40 percent and 100 percent of full load amperes.

**Program Timer** shall be incorporated into the control circuit to automatically sequence the following machine operations: Run oil pump so that machine is thoroughly lubricated before being allowed to start; start machine; run oil pump after machine stops to ensure lubrication during coastdown; and prevent machine from restarting until safe preset time has passed.

**Motor-Driven Elapsed Time Meter** shall be furnished to provide total machine operating hours.

**Magnetic Starter** of \_\_\_\_\_ type shall be furnished for each machine. The starter shall be in accordance with the standard starter specifications of the centrifugal manufacturer.

**Permanent Structural Steel Shipping Skids** shall be furnished with each machine to facilitate transfer of machine from transporting conveyance to jobsite and to provide most effective lifetime support for the machine.

**Operating and Service Instructions** in illustrated and bound form shall be furnished by the manufacturer.

**Electrical Contractor** shall furnish and install all electrical lines, disconnect switches, circuit breakers, and auxiliary starters. The main starter and the control wiring shall be installed according to the diagram furnished by the centrifugal refrigerating machine manufacturer.

**Piping Contractor** shall make water connections to the oil cooler, and such other water supply and drain connections as are required by the drawing.

**Machine Factory Finish** shall be durable alkyd enamel. Additional painting, if desired, and grouting shall be done by others.

Manufacturer reserves the right to change any product specifications without notice.

**CARRIER AIR CONDITIONING COMPANY • SYRACUSE, NEW YORK**

TriHealth-Bethesda Oak Hospital-Chiller  
tune up Mercantile Self Direct Prescriptive  
Application Documents Not Attached Due  
To Size But Available Upon Request.

- Maintenance agreement/records and Invoices
- McQuay Specifications

There are eight documents available that  
total 42.1MB and can be sent separately if  
requested.

**This foregoing document was electronically filed with the Public Utilities**

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**Case No(s). 13-1310-EL-EEC**

Summary: Application Application to Commit Energy

Efficiency/Peak Demand

Reduction Programs

(Mercantile Customers Only)- Tri Health Bethesda Chiller Tune Ups electronically filed by  
Carys Cochern on behalf of Duke Energy