AEP
AMERICAN ELECTRIC POWER

Legal Department

October 9, 2018

Chairman Asim Z. Haque
Public Utilities Commission of Ohio
180 East Broad Street
Columbus, OH 43215-3793

Re: **In the Matter of the Application of**	)	
Advance Auto Parts	)	
and Ohio Power Company	)	**Case No. 18-0894-EL-EEC**
for Approval of a Special Arrangement	)	
Agreement with a Mercantile Customer	)	

Tanner Wolffram
Legal Fellow
Regulatory Services
(614) 716-2914 (T)
(614) 716-2950 (F)
tswolffram@aep.com

Dear Chairman Haque,

Attached please find the Joint Application of Ohio Power Company (AEP Ohio) and the above-referenced mercantile customer for approval of a Special Arrangement of the commitment of energy efficiency/peak demand reduction (EE/PDR) resources toward compliance with the statutory benchmarks for 2018 (hereinafter "Joint Application").

Amended Substitute Senate Bill 221, codified at R.C. 4928.66, sets forth EE/PDR benchmarks that electric distribution utilities are required to meet or exceed. The statute allows utilities to include EE/PDR resources committed by mercantile customers for integration into the utilities' programs to be counted toward compliance with a utility's EE/PDR benchmarks. The statute also enables the Commission to approve special arrangements for mercantile customers that commit EE/PDR resources to be counted toward compliance with EE/PDR benchmarks.

The Commission's Order in Case No. 10-834-EL-EEC established a streamlined process to expedite review of these special arrangements by developing a sample application process for parties to follow for consideration of such programs implemented during the prior three calendar years. The attached Joint Application and affidavit conforms with AEP Ohio's version of the streamlined sample application. As requested by Commission Staff, any confidential information referenced in the Joint Application has been provided confidentially to Commission Staff for filing in Commission Docket 10-1599-EL-EEC and subject to the confidentially protections of R.C. 4901.16 and OAC 4901-1-24(E). AEP Ohio respectfully requests that the Commission treat the two cases as associated dockets and that any confidential information provided to Staff for filing in connection with the Joint Application be subject to the protective order requested in Docket 10-1599-EL-EEC.

Cordially,

/s/ Tanner Wolffram
Tanner Wolffram

Attachments

Ohio | Public Utilities Commission

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

Case No.: 18-0894-**EL-EEC**

Mercantile Customer: ADVANCE AUTO PARTS

Electric Utility: Ohio Power

Program Title or Description: AEP Ohio Business Incentives for Energy Efficiency: Self Direct Program

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

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

Complete a separate application for each customer program. Projects undertaken by a customer as a single program at a single location or at various locations within the same service territory should be submitted together as a single program filing, when possible. Check all boxes that are applicable to your program. For each box checked, be sure to complete all subparts of the question, and provide all requested additional information. Submittal of incomplete applications may result in a suspension of the automatic approval process or denial of the application. Any confidential or trade secret information may be submitted to Staff on disc or via email at ee-pdr@puc.state.oh.us.

Section 1: Company Information

Name: ADVANCE AUTO PARTS

Principal address: 301 Plainfield Rd Ste 310, Syracuse, Ny 13212

Address of facility for which this energy efficiency program applies: 1127 Mount Vernon Rd, Newark, Oh 43055-3032

Name and telephone number for responses to questions:

Leidos Engineering, Llc, Advance Auto Parts, (855) 926-7543

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

☐ The customer uses more than seven hundred thousand kilowatt hours per year at our facility. (Please attach documentation.)

See Confidential and Proprietary Attachment 4 – Calculation of Rider Exemption and UCT which provides the facility consumption for the last three years, benchmark kWh, and the last 12 months usage.

☒ The customer is part of a national account involving multiple facilities in one or more states. (Please attach documentation.) When checked, see Attachment 6 – Supporting Documentation for a listing of the customer's name and service addresses of other accounts in the AEP Ohio service territory.

Section 2: Application Information

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

☐ Individually, on our own.

☒ Jointly with our electric utility.

B) Our electric utility is: Ohio Power Company

The application to participate in the electric utility energy efficiency program is "Confidential and Proprietary Attachment 3 - Self Direct Program Project Completed Application."

C) The customer is offering to commit (choose which applies):

☐ Energy savings from our 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 demand reduction 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 (choose whichever applies):

☒ Early replacement of fully functioning equipment with new equipment. (Provide the date on which the customer replaced fully functioning equipment, 7/19/2017 and the date on which the customer would have replaced your equipment if you had not replaced it 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)).

The remaining life of the equipment varies and is not known with certainty. The future replacement date is unknown and has historically been at the end of equipment life. Replacement was completed early to achieve energy savings and to reduce future maintenance costs.

☐ 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 your energy efficiency program:

1) If you checked the box indicating that your 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:

Unit Quantity (watts) = Existing (watts x units) – Installed (watts x units)

kWh Reduction (Annual Savings) = Unit Quantity x (Deemed kWh/Unit)

Annual savings: 559 kWh

See Confidential and Proprietary Attachment 5 – Self Direct Program Project Calculation for annual energy savings calculations and 10-1599-EL-EEC for the work papers that provide all methodologies, protocols, and practices used in this application for prescriptive measures, as needed.

2) If you checked the box indicating that you 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 the less efficient new equipment that you rejected in favor of the more efficient new equipment.

3) If you checked the box indicating that your 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 you 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.

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):

- Choose one or more of the following 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?

The coincident peak-demand savings are permanent installations that reduce demand through energy efficiency and were installed on the date specified in Section 3 A above.

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

Unit Quantity (watts) = Existing (watts x units) - Installed (watts x units)

KW Demand Reduction = Unit Quantity (watts) x (Deemed KW/Unit (watts))

.1 kW

See Confidential and Proprietary Attachment 5 - Self Direct Program Project Calculation for peak demand reduction calculation, and 10-1599-EL-EEC for the work papers that provide all methodologies, protocols, and practices used in this application for prescriptive measures, as needed.

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 cost recovery mechanism implemented by the electric utility.

OR

☐ Commitment payment

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

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

☐ A cash rebate of $_____. (Rebate shall not exceed 50% project cost. Attach documentation showing the methodology used to determine the cash rebate value and calculations showing how this payment amount was determined.)

OR

☒ A cash rebate valued at no more than 50% of the total project cost, which is equal to $ 45.00. (Attach documentation and calculations showing how this payment amount was determined.)

See Confidential and Proprietary Attachment 5 – Self Direct Program Project Calculation for incentive calculations for this mercantile program.

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 an ongoing efficiency program that is practiced by our organization. (Attach documentation that establishes your organization's ongoing efficiency program. In order to continue the exemption beyond the initial 24 month period your organization 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: 3.84 (Skip to Subsection 2.)

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 utility's 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 $ 185.67

The utility's program costs were $ 3.36

The utility's incentive costs/rebate costs were $ 45.00.

Section 7: Additional Information

Please attach the following supporting documentation to this application:

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

  See Attachment 1 - Self Direct Project Overview and Commitment for a description of the project. See Attachment 6 – Supporting Documentation, for the specifications of the replacement equipment 10-1599-EL-EEC for the work papers that provide all methodologies, protocols, and practices used in this application for prescriptive measures, as needed. Due to the length of time since the equipment replacement, the make, model and year of the replaced equipment is not available.

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

  1) any confidentiality requirements associated with the agreement;

     See Attachment 2 – Self Direct Program Project Blank Application including Rules and Requirements. All confidentially requirements are pursuant to the Retrospective Projects/Rules and Requirements that are part of the signed application which is provided as Confidential and Proprietary Attachment 3 – Self Direct Program Project Completed Application.)

  2) a description of any consequences of noncompliance with the terms of the commitment;

     See Attachment 2 – Self Direct Program Project Blank Application including Rules and Requirements. All consequences of noncompliance are pursuant to the Retrospective Projects/Rules and Requirements that are part of the signed application which is provided as Confidential and Proprietary Attachment 3 – Self Direct Program Project Completed Application.

  3) a description of coordination requirements between the customer and the electric utility with regard to peak demand reduction;

     None required because the resources committed are permanent installations that reduce demand through increased efficiency during the Company's peak summer demand period generally defined as May through September and do not require specific coordination and communication to provide demand reduction capabilities to the Company.

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,

   See Attachment 2 – Self Direct Program Blank Application including Rules and Requirements granting such permission pursuant to the Retrospective Projects/Rules and Requirements that are part of the signed application which is provided as Confidential and Proprietary Attachment 3 – Self Direct Program Project Completed Application.

5) a commitment by you to provide an annual report on your energy savings and electric utility peak-demand reductions achieved.

   See Attachment 1 - Self Direct Project Overview and Commitment for the commitment to comply with any information and compliance reporting requirements imposed by rule or as part of the approval of this arrangement by the Public Utilities Commission of Ohio.

- 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.

  The Company applies the same methodologies, protocols, and practices to Self Direct Program retrospective projects that are screened and submitted for approval as it does to prospective projects submitted through its Prescriptive and Custom Programs. The Commission has not published a technical reference manual for use by the Company so deviations can not be identified. The project submitted is a prescriptive project and energy savings are determined as described in Confidential and Proprietary Attachment 5 - Self Direct Program Project Calculation, and 10-1599-EL-EEC for the work papers that provide all methodologies, protocols, and practices used in this application for prescriptive measures, as needed.

Ohio | Public Utilities Commission

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

Case No.: 18-0894-EL-EEC

State of Ohio :

Nigma Mustafa, Affiant, being duly sworn according to law, deposes and says that:

1. I am the duly authorized representative of:

   DNV GL Energy Services USA Inc. agent of Ohio Power

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.

Nigma Mustafa Engineer
Signature of Affiant & Title

Sworn and subscribed before me this 9th day of August, 2018 Month/Year

Linda M. Schmidt
Signature of official administering oath

LINDA M. SCHMIDT
Print Name and Title
Admin. Assistant

My commission expires on 7/31/2022

NOTARIAL SEAL STATE OF OHIO

LINDA M. SCHMIDT
Notary Public, State of Ohio
My Commission Expires 7-31-2022

AEP OHIO
A unit of American Electric Power

Self Direct Project Overview & Commitment

The Public Utility Commission of Ohio (PUCO) will soon review your application for participation in AEP Ohio's Energy Efficiency/Peak Demand Response program. Based on your submitted project, please select by initialing one of the two options below, sign and fax to 877-607-0740.

Customer Name	ADVANCE AUTO PARTS
Project Number	AEP-18-23196
Customer Premise Address	1127 MOUNT VERNON RD, NEWARK, OH 43055-3032
Customer Mailing Address	301 Plainfield Rd Ste 310, Syracuse, NY 13212
Date Received	4/27/2018
Project Installation Date	7/19/2017
Annual kWh Reduction	559
Total Project Cost	$348.64
Unadjusted Energy Efficiency Credit (EEC) Calculation	$60.00
Simple Payback (yrs)	9.8
Utility Cost Test (UCT) for EEC	3.84
Utility Cost Test (UCT) for Exemption	0.05

Please Choose One Option Below and Initial

Self Direct EEC: 75%	**$45.00**	[X]	**Initial:** DS CP
EE/PDR Rider Exemption	**5 Months (After PUCO Approval)**	[ ]	**Initial:**

Note: *This is a one time selection. By selecting EEC, the customer will receive payment in the amount stated above. Selection of EE/PDR rider exemption, will result in the customer not being eligible to participate in any other energy efficiency programs offered by AEP Ohio during the period of exemption. In addition, the term of EE/PDR rider exemption is subject to ongoing review for compliance and could be changed by the PUCO.*

If EEC has been selected, will the Energy Efficiency Funds selected help you move forward with other energy efficiency projects?

X YES ___ NO

Note: Exemptions for periods beyond 24 months are subject to look-back or true-up adjustments every year to ensure that the exemption accurately reflects the EEDR savings. Applicants must file for renewal for any exemption beyond 12 months.

Project Overview:

The Self Direct (Prescriptive and Custom) project that the above has completed and applied is as follows.
Installation of high efficiency AC unit

The documentation that was included with the application proved that the energy measures applied for were purchased and installed.

By signing this document, the Mercantile customer affirms its intention to commit and integrate the above listed energy efficiency resources into the utility's peak demand reduction, demand response, and energy efficiency programs. By signing, the Mercantile customer also agrees to serve as a joint applicant in any filings necessary to secure approval of this arrangement by the Public Utilities Commission of Ohio, and comply with any information and compliance reporting requirements imposed by rule or as part of that approval.

Ohio Power Company

By: Jo F. Will

Title: Manager

Date: 05/24/2018

ADVANCE AUTO PARTS

By: DocuSigned by: Christopher Piechocki

Title: Energy Analyst

Date: 5/23/2018 10:52:45 AM EDT

Application Guidelines

Final Applications must be submitted before November 16, 2018 in order to qualify for incentives identified in this application.

Step 1. Verify Eligibility

- Customer must have a valid AEP Ohio account.
- Equipment/measure must be installed at facilities served by the AEP Ohio account.
- Project must produce permanent reduction in electrical energy use (kWh).
- All installed equipment must meet or exceed the specifications in the application.
- Please see Efficient Products for Business, Process Efficiency and New Construction Terms and Conditions or Self-Direct Terms and Conditions for program rules and regulations.

Step 2. Complete Applicant Information

- All fields in customer and project information sections must be completed.
- Contractor information must be completed if project is not self-performed.

Step 3. Complete the Incentive Worksheet(s)

- Find and read specifications related to the project.
- Choose the incentive category on the worksheet based on installed equipment and specifications.
- Complete all fields (fixture description, operating hours, etc.) on the related worksheet.

Step 4. Sign Customer Agreement

- Read the Terms and Conditions before signing and submitting the application.
- Sign Pre-Approval Agreement and submit the application to reserve funds.
- Sign Final Application Agreement and submit the application after the project is completed to receive funds.
- Complete Third Party Payment Release Authorization ONLY if incentive payment is to be paid to an entity other than AEP Ohio customer listed on the Applicant Information page.

Step 5. Submit Pre-Approval Application[1]

(For Self-Direct applications, skip to Step 6)

- Submitting a Pre-Approval Application to determine qualification and reserve program funds for a project is strongly recommended.
- All process efficiency projects require pre-approval.
- Complete all fields in Pre-Approval Agreement.
- Pre-Approval Application must be submitted with:
  - Proposed scope of work (type and quantity of old and new equipment must be listed)
  - Specification sheets for all proposed equipment
  - W-9 form
- Submit application via email, fax or mail.
- An inspection may be required during application review; applicants requiring inspection will be contacted for scheduling.

Step 6. Submit Final Application

- Complete all fields for Final Application Agreement.
- Update the application if measures/equipment differs from pre-application.
- Final Application must be submitted with:
  - Dated and itemized material invoice
  - External labor invoice (if applicable)
  - If Pre-Approval Application was not submitted, include the documents listed on Step 5
- Submit application via email, fax or mail.
- An inspection may be required during application review; applicants requiring inspection will be contacted for scheduling.
- Self-Direct applications require additional steps. Please see the Self-Direct Terms and Conditions for details.

AEP Ohio Business Incentives Program
445 Hutchinson Avenue, Suite 300
Columbus, Ohio 43235
877-541-3048 | aepohiosolutions@clearesult.com
Visit our website at AEPohio.com/solutions

[1]A Pre-Approval Application is not a guarantee of an incentive; the actual incentive will be based on the energy savings and equipment installed as determined in the Final Application. Funds are reserved for 90 days, unless an applicant is granted an extension. The program team reserves the right to contact the customer before the reservation expiration date to ensure that the project is moving forward. If the project is not underway, the reservation may be cancelled. Reserved funds are not transferable to other projects, facilities and/or customers. A waiting list will be established when funds become fully subscribed.

Application Checklist

An AEP Company

Pre-Approval

- ☐ Completed Applicant Information
- ☐ Estimated Total Project Cost
- ☐ Estimated Completion Date
- ☐ Completed Incentives Requested Section of Application
- ☐ Applicable Incentive Worksheets Completed
- ☐ Completed and Signed Customer Agreement
- ☐ Equipment Specifications
- ☐ Proposed Scope of Work
- ☐ W-9 Form (Business Name Must Match Line 1 or 2 on the Form)

Final Application Only (Without Pre-Approval)

- ☐ Completed Applicant Information
- ☐ Completed Incentives Requested Section of Application
- ☐ Applicable Incentive Worksheets Completed
- ☐ Total Project Cost
- ☐ Completion date
- ☐ Completed and Signed Customer Agreement
- ☐ Completed Third-Party Payment Release Authorization (optional)
- ☐ Itemized Invoices
- ☐ Equipment Specifications
- ☐ Scope of Work
- ☐ W-9 Form (Business Name Must Match Line 1 or 2 on the Form)

Final Application (With Pre-Approval)

- ☐ Completed Applicant Information
- ☐ Assigned Project Number on Signature Page
- ☐ Total Project Cost
- ☐ Project Completion Date
- ☐ Completed and Signed Final Payment Agreement
- ☐ Completed Third-Party Payment Release Authorization (optional)
- ☐ Installed Equipment Specifications (if there were changes from pre)
- ☐ Itemized Invoices
- ☐ Updated Scope of Work (if there were changes from pre)
- ☐ Applicable Incentive Worksheets (if there were changes from pre)

Applicant Information

AEP Application Number AEP - _ _ - _ _ _ _ _

Application Type (Select One)

CUSTOMER INFORMATION

Business Name _____

Name as It Appears on Utility Bill _____

How many AEP Ohio Accounts are at the Project Site? _____

AEP Ohio Account Numbers for this Project[1] _____ _____ _____

Taxpayer ID _____ - _____ W-9 Tax Status (Select One)

MAILING ADDRESS - WHERE CHECK WILL BE SENT

Contact Name _____ Contact Title _____

Mailing Address _____ City _____ State OH Zip _____

Phone _____ Ext. _____ Contact Email _____

How Did You Hear About the Program? (Select One) AEP OH Energy Advisor _____

PROJECT INFORMATION

Project Name (if applicable) _____

☐ Check if mailing address and project site address are the same.

Project Site Address _____ City _____ State OH Zip _____

Building Type (Select One) Shift (Select One)

Annual Operating Hours _____ Building Area (sq. ft.) _____

Construction Type (Select One) Does the facility have a data center? (Select One)

[1]Please only enter the first eleven digits of the account number.

Applicant Information

CONTRACTOR INFORMATION

Company Name _____

Contact Name _____ Title of Contact _____

Mailing Address _____ City _____ State OH Zip _____

Phone _____ Ext. _____ Contact Email _____

PRIMARY CUSTOMER CONTACT INFORMATION

Contact Name _____ Title of Contact _____

Phone _____ Ext. _____ Contact Email _____

Who should we contact with questions about the application? ❒ Customer ❒ Contractor

Incentive Summary Table

INCENTIVE CATEGORY	TOTAL INCENTIVES
LIGHTING	
HVAC	
MOTORS & DRIVES	
COMPRESSED AIR	
REFRIGERATION/FOOD SERVICE	
AGRICULTURE	
MISCELLANEOUS	
PROCESS EFFICIENCY	
NC LIGHTING (SELF-DIRECT ONLY)	
TOTAL INCENTIVES	

AEP Application Number AEP - _ _ - _ _ _ _ _

Customer Agreement

An AEP Company

APPLICATION AGREEMENT

By signing this document, I agree to program requirements outlined in the measure specifications, Terms and Conditions for the applicable program and Final Application Agreement. As an eligible customer, I verify the information is correct and request consideration for participation under this program. Furthermore, I concur that I meet all eligibility criteria in order to receive payment under this program.

Link to Efficient Products for Business/Process Efficiency Terms and Conditions, and Final Application Agreement

Link to Self-Direct Terms and Conditions, and Final Application Agreement

☐ **Pre-Application** ☐ **Final-Application**

Project Completion Year (Select One) _____ **Self-Direct** _____

Project Completion Date _____ **Total Project Cost** _____

Total Requested Incentive[1] _____ **Total Self-Direct Requested Incentive**[2] _____

Print Name	**Date**	**AEP Ohio Customer Signature**
_____	_____	_____

PRINT APPLICATION

[1]Incentives have a threshold of 50% of the project cost and total incentives paid to a threshold of $25,000 and Bid4Efficiency above that.
[2]Self-Direct incentives are 75% of Total Requested Incentive, after 50% of the project cost threshold and tiering is applied.

Third Party Payment Release

An AEP Company

THIRD PARTY PAYMENT RELEASE AUTHORIZATION (NOT APPLICABLE TO SELF-DIRECT)

Complete this section ONLY if incentive payment is to be paid to an entity other than the AEP Ohio customer.

Make checks payable to: Company/Individual _____

Mailing Address _____ City_____ State OH Zip_____

Phone _____ Ext. _____

Taxpayer ID of 3rd Party _____ - _____ W-9 Tax Status _____

By signing this document, I authorize the payment of the incentive to the third party named above and understand that I will not receive the incentive payment from AEP Ohio. I also understand that my release of the payment to a third party does not exempt me from the program requirements outlined in the measure specifications, Terms and Conditions, and Final Application Agreement.

Print Name	**Date**	**AEP Ohio Customer Signature**
_____	_____	_____

AHRI CERTIFIED®
www.ahridirectory.org

Certificate of Product Ratings

AHRI Certified Reference Number : 8003461 Date : 04-16-2018 Model Status : Active

AHRI Type : HSP-A

Series : LANDMARK

Outdoor Unit Brand Name : LENNOX

Outdoor Unit Model Number (Condenser or Single Package) : KHB036S4***P

The manufacturer of this LENNOX product is responsible for the rating of this system combination.

Rated as follows in accordance with the latest edition of ANSI/AHRI 210/240 with Addenda 1 and 2, Performance Rating of Unitary Air-Conditioning & Air-Source Heat Pump Equipment and subject to rating accuracy by AHRI-sponsored, independent, third party testing:

Cooling Capacity (A2) - Single or High Stage (95F), btuh : 35000

SEER : 14.00

EER (A2) - Single or High Stage (95F) : 11.50

Heating Capacity (H12) - Single or High Stage (47F) : 36600

HSPF (Region IV) : 8.00

†"Active" Model Status are those that an AHRI Certification Program Participant is currently producing AND selling or offering for sale, OR new models that are being marketed but are not yet being produced. "Production Stopped" Model Status are those that an AHRI Certification Program Participant is no longer producing BUT is still selling or offering for sale.
Ratings that are accompanied by WAS indicate an involuntary re-rate. The new published rating is shown along with the previous (i.e. WAS) rating.

CERTIFICATE NO.: 131683862349490102

PACKAGED HEAT PUMP

KHB

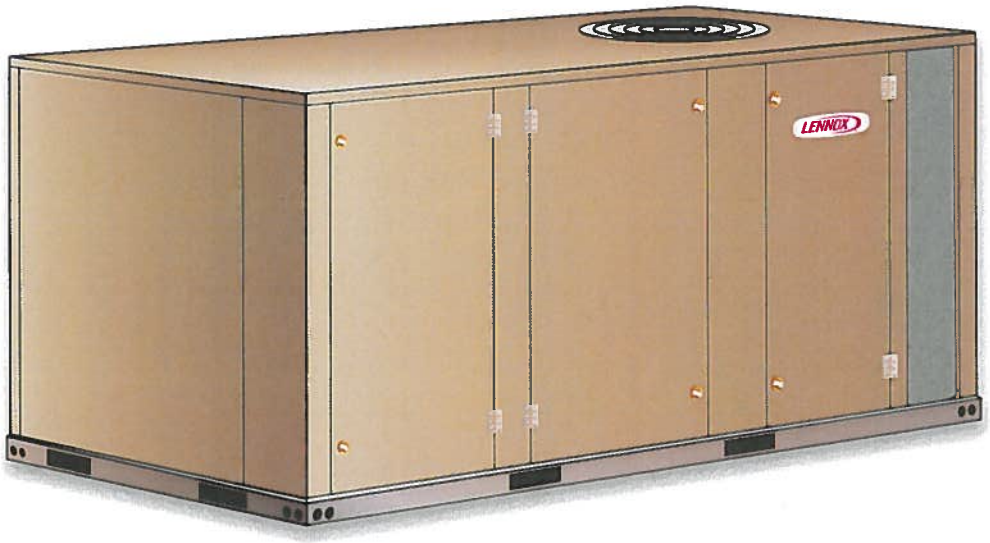
Landmark® Rooftop Units
Standard and High Efficiency - 60 HZ

Bulletin No. 210779
January 2018
Supersedes December 2017

PRODUCT SPECIFICATIONS

LANDMARK®

Performance Marked by Flexibility™



L Connection NETWORK

ASHRAE 90.1 COMPLIANT

2 to 6 Tons
Net Cooling Capacity – 23,000 to 68,000 Btuh
Net Heating Capacity – 25,000 to 70,000 Btuh
Optional Electric Heat – 5 to 30 kW

MODEL NUMBER IDENTIFICATION

K H B 060 S 4 B N 1 Y

Brand/Family
K = Landmark® Product Line

Unit Type
H = Packaged Heat Pump

Major Design Sequence
B = 2nd Generation

Nominal Cooling Capacity - Tons
024 = 2 Tons
030 = 2.5 Tons
036 = 3 Tons
048 = 4 Tons
060 = 5 Tons
074 = 6 Tons

Cooling Efficiency
H = High Efficiency
S = Standard Efficiency

Refrigerant Type
4 = R-410A

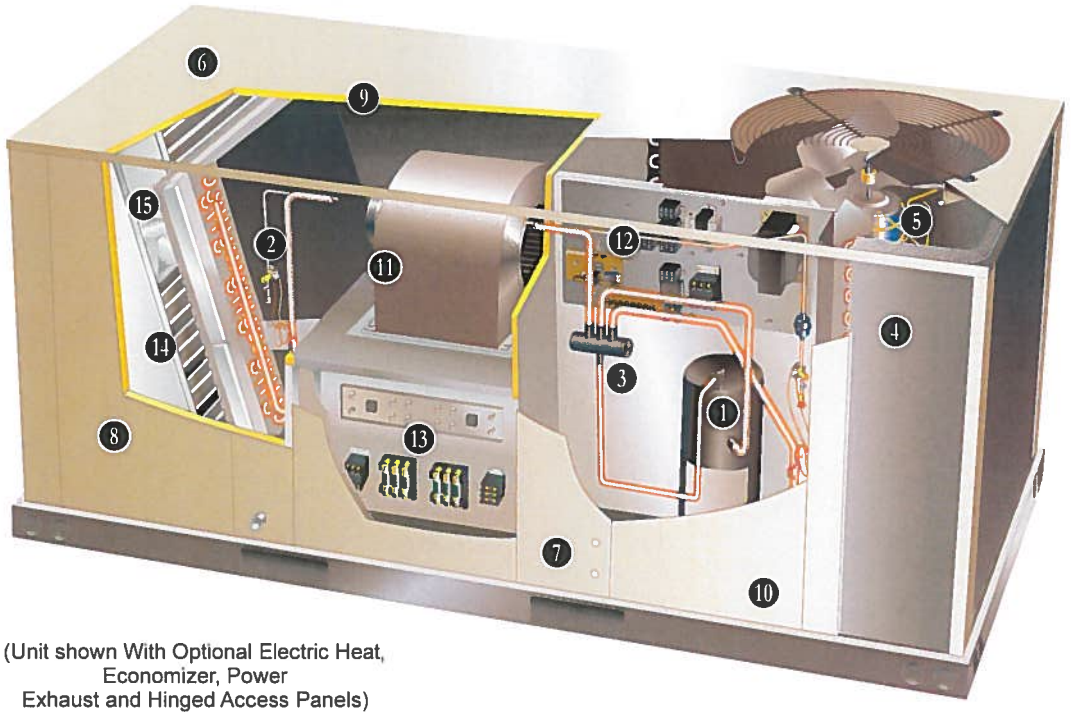
Blower Type
D = Direct Drive
E = Direct Drive (ECM)
B = Belt Drive
T = Belt Drive (2 Speed)

Factory Installed Electric Heat
N = No Heat

Minor Design Sequence
1 = 1st Revision
2 = 2nd Revision
3 = 3rd Revision

Voltage
P = 208/230V-1 phase-60hz
Y = 208/230V-3 phase-60hz
G = 460V-3 phase-60hz
J = 575V-3 phase-60hz

FEATURES AND BENEFITS



(Unit shown With Optional Electric Heat, Economizer, Power Exhaust and Hinged Access Panels)

Landmark® rooftop units from Lennox are the new standard for reliable, efficient rooftop units built for long-lasting performance that can significantly improve indoor environments. Landmark rooftop units feature:

- **R-410A Refrigerant** - Environmentally friendly.
- **Single Speed Scroll Compressor** - Furnished on all 024 through 060 standard efficiency models.
- **Two-Stage Scroll Compressor** - Furnished on all high efficiency models and 074 standard efficiency models. Allows rooftop units to deliver just the necessary amount of cooling needed to meet the space's demand.
- **High Pressure Switches** - Protect compressor.
- **Isolated Compressor Compartment** - Allows performance check during normal compressor operation without disrupting airflow.
- **Direct or Belt Drive Blower Motors** - Direct drive (024, 030, 036, 048 standard efficiency models and 024, 036, 048 and 060 high efficiency models). Belt drive (all 036, 048, 060 and 074 models) to maximize air performance.
- **Independent Motor Mounts** - Allows for easy and efficient service access without removing the top panel.
- **Downflow or Horizontal Airflow** - Easy field conversion.
- **Two Fork Lift Slots on Three Sides** - Easy to pick up and transport units from almost any angle.
- **Corrosion-Resistant Removable, Reversible Drain Pan** - Provides application flexibility, durability and improved serviceability.
- **Thermostatic Expansion Valves** - Provide peak cooling performance across the entire application range.
- **Common Components** - Many maintenance items are standard throughout the entire product line, reducing the need to carry different parts to the job or maintain in inventory.

FEATURES AND BENEFITS

CONTENTS

APPROVALS

AHRI Certified to AHRI Standard 210/240-2008 (2 thru 5 ton models) and AHRI Standard 340/360-2007 (6 ton models).

ETL listed.

CSA listed.

Components bonded for grounding to meet safety standards for servicing required by UL, ULC and National and Canadian Electrical Codes.

All models are ASHRAE 90.1 compliant

ISO 9001 Registered Manufacturing Quality System.

WARRANTY

Limited five years on compressors.

Limited five years Optional High Performance Economizers.

Limited one year all other covered components.

COOLING / HEATING SYSTEM

Designed to maximize sensible and latent cooling performance at design conditions.

System can operate from 30°F to 125°F without any additional controls.

R-410A Refrigerant
Non-chlorine, ozone friendly, R-410A.

Unit pre-charged with refrigerant. See Specification table.

1 Single Speed Scroll Compressor (024 through 060 Standard Efficiency Models)
Scroll compressors for high performance, reliability and quiet operation.

Resiliently mounted on rubber grommets for quiet operation.

Copeland Scroll Ultra Tech™ Two-Stage Compressor (All High Efficiency Models and 074 Standard Efficiency Models)
Two-stage scroll compressors for increased part load efficiency, high performance, reliability and quiet operation.

Resiliently mounted on rubber grommets for quiet operation.

Compressor Crankcase Heater
Protects against refrigerant migration that can occur during low ambient operation.

High Pressure Switch
Protects the compressor from overload conditions such as dirty condenser coils, blocked refrigerant flow, or loss of outdoor fan operation.

2 Check/Thermal Expansion Valves
Assures optimal performance throughout the application range.

Removable element head.

3 Reversing Valve
4-way interchange reversing valve effects a rapid change in direction of refrigerant flow resulting in quick changeover from cooling to heating and vice versa.

Defrost Control
Control furnished as standard.

Gives a demand defrost cycle whenever system heating performance falls below optimum levels. The sensing element on coil determines when defrost cycle is required and when to terminate cycle.

Anti-short cycle (5 minutes) incorporated into the board.

Diagnostic LED's furnished as an aid in troubleshooting.

Filter/Drier
High capacity filter/drier protects the system from dirt and moisture.

Freezestat
Protects the evaporator coil from damaging ice build-up due to conditions such as low/no air flow, or low refrigerant charge.

4 Coil Construction
Copper tube construction, enhanced rippled-edge aluminum fins, flared shoulder tubing connections, silver soldered construction for improved heat transfer. Factory leak tested.

Indoor Coil
Cross row circuiting with rifled copper tubing optimizes both sensible and latent cooling capacity.

FEATURES AND BENEFITS

COOLING / HEATING SYSTEM (continued)

Condensate Drain Pan
Plastic pan, sloped to meet drainage requirements of ASHRAE 62.1.

Side or bottom drain connections. Reversible to allow connection at back of unit.

5 Outdoor Coil Fan Motor
High efficiency models have a variable speed (ECM) fan motor for energy efficient and quiet operation.

Standard efficiency models have a single speed PSC fan motor.

Thermal overload protected, totally enclosed, permanently lubricated sleeve (standard) ball bearings (high), shaft up, wire basket mount.

Outdoor Coil Fan
PVC coated fan guard furnished.

Required Selections

Cooling Capacity
Specify nominal cooling capacity of the unit.

Options/Accessories

Field Installed

Condensate Drain Trap
Field installed only.

Available in copper or PVC.

Drain Pan Overflow Switch
Monitors condensate level in drain pan, shuts down unit if drain becomes clogged.

Low Ambient Kit
Designed for use in ambient temperatures no lower than 0°F. Cycles the outdoor fan while allowing compressor operation in the cooling cycle. Includes field installed pressure switch on the liquid line to determine when to operate the outdoor fan. This intermittent fan operation allows the system to operate without icing the evaporator coil and losing capacity.

Standard Efficiency Models - If the liquid line pressure drops below 240 psig outdoor fan stops until main pressure switch has reset to 450 psig to resume normal cooling operation.

High Efficiency Models - If the liquid line pressure drops below 240 psig outdoor fan operates at 25% normal fan speed. If pressure drops below 180 psig outdoor fan stops until pressure rises to 300 psig, then fan operates at 25% normal fan speed unless main pressure switch has reset to 450 psig to resume normal cooling operation and full fan speed operation.

CABINET

6 Construction
Heavy-gauge steel panels and full perimeter heavy-gauge galvanized steel base rail provides structural integrity for transportation, handling, and installation.

Base rails have rigging holes. Three sides of the base rail have fork slots.

Raised edges around duct and power entry openings in the bottom of the unit provide additional protection against water entering the building.

Airflow Choice
Units are shipped in downflow (vertical) configuration, can be field converted to horizontal air flow configuration without the need of a kit.

7 Power Entry
Electrical lines can be brought through the unit base or through horizontal access knock-outs.

8 Exterior Panels
Constructed of heavy-gauge, galvanized steel with a two-layer enamel paint finish.

9 Insulation
All panels adjacent to conditioned air are fully insulated with non-hygroscopic fiberglass insulation. Unit base is fully insulated. The insulation also serves as an air seal to the roof curb, eliminating the need to add a seal during installation.

Access Panels
Access panels are provided for the economizer/filter section, heating/blower section, and the compressor/controls section.

NOTE - All 048/060/074 models include a filler panel for proper cabinet fit for optional accessories (Economizers, Power Exhaust, Outdoor Air Dampers and Barometric Relief Dampers).

Options/Accessories

Factory Installed

Corrosion Protection
A completely flexible immersed coating with an electrodeposited dry film process (AST ElectroFin E-Coat). Meets Mil Spec MIL-P-53084, ASTM B117 Standard Method Salt Spray Testing.

Indoor Corrosion Protection:
- Coated coil
- Painted blower housing
- Painted base

Outdoor Corrosion Protection:
- Coated coil
- Painted base

10 Hinged Access Panels
Large access panels are hinged and have quarter-turn latches for quick and easy access to maintenance areas (economizer / filter, compressor / controls, heating / blower).

Field Installed

Combination Coil/Hail Guards
Heavy gauge steel frame painted to match cabinet with expanded metal mesh to protect the outdoor coil from damage.

FEATURES AND BENEFITS

⓫ BLOWER

A wide selection of supply air blower options are available to meet a variety of air flow requirements.

Motor
Overload protected, equipped with ball bearings (belt drive) or sleeve bearings (direct drive).

Direct drive multi-speed motors are offered on 024, 030, 036 and 048 standard efficiency models.

Variable-speed ECM direct drive motors are offered on 024, 036, 048 and 060 high efficiency models.

Single Speed belt drive motors are offered on 036, 048 and 060 standard efficiiency models in several different sizes to maximize air performance.

Two-speed belt drive motors (low static/high static) are available on 036, 048 and 060 high efficiency models and the 074 standard efficiency model in several different sizes to maximize air performance.

Supply Air Blower
Forward curved blades, blower wheel is statically and dynamically balanced.

All belt drive motors have adjustable pulley for speed change.

Required Selections

Ordering Information
Specify direct drive or belt drive blower motor. (See Blower Data Table for specifications)

For belt drive, specify motor horsepower and drive kit number when base unit is ordered. See Drive Kit Specifications Table.

CONTROLS

⓬ Unit Control
All control voltage is provided via a 24V (secondary) transformer with built-in circuit breaker protection.

Heat/Cool Staging - Capable of up to 2 heat / 2 cool staging with a third party DDC control system or thermostat.

Low Voltage Terminal Block - Provides screw terminal connections for thermostat or controller wiring.

Night Setback Mode - Saves energy by closing outdoor air dampers and operating supply fan on thermostat demand only.

Options/Accessories

Field Installed

L Connection® Network
Complete building automation control system for single or multi-zone applications. Options include local interface, software for local or remote communication, and hardware for networking other control functions. See L Connection Network Product Specifications Bulletin for details.

Smoke Detector
Photoelectric type, installed in supply air section, return air section or both sections. Available with power board and single sensor (supply or return) or power board and two sensors (supply and return). Power board located in unit control compartment.

Thermostats
Control system and thermostat options, see page 54.

Aftermarket unit controller options, see Options/Accessories table.

INDOOR AIR QUALITY

Air Filters
Disposable 2 inch filters furnished as standard.

Options/Accessories

Field Installed

Healthy Climate® High Efficiency Air Filters
Disposable MERV 8 or MERV 13 (Minimum Efficiency Reporting Value based on ASHRAE 52.2) efficiency 2 inch pleated filters.

Healthy Climate® UVC Germicidal Lamps

Helps eliminate mold and bacterial growth on the evaporator and drain pans. Improves indoor air quality and maintains efficiency of system by reducing fouling of evaporator coil.

Indoor Air Quality (CO_2) Sensor
Monitors CO_2 levels adjusts economizer dampers as needed for Demand Control Ventilation.

ELECTRICAL

Marked & Color-Coded Wiring
All electrical wiring is color-coded and marked to identify which components it is connecting.

Electrical Plugs
Positive connection electrical plugs are used to connect common accessories or maintenance parts for easy removal or installation.

Required Selections

Voltage Choice
Specify when ordering base unit.

Options/Accessories

Factory or Field Installed

Disconnect Switch up to 150 Amp
Accessible from outside of unit, spring loaded weatherproof cover furnished. Main power to the unit is field connected to the disconnect which allows all power to be shut off for service. See Electrical/ Electric Heat tables for ordering information, page 40.

GFI Service Outlets (2)
115V ground fault circuit interrupter (GFCI) type, non-powered, field-wired.

Field Installed

⓭ Electric Heat
Helix wound nichrome elements, individual element limit controls, wiring harness. Unit fuse block is furnished as standard. See Options / Accessories tables for ordering information.

GFI Weatherproof Cover
Single-gang cover.

Heavy-duty UV-resistant polycarbonate case construction.

Hinged base cover with gasket.

OPTIONS / ACCESSORIES

ECONOMIZER OPTIONS

Factory or Field Installed

14 Economizer
(Standard and High Performance Common Features)
Outdoor Air Hood is furnished.

Factory installed Economizer can be ordered with two exhaust options:

- Barometric Relief Dampers and Exhaust Hood.
- No Exhaust.

Field installed Economizer includes Barometric Relief Dampers with Exhaust Hood.

Barometric Relief Dampers allow relief of excess air, aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle, bird screen furnished.

Occupied/Unoccupied mode with field furnished setback thermostat.

Demand Control Ventilation (DCV) ready using optional CO_2 sensors.

Mixed Air Sensor is furnished for field installation in the rooftop unit. Sensor is factory installed when Economizers are factory installed.

Single sensible sensor is furnished with Economizer and enables economizer operation if the outdoor temperature is less than the setpoint of the control.

Horizontal Economizer Conversion kit is available for field installation.

Standard Economizer Features (Not for Title 24)
Gear-driven action, return air and outdoor air dampers, plug-in connections to unit, neoprene seals, 24-volt, fully-modulating spring return motor.

Standard Economizer Control Module
The Standard Economizer Control Module can be adjusted to operate based on outdoor air temperatures.

Economizer Controls:

- Damper Minimum Position - Can be set lower than traditional minimum air requirements resulting in cost savings.
- IAQ Sensor - Signals dampers to modulate and maintain 55°F when CO_2 is higher than the CO_2 setpoint.
- Demand Control Ventilation (DCV) LED - A steady green Demand Control Ventilation LED indicates the IAQ reading is higher than setpoint and requires more fresh air.
- Free Cool LED - A steady green LED indicates outdoor air is suitable for free cooling.

Free Cooling runs when outdoor air temperature is lower than the set temperature on the economizer control.

NOTE: The Free Cooling default setting for outdoor air temperature sensor is 55°F.

High Performance Economizer Features
Approved for California Title 24 building standards.

Low leakage dampers are Air Movement and Control Association International (AMCA) Class 1A Certified - Maximum 3 CFM per sq. ft. leakage at 1 in. w.g.

ASHRAE 90.1-2010 compliant.

Gear-driven action, high torque 24-volt fully-modulating spring return damper motor, return air and outdoor air dampers, plug-in connections to unit, nylon bearings, enhanced neoprene blade edge seals and flexible stainless steel jamb seals to minimize air leakage.

NOTE - High Performance Economizers are not approved for use with enthalpy controls in Title 24 applications.

High Performance Economizer Control Module
Module provides inputs and outputs to control economizer based on

parameter settings. Module automatically detects sensors by polling to determine which sensors are installed in system.

Module displays any alarm messages (fault detection and diagnostics) as an aid in troubleshooting.

Non-volatile memory retains parameter settings in case of power failure.

Keypad with four navigation buttons and LCD screen is furnished for setting economizer parameters.

- Menu Up/Exit ⓘ button returns to the main menu.
- Arrow Up ▲ button moves to the previous or next parameter within the selected menu.
- Arrow Down ▼ button moves to the next parameter within the selected menu.
- Select (enter) ↵ button confirms parameter selection.

Main Menu Structure:

- STATUS (economizer and system operation status)
- SETPOINTS (settings for various setpoint parameters)
- SYSTEM SETUP (settings/ information about the system)
- ADVANCED SETUP (freeze protection, CO2 settings, stage 3 delay and additional calibration settings)
- CHECKOUT (damper positions)
- ALARMS (output signal that can be configured for remote alarm monitoring)

NOTE - The Free Cooling setpoint for Title 24 applications must be set based on the Climate Zone where the system is installed. See Section 140.4 "Prescriptive Requirements for Space Conditioning Systems" of the California Energy Commission's 2013 Building Energy Efficiency Standards.

Refer to Installation Instructions for complete setup information and menu parameters available.

OPTIONS / ACCESSORIES

ECONOMIZER OPTIONS (continued)

Factory or Field Installed

Single Enthalpy Temperature Control (Not for Title 24)
Outdoor air enthalpy sensor enables Economizer if the outdoor enthalpy is less than the setpoint of the control.

Field Installed

Differential Enthalpy Control (Not for Title 24)
Order two Single Enthalpy Controls. One is field installed in the return air section, the other in the outdoor air section. Allows the economizer control board to select between outdoor air or return air, whichever has lower enthalpy.

Horizontal Economizer Conversion Kit
Insulated panel covers the bottom return air opening on the unit base to convert downflow Economizer to horizontal airflow.

EXHAUST OPTION

Field Installed

(15) Power Exhaust Fan
Installs internal to unit for downflow applications only with Economizer option. Provides exhaust air pressure relief. Interlocked to run when supply air blower is operating, fan runs when outdoor air dampers are 50% open (adjustable), motor is overload protected.

Fan is 16 in. diameter with 4 fan blades and a 1/3 hp motor.

NOTE - Not available for 024 and 030 models.

NOTE - If Power Exhaust is field installed with a factory installed Economizer, the Economizer must be ordered with the "No Exhaust" option and the Barometric Relief Dampers with Exhaust Hood must also be ordered separately for field installation.

OUTDOOR AIR OPTIONS

Factory or Field Installed

Outdoor Air Dampers - Downflow or Horizontal
Single blade damper, 0 to 25% (fixed) outdoor air adjustable, installs in unit.

Automatic model features fully modulating spring return damper motor with plug-in connection.

Manual model features a slide damper. Maximum mixed air temperature in cooling mode: 100°F.

Outdoor Air Hood is furnished.

ROOF CURBS

Hybrid Roof Curbs, Downflow
Nailer strip furnished, mates to unit, U.S. National Roofing Contractors Approved, shipped knocked down.

Roof curb can be assembled using interlocking tabs to fasten corners together. No tools required.

Curb can also be fastened together with furnished hardware.

Available in 8, 14, 18, and 24 inch heights.

Full Perimeter Curbs, Downflow (060H and 074 Models Only)
Hybrid roof curbs can be assembled using interlocking tabs to fasten corners together. No tools required.

Hybrid roof curbs can also be fastened together with furnished hardware.

Available in 8, 14, 18, and 24 inch heights.

NOTE - 060H and 074 models can be used on smaller 79-3/4 in. Hybrid Roof Curbs (not full perimeter) with 15-3/4 in. overhang at condenser end of unit. See dimension drawing on page 61.

Adjustable Pitch Curb
Fully adjustable pitch curb provides a level platform for rooftop units allowing flexible installations on roofs with uneven or sloped angles.

Maximum slope is 3/4 in. per foot in any direction.

Uses interlocking tabs to fasten corners together. No tools required.

Hardware is furnished to connect upper curb with lower curb.

Available in 14 inch height.

Adaptor Curbs (not shown)
Curbs are regionally sourced. Dimensions will vary based upon the source. Contact your local sales representative for a detailed cut sheet with applicable dimensions.

CEILING DIFFUSERS

Ceiling Diffusers (Flush and Step-Down)
Diffuser face and grilles with white powder coat finish, insulated (UL listed duct liner), diffuser box with collars for duct connection, fixed blades (flush diffusers) and double deflection blades (step-down diffusers), provisions for suspending, internally sealed (prevents recirculation), removable return air grille, adapts to T-bar ceiling grids or plaster ceilings.

Transitions (Supply and Return)
Used with diffusers, installs in roof curb, galvanized steel construction, flanges furnished for duct connection to diffusers, fully insulated.

OPTIONS / ACCESSORIES

Item	Model No.	Catalog No.	Unit Model No. KHB 024	KHB 030	KHB 036	KHB 048	KHB 060	KHB 074
COOLING SYSTEM								
Condensate Drain Trap	PVC - C1TRAP20AD2	**76W26**	X	X	X	X	X	X
	Copper - C1TRAP10AD2	**76W27**	X	X	X	X	X	X
Drain Pan Overflow Switch	K1SNSR71AB1	**74W42**	X	X	X	X	X	X
Low Ambient Kit	Standard Efficiency - K1SNSR13A-2	**14D96**	X	X	X	X	X	X
	High Efficiency - K1SNSR34*A0	**15C84**	X		X	X	X	
Efficiency		Standard	O	O	O	O	O	O
		High	O		O	O	O	
Refrigerant Type		R-410A	O	O	O	O	O	O
BLOWER - SUPPLY AIR								
Motors	Direct Drive - 0.25 hp (208/230V-1ph)	Factory	[1] O	[1] O				
	Direct Drive - 0.33 hp (208/230V-1ph)	Factory	[2] O		[2] O			
	Direct Drive - 0.50 hp (208/230V-1ph, 208/230V-3ph, 460V-3ph, 575V-3ph)	Factory			O	[1] O		
	Direct Drive - 0.75 hp (208/230V-1ph, 208/230V-3ph, 460V-3ph, 575V-3ph)	Factory				[2] O		
	Direct Drive - 1.0 hp (208/230V-1ph, 208/230V-3ph, 460V-3ph, 575V-3ph)	Factory					[2] O	
	Belt Drive - 0.75 hp (208/230V-1ph)	Factory			O	O	O	
	Belt Drive - 1.5 hp (208/230V-1ph)	Factory			O	O	O	
	Belt Drive - 1 hp (208/230V, 460V, 575V-3ph)	Factory			O	O	O	
	Belt Drive - 2 hp (208/230V, 460V, 575V-3ph)	Factory			O	O	O	
	Belt Drive - 0.75 hp (208/230V, 460V, 575V-3ph) (2 Speed)	Factory			O	O		
	Belt Drive - 1 hp (208/230V, 460V, 575V-3ph) (2 Speed)	Factory			O		O	O
	Belt Drive - 2 hp (208/230V, 460V, 575V-3ph) (2 Speed)	Factory				O	O	O
Drive Kits See Blower Data Tables for selection	Kit A01 - T1DRKT001-1 - 673-1010 rpm	Factory			O			
	Kit A02 - T1DRKT002-1 - 745-1117 rpm	Factory				O		
	Kit A03 - T1DRKT003-1 - 833-1250 rpm	Factory					O	
	Kit A04 - T1DRKT004-1 - 968-1340 rpm	Factory						O
	Kit A05 - T1DRKT005-1 - 897-1346 rpm	Factory			O			
	Kit A06 - T1DRKT006-1 - 1071-1429 rpm	Factory				O		
	Kit A07 - T1DRKT007-1 - 1212-1548 rpm	Factory					O	
	Kit A08 - T1DRKT008-1 - 1193-1591 rpm	Factory						O
CABINET								
Combination Coil/Hail Guards	C1GARD51A-1	**13R98**	X	X	X			
	C1GARD51AT1	**13T03**				X		
	K1GARD50AP1	**13T17**					X	X
Corrosion Protection			O	O	O	O	O	O
Hinged Access Panels			O	O	O	O	O	O
CONTROLS								
Commercial Controls	L Connection® Building Automation System	- - -	X	X	X	X	X	X
BACnet®	K0CTRL31A-1	**96W14**	OX	OX	OX			
	K0CTRL31AP1	**12B99**				OX	OX	OX
BACnet® Thermostat with Display	K0SNSR01FF1	**97W23**	X	X	X	X	X	X
BACnet® Thermostat without Display	K0SNSR00FF1	**97W24**	X	X	X	X	X	X
Novar® 2051	K0CTRL30A-1	**96W11**	OX	OX	OX			
	K0CTRL30AP1	**12B98**				OX	OX	OX
Plenum Cable (75 ft.)	K0MISC00FF1	**97W25**	X	X	X	X	X	X
Smoke Detector - Supply or Return (Power board and one sensor)	C1SNSR44AP1	**53W78**	X	X	X	X	X	X
Smoke Detector - Supply and Return (Power board and two sensors)	C1SNSR43AP1	**53W79**	X	X	X	X	X	X

[1] Standard Efficiency Models.
[2] High Efficiency Models.

NOTE - The catalog and model numbers that appear here are for ordering field installed accessories only.
OX - Field Installed or Configure to Order (factory installed)
O - Configure to Order (Factory Installed)
X - Field Installed

OPTIONS / ACCESSORIES

Item	Model No.	Catalog No.	Unit Model No. KHB 024	KHB 030	KHB 036	KHB 048	KHB 060	KHB 074
ECONOMIZER								
Standard Economizer With Outdoor Air Hood (Sensible Control) (Not for Title 24)								
Standard Economizer - Includes Barometric Relief Dampers and Exhaust Hood	K1ECON30A-3-	**14D90**	OX	OX	OX	OX	OX	OX
Economizer - No Exhaust		Factory	O	O	O	O	O	O
Standard Economizer Controls (Not for Title 24)								
Single Enthalpy Control	C1SNSR64FF1	**53W64**	OX	OX	OX	OX	OX	OX
Differential Enthalpy Control (order 2)	C1SNSR64FF1	**53W64**	X	X	X	X	X	X
High Performance Economizer With Outdoor Air Hood (Sensible Control) (Approved for California Title 24 Building Standards / AMCA Class 1A Certified)								
High Performance Economizer - Includes Barometric Relief Dampers and Exhaust Hood	K1ECON32A-2	**14D91**	OX	OX	OX	OX	OX	OX
Hgh Performance Economizer - No Exhaust		Factory	O	O	O	O	O	O
High Performance Economizer Controls (Not for Title 24)								
Single Enthalpy Control	C1SNSR60FF1	**10Z75**	OX	OX	OX	OX	OX	OX
Differential Enthalpy Control (order 2)	C1SNSR60FF1	**10Z75**	X	X	X	X	X	X
Economizer Accessories								
Horizontal Economizer Conversion Kit	T1HECK00AN1	**17W45**	X	X	X	X	X	X
OUTDOOR AIR								
Outdoor Air Dampers - Includes Outdoor Air Hood								
Motorized	C1DAMP21A-1	**15D17**	OX	OX	OX	OX	OX	OX
Manual	C1DAMP11A-2	**15D18**	OX	OX	OX	OX	OX	OX
POWER EXHAUST FAN								
Standard Static *NOTE - Order Barometric Relief Dampers with Exhaust Hood below if unit is ordered with factory installed Economizer with "No Exhaust" option*	208/230V-1 or 3ph - C1PWRE10A-1P	**79W87**			X	X	X	X
	460V-3ph - C1PWRE10A-1G	**79W88**			X	X	X	X
	575V-3ph - C1PWRE10A-1J	**79W89**			X	X	X	X
[1] BAROMETRIC RELIEF								
Barometric Relief Dampers with Exhaust Hood	C1DAMP50A-1-	**74W38**	X	X	X	X	X	X

[1] Required when Economizer is factory installed (no exhaust option) with field installed Power Exhaust Fan option.

NOTE - The catalog and model numbers that appear here are for ordering field installed accessories only.

OX - Field Installed or Configure to Order (factory installed)

O - Configure to Order (Factory Installed)

X - Field Installed

OPTIONS / ACCESSORIES

Item	Model No.	Catalog No.	Unit Model No. KHB 024	KHB 030	KHB 036	KHB 048	KHB 060	KHB 074
ELECTRICAL								
Disconnect	See Electrical/Electric Heat Tables for selection		OX	OX	OX	OX	OX	OX
Voltage 60 hz	208/230V - 1 phase		O	O	O	O	O	
	208/230V - 3 phase				O	O	O	O
	460V - 3 phase				O	O	O	O
	575V - 3 phase				O	O	O	O
GFI Service Outlets	15 amp non-powered, field-wired (208/230V, 460V only) LTAGFIK10/15	**74M70**	OX	OX	OX	OX	OX	OX
	20 amp non-powered, field-wired (575V only) C1GFCI20FF1	**67E01**	X	X	X	X	X	X
Weatherproof Cover for GFI	C1GFCI99FF1	**10C89**	X	X	X	X	X	X
ELECTRIC HEAT								
5 kW	208/230V- 1ph - K1EH0050A-1P	**12F06**	X	X				
7.5 kW	208/230V-1ph - T1EH0075AN1P	**14W32**	X	X	X	X	X	
	208/230V-3ph - T1EH0075AN1Y	**14W35**			X	X	X	X
	460V-3ph - T1EH0075AN1G	**14W39**			X	X	X	X
	575V-3ph - T1EH0075AN1J	**14W43**			X	X	X	X
10 kW	208/230V-1ph - T1EH0100A1P	**30W26**	X	X				
15 kW	208/230V-1ph - T1EH0150AN1P	**14W33**			X	X	X	
	208/230V-3ph - T1EH0150AN1Y	**14W36**			X	X	X	X
	460V-3ph - T1EH0150AN1G	**14W40**			X	X	X	X
	575V-3ph - T1EH0150AN1J	**14W44**			X	X	X	X
22.5 kW	208/230V-1ph - T1EH0225AN1P	**14W34**					X	
	208/230V-3ph - T1EH0225AN1Y	**14W37**					X	X
	460V-3ph - T1EH0225AN1G	**14W41**					X	X
	575V-3ph - T1EH0225AN1J	**14W45**					X	X
30 kW	208/230V-3ph - T1EH0300N-1Y	**14W38**						X
	460V-3ph - T1EH0300N-1G	**14W42**						X
	575V-3ph - T1EH0300N-1J	**14W46**						X

NOTE - The catalog and model numbers that appear here are for ordering field installed accessories only.
OX - Field Installed or Configure to Order (factory installed)
O - Configure to Order (Factory Installed)
X - Field Installed

OPTIONS / ACCESSORIES

Item	Model No.	Catalog No.	Unit Model No. KHB 024	KHB 030	KHB 036	KHB 048	KHB 060	KHB 074
INDOOR AIR QUALITY								
Air Filters								
Healthy Climate® High Efficiency Air Filters Order 4 per unit	MERV 8 (16 x 20 x 2) - C1FLTR15A-1-	**54W20**	X	X	X			
	MERV 13 (16 x 20 x 2) - T1FLTR40A-1-	**52W37**	X	X	X			
	MERV 8 (20 x 20 x 2) - C1FLTR15D-1-	**54W21**				X	X	X
	MERV 13 (20 x 20 x 2) - C1FLTR40D-1-	**52W39**				X	X	X
Indoor Air Quality (Co_2) Sensors								
Sensor - Wall-mount, off-white plastic cover with LCD display	C0SNSR50AS1L	**77N39**	X	X	X	X	X	X
Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting	C0SNSR53AE1L	**87N54**	X	X	X	X	X	X
CO_2 Sensor Duct Mounting Kit - for downflow applications		**85L43**	X	X	X	X	X	X
Aspiration Box - for duct mounting non-plenum rated CO2 sensor (**77N39**)		**90N43**	X	X	X	X	X	X
UVC Germicidal Lamps								
[1] Healthy Climate® UVC Light Kit (208/230v-1ph)	E1UVCL10AN1	**50W90**	X	X	X	X	X	X
ROOF CURBS								
Hybrid Roof Curbs, Downflow								
8 in. height	C1CURB70A-1	**11F50**	X	X	X	X	[2] X	[2] X
14 in. height	C1CURB71A-1	**11F51**	X	X	X	X	[2] X	[2] X
18 in. height	C1CURB72A-1	**11F52**	X	X	X	X	[2] X	[2] X
24 in. height	C1CURB73A-1	**11F53**	X	X	X	X	[2] X	[2] X
Hybrid Roof Curbs, Full Perimeter, Downflow								
8 in. height	K1CURB70AP1	**11S47**					X	X
14 in. height	K1CURB71AP1	**11S48**					X	X
18 in. height	K1CURB72AP1	**11T01**					X	X
24 in. height	K1CURB73AP1	**11T06**					X	X
Adjustable Pitch Curb, Downflow								
14 in. height	C1CURB55AT1	**43W27**	X	X	X	X	X	X
CEILING DIFFUSERS								
Step-Down - Order one	RTD9-65S	**13K60**	X	X	X	X		
	RTD11-95S	**13K61**					X	X
Flush - Order one	FD9-65S	**13K55**	X	X	X	X		
	FD11-95S	**13K56**					X	X
Transitions (Supply and Return) - Order one	T1TRAN10AN1	**17W53**	X	X	X	X		
	T1TRAN20N-1	**17W54**					X	X

[1] Lamps operate on 110-230V single-phase power supply. Step-down transformer may be ordered separately for 460V and 575V units. Alternately, 110V power supply may be used to directly power the UVC ballast(s).
[2] 060H and 074 models will fit smaller roof curbs with overhang. See dimension drawing.

NOTE - The catalog and model numbers that appear here are for ordering field installed accessories only.
OX - Field Installed or Configure to Order (factory installed)
O - Configure to Order (Factory Installed)
X - Field Installed

SPECIFICATIONS - DIRECT DRIVE BLOWER - STANDARD EFFICIENCY

General Data	Nominal Tonnage	2 Ton	2.5 Ton	3 Ton	4 Ton
	Model No.	**KHB024S4D**	**KHB030S4D**	**KHB036S4D**	**KHB048S4D**
	Efficiency Type	Standard	Standard	Standard	Standard
	Blower Type	Multi-Speed Direct Drive	Multi-Speed Direct Drive	Multi-Speed Direct Drive	Multi-Speed Direct Drive
Cooling Performance	Gross Cooling Capacity - Btuh	23,700	29,700	36,300	48,700
	[1] Net Cooling Capacity - Btuh	23,000	28,800	35,000	46,500
	AHRI Rated Air Flow - cfm	820	1000	1200	1620
	[2] Sound Rating Number (SRN) (dBA)	75	75	75	75
	Total Unit Power - kW	2.0	2.4	3.0	4.2
	[1] SEER (Btuh/Watt)	14.0	14.0	14.0	14.0
	[1] EER (Btuh/Watt)	11.0	11.9	11.5	11.4
Refrigerant	Type	R-410A	R-410A	R-410A	R-410A
	Charge Furnished	12 lbs. 8 oz.	12 lbs. 0 oz.	12 lbs. 0 oz.	14 lbs. 7 oz.
Heating Performance	Total High Heating Capacity - Btuh	23,000	30,000	36,600	47,500
	Total Unit Power - kW	1.9	2.4	2.9	3.9
	[1] COP	3.76	3.72	3.64	3.72
	[1] HSPF - Region IV (Region V)	8.00 (6.70)	8.00 (6.70)	8.00 (6.70)	8.00 (6.70)
	Total Low Heating Capacity - Btuh	13,000	16,200	20,400	27,400
	Total Unit Power - kW	1.8	2.2	2.7	3.7
	COP	2.28	2.30	2.32	2.40
Electric Heating Options - See page 10		5, 7.5, 10 kW	5, 7.5, 10 kW	7.5, 15 kW	7.5, 15 kW
Compressor Type (one per unit)		Scroll	Scroll	Scroll	Scroll
Outdoor Coil	Net face area - sq. ft.	15.6	15.6	15.6	19.3
	Tube diameter - in.	3/8	3/8	3/8	3/8
	Number of rows	2	2	2	2
	Fins / inch	20	20	20	20
Outdoor Coil Fan	Motor - (No.) HP	1/4	1/4	1/4	1/4
	Motor rpm	825	825	825	825
	Total Motor Input - watts	220	230	240	290
	Diameter - (No.) in. / No. of blades	(1) 24 - 3	(1) 24 - 3	(1) 24 - 3	(1) 24 - 3
	Total air volume - cfm	3300	3300	3300	3900
Indoor Coil	Net face area - sq. ft.	7.8	7.8	7.8	9.7
	Tube diameter - in.	3/8	3/8	3/8	3/8
	Number of rows	3	3	3	3
	Fins / inch	14	14	14	14
	Drain Connection (no.) and size - in.	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT
	Expansion device type	Balanced Port Thermostatic Expansion Valve, removable power head			
Indoor Blower	Nominal Motor HP	0.25	0.25	0.5	0.5
	Wheel nom. diameter x width - in.	(1) 10 x 10	(1) 10 x 10	(1) 10 x 10	(1) 10 x 10
Filters	Type	Disposable			Disposable
	Number and size - in.	(4) 16 x 20 x 2			(4) 20 x 20 x 2
Electrical Characteristics - 60 hz		208/230V - 1 phase		208/230V 1 phase 208/230V, 460V & 575V 3 phase	208/230V 1 phase 208/230V, 460V & 575V 3 phase

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

[1] AHRI Certified to AHRI Standard 210/240:
Cooling Ratings - 95°F outdoor air temperature and 80°F db/67°F wb entering indoor coil air.
High Temperature Heating Ratings - 47°F db/43°F wb outdoor air temperature and 70°F entering indoor coil air.
Low Temperature Heating Ratings - 17°F db/15°F wb outdoor air temperature and 70°F entering indoor coil air.

[2] Sound Rating Number (SRN) rated in accordance with test conditions included in ARI Standard 270-95.

SPECIFICATIONS - BELT DRIVE BLOWER - STANDARD EFFICIENCY

General Data		Nominal Tonnage	3 Ton	4 Ton	5 Ton	6 Ton
		Model No.	KHB036S4B	KHB048S4B	KHB060S4B	KHB074S4T
		Efficiency Type	Standard	Standard	Standard	Standard
		Blower Type	Single Speed Belt Drive	Single Speed Belt Drive	Single Speed Belt Drive	Two-Speed Belt Drive
Cooling Performance		Gross Cooling Capacity - Btuh	36,300	48,700	60,600	71,000
		Net Cooling Capacity - Btuh	[1] 35,000	[1] 46,500	[1] 58,000	[2] 68,000
		AHRI Rated Air Flow - cfm	1200	1620	2020	2100
		[3] Sound Rating Number (SRN) (dBA)	75	75	80	83
		Total Unit Power - kW	3.0	4.2	5.0	6.2
		SEER (Btuh/Watt)	[1] 14.0	[1] 14.0	[1] 14.0	- - -
		IEER (Btuh/Watt)	- - -	- - -	- - -	[2] 14.0
		EER (Btuh/Watt)	[1] 11.55	[1] 11.4	[1] 11.5	[2] 11.0
Refrigerant		Type	R-410A	R-410A	R-410A	R-410A
		Charge Furnished	12 lbs. 0 oz.	14 lbs. 7 oz.	16 lbs. 0 oz.	24 lbs. 0 oz.
Heating Performance		Total High Heating Capacity - Btuh	36,600	47,500	58,000	70,000
		Total Unit Power - kW	2.9	3.9	4.5	6.1
		[1] COP	3.64	3.72	3.72	3.30
		HSPF - Region IV (Region V)	8.00 (6.70)	8.00 (6.70)	8.00 (6.70)	- - -
		Total Low Heating Capacity - Btuh	20,400	27,400	33,000	40,000
		Total Unit Power - kW	2.7	3.7	4.2	5.2
		[1] COP	2.32	2.40	2.38	2.25
Electric Heating Options - See page 10			7.5, 15 kW	7.5, 15 kW	7.5, 15, 22.5 kW	7.5, 15, 22.5, 30 kW
Compressor Type (one per unit)			Scroll	Scroll	Scroll	Two-Stage Scroll
Outdoor Coil		Net face area - sq. ft.	15.6	19.3	19.3	28.0
		Tube diameter - in.	3/8	3/8	3/8	3/8
		Number of rows	2	2	3	2
		Fins / inch	20	20	20	20
Outdoor Coil Fan		Motor - (No.) HP	(1) 1/4	(1) 1/4	(1) 1/3	(1) 1/2
		Motor rpm	825	825	1075	1075
		Total Motor Input - watts	240	290	405	505
		Diameter - (No.) in. / No. of blades	(1) 24 - 3	(1) 24 - 3	(1) 24 - 3	(1) 24 - 4
		Total air volume - cfm	3300	3900	4300	5735
Indoor Coil		Net face area - sq. ft.	7.8	9.7	9.7	9.7
		Tube diameter - in.	3/8	3/8	3/8	3/8
		Number of rows	3	3	4	4
		Fins / inch	14	14	14	14
		Drain Connection (no.) and size - in.	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT
		Expansion device type	Balanced Port Thermostatic Expansion Valve, removable power head			
[4] Indoor Blower & Drive Selection	Nominal Motor HP	208/230V-1ph	0.75 hp, 1.5 hp	0.75 hp, 1.5 hp	0.75 hp, 1.5 hp	- - -
		All others voltages	1 hp, 2 hp	1 hp, 2 hp	1 hp, 2 hp	1 hp, 2 hp
	Maximum Usable Motor HP	208/230V-1ph	0.86 hp, 1.7 hp	0.86 hp, 1.7 hp	0.86 hp, 1.7 hp	- - -
		All other voltages	1.15 hp, 2.3 hp	1.15 hp, 2.3 hp	1.15 hp, 2.3 hp	2.3 hp
		Available Drive Kits	A01 673 - 1010 rpm A05 897 - 1346 rpm	A02 745 - 1117 rpm A06 1071 - 1429 rpm	A03 833 - 1250 rpm A07 1212 - 1548 rpm	A04 968 - 1340 rpm A08 1193-1591 rpm
		Wheel nominal diameter x width - in.	(1) 10 x 10	(1) 10 x 10	(1) 10 x 10	(1) 10 x 10
Filters		Type	Disposable			
		Number and size - in.	(4) 16 x 20 x 2	(4) 20 x 20 x 2		
Electrical Characteristics - 60 hz			208/230V 1 phase 208/230V, 460V & 575V 3 phase	208/230V 1 phase 208/230V, 460V & 575V 3 phase	208/230V 1 phase 208/230V, 460V & 575V 3 phase	208/230V, 460V & 575V 3 phase

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

[1] [2] AHRI Certified to AHRI Standard [1] 210/240 or [2] 340/360:
Cooling Ratings - 95°F outdoor air temperature and 80°F db/67°F wb entering indoor coil air.
High Temperature Heating Ratings - 47°F db/43°F wb outdoor air temperature and 70°F entering indoor coil air.
Low Temperature Heating Ratings - 17°F db/15°F wb outdoor air temperature and 70°F entering indoor coil air.

[3] Sound Rating Number (SRN) rated in accordance with test conditions included in ARI Standard 270-95.

[4] Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor hp required. Maximum usable hp of motors furnished are shown. In Canada, nominal motor hp is also maximum usable motor hp. If motors of comparable hp are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS - DIRECT DRIVE BLOWER - HIGH EFFICIENCY

General Data		Nominal Tonnage	2 Ton	3 Ton	4 Ton	5 Ton
		Model No.	KHB024H4E	KHB036H4E	KHB048H4E	KHB060H4E
		Efficiency Type	High	High	High	High
		Blower Type	Direct Drive-ECM	Direct Drive-ECM	Direct Drive-ECM	Direct Drive-ECM
Cooling Performance		Gross Cooling Capacity - Btuh	23,800	35,700	46,800	59,400
		[1] Net Cooling Capacity - Btuh	23,600	35,200	46,000	58,000
		AHRI Rated Air Flow - cfm	800/560	1200/800	1430/1120	1650/1210
		[2] Sound Rating Number (SRN) (dBA)	74	75	77	77
		Total Unit Power - kW	1.8	2.8	3.6	4.7
		[1] SEER (Btuh/Watt)	16.5	16.0	16.0	16.0
		[1] EER (Btuh/Watt) - 208/230V	13.0	12.7	12.8	12.5
		[1] EER (Btuh/Watt) - 460V/575V	13.0	12.4	12.8	12.5
Refrigerant		Type	R-410A	R-410A	R-410A	R-410A
		Charge Furnished	13 lbs. 0 oz.	12 lbs. 13 oz.	14 lbs. 0 oz.	20 lbs. 0 oz.
Heating Performance		Total High Heating Capacity - Btuh	24,000	35,000	46,000	59,000
		Total Unit Power - kW	1.8	2.6	3.4	4.7
		[1] COP	3.88	3.90	3.90	3.76
		[1] HSPF - Region IV (Region V)	8.30	8.50	8.50	8.50
		Total Low Heating Capacity - Btuh	13,000	19,200	26,000	34,000
		Total Unit Power - kW	1.6	2.3	3.0	4.0
		COP	2.34	2.40	2.46	2.46
Electric Heating Options - See page 10			5, 7.5, 10 kW	7.5, 15 kW	7.5, 15 kW	7.5, 15 kW
Compressor Type (one per unit)			Two-Stage Scroll	Two-Stage Scroll	Two-Stage Scroll	Two-Stage Scroll
Outdoor Coil		Net face area - sq. ft.	15.6	15.6	19.3	28.0
		Tube diameter - in.	3/8	3/8	3/8	3/8
		Number of rows	2	2	2	2
		Fins / inch	20	20	20	20
Outdoor Coil Fan		Motor - (No.) HP	(1) 1/3	(1) 1/3	(1) 1/3	(1) 1/3
		Motor rpm	725/500	775/650	850/700	930/785
		Total Motor Input - watts	165/60	193/125	251/140	236/145
		Diameter - (No.) in. / No. of blades	24 - 3	24 - 3	24 - 3	24 - 3
		Total air volume - cfm	3340/2240	3500/2970	4060/3330	4135/3385
Indoor Coil		Net face area - sq. ft.	7.8	7.8	9.7	9.7
		Tube diameter - in.	3/8	3/8	3/8	3/8
		Number of rows	3	3	3	4
		Fins / inch	14	14	14	14
		Drain Connection (no.) and size - in.	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT
		Expansion device type	Balanced Port Thermostatic Expansion Valve, removable power head			
Indoor Blower		Nominal Motor HP	0.33	0.5	0.75	1
		Wheel nominal diameter x width - in.	(1) 10 x 10	(1) 10 x 10	(1) 10 x 10	(1) 11 x 10
Filters		Type	Disposable		Disposable	
		Number and size - in.	(4) 16 x 20 x 2		(4) 20 x 20 x 2	
Electrical Characteristics - 60 hz			208/230V 1 phase	208/230V 1 phase 208/230V, 460V & 575V 3 phase	208/230V 1 phase 208/230V, 460V & 575V 3 phase	208/230V 1 phase 208/230V, 460V & 575V 3 phase

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

[1] AHRI Certified to AHRI Standard 210/240:
Cooling Ratings - 95°F outdoor air temperature and 80°F db/67°F wb entering indoor coil air.
High Temperature Heating Ratings - 47°F db/43°F wb outdoor air temperature and 70°F entering indoor coil air.
Low Temperature Heating Ratings - 17°F db/15°F wb outdoor air temperature and 70°F entering indoor coil air.

[2] Sound Rating Number (SRN) rated in accordance with test conditions included in ARI Standard 270-95.

SPECIFICATIONS - BELT DRIVE BLOWER - HIGH EFFICIENCY

		3 Ton	4 Ton	5 Ton
General Data	**Nominal Tonnage**			
	Model No.	**KHB036H4T**	**KHB048H4T**	**KHB060H4T**
	Efficiency Type	High	High	High
	Blower Type	Two Speed Belt Drive	Two Speed Belt Drive	Two Speed Belt Drive
Cooling Performance	Gross Cooling Capacity - Btuh	36,200	47,600	59,600
	[1] Net Cooling Capacity - Btuh	35,000	46,000	57,500
	AHRI Rated Air Flow - cfm	1200	1600	1800
	[2] Sound Rating Number (SRN) (dBA)	75	77	77
	Total Unit Power - kW	3.0	3.8	4.9
	[1] SEER (Btuh/Watt)- 208/230V	15.0	15.0	15.0
	[1] SEER (Btuh/Watt) - 460/575V	14.8	14.8	15.0
	[1] EER (Btuh/Watt) - 208/230V	12.0	12.0	12.0
	[1] EER (Btuh/Watt) - 460/575V	11.8	11.9	11.8
Refrigerant	Type	R-410A	R-410A	R-410A
	Charge Furnished	12 lbs. 13 oz.	14 lbs. 0 oz.	20 lbs. 0 oz.
Heating Performance	Total High Heating Capacity - Btuh	35,000	46,000	59,000
	Total Unit Power - kW	2.8	3.5	4.7
	[1] COP	3.64	3.82	3.70
	HSPF - Region IV (Region V)	8.30	8.30	8.30
	Total Low Heating Capacity - Btuh	19,200	26,000	34,000
	Total Unit Power - kW	2.3	3.0	4.0
	[1] COP	2.22	2.38	2.46
Electric Heating Options - See page 10		7.5, 15 kW	7.5, 15 kW	7.5, 15, 22.5 kW
Compressor Type (one per unit)		Two-Stage Scroll	Two-Stage Scroll	Two-Stage Scroll
Outdoor Coil	Net face area - sq. ft.	15.6	19.3	28.0
	Tube diameter - in.	3/8	3/8	3/8
	Number of rows	2	2	2
	Fins / inch	20	20	20
Outdoor Coil Fan	Motor - (No.) HP	1/3	1/3	1/3
	Motor rpm	775/650	850/700	930/785
	Total Motor Input - watts	195/125	251/140	235/145
	Diameter - (No.) in. / No. of blades	24 - 3	24 - 3	24 - 3
	Total air volume - cfm	3500/2970	4060/3330	4135/3385
Indoor Coil	Net face area - sq. ft.	7.8	9.7	9.7
	Tube diameter - in.	3/8	3/8	3/8
	Number of rows	3	3	4
	Fins / inch	14	14	14
	Drain Connection (no.) and size - in.	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT
	Expansion device type	Balanced Port Thermostatic Expansion Valve, removable power head		
[3] **Indoor Blower & Drive Selection**	Nominal Motor HP	0.75 hp (low), 1 hp (high)	0.75 hp (low), 2 hp (high)	1 hp (low), 2 hp (high)
	Maximum Usable Motor HP	0.86 hp (low), 1.15 hp (high)	0.86 hp (low), 2.3 hp (high)	1.15 hp (low), 2.3 hp (high)
	Available Drive Kits	A01 low 449-673 high 673-1010 A05 low 598-897 high 897-1346	A02 low 497-673 high 745-1117 A06 low 714-953 high 1071-1429	A03 low 555-833 high 833-1250 A07 low 808-1032 high 1212-1548
	Wheel nominal diameter x width - in.	(1) 10 x 10	(1) 10 x 10	(1) 11 x 10
Filters	Type	Disposable	Disposable	
	Number and size - in.	(4) 16 x 20 x 2	(4) 20 x 20 x 2	
Electrical Characteristics - 60 hz		208/230V, 460V & 575V 3 phase	208/230V, 460V & 575V 3 phase	208/230V, 460V & 575V 3 phase

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

[1] AHRI Certified to AHRI Standard 210/240:
Cooling Ratings - 95°F outdoor air temperature and 80°F db/67°F wb entering indoor coil air.
High Temperature Heating Ratings - 47°F db/43°F wb outdoor air temperature and 70°F entering indoor coil air.
Low Temperature Heating Ratings - 17°F db/15°F wb outdoor air temperature and 70°F entering indoor coil air.

[2] Sound Rating Number (SRN) rated in accordance with test conditions included in ARI Standard 270-95.

[3] Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor hp required. Maximum usable hp of motors furnished are shown. In Canada, nominal motor hp is also maximum usable motor hp. If motors of comparable hp are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

Summary: Application Advanced Auto Parts and Ohio Power Company for approval of a special arrangement agreement with a mercantile customer electronically filed by Mr. Steven T Nourse on behalf of Ohio Power Company