

**UniCon**



## Remote Air Cooled Condenser

Kramer's Remote Air Cooled Condensers are designed to provide a wide array of solutions focusing on performance, energy efficiency, reduced sound output and other requirements of today's demanding marketplace. Working closely with market leading customers to solve real world problems, Kramer incorporates the wisdom of lessons learned into its design philosophies resulting in products that exceed the needs of the grocery, supermarket, industrial cooling and commercial warehousing industries.



### Standard Features:

- Direct drive motor arrangement
- Vertical or horizontal air flow
- 1140, 850, 550 RPM or Variable Speed EC (VSEC) motors
- Reduced decibel ratings from slower speed or VSEC motors
- Motors have inherent thermal overload protection
- High efficiency Copper tube, Aluminum fin coils
- Leak tested at 450 PSIG
- Reduced refrigerant charge requirements
- Vinyl coated heavy gauge steel fan guards for long life
- Heavy gauge galvanized steel construction for superior corrosion resistance (other materials and coatings optional)
- Internal dividers isolate each fan cell

### Options:

- Fan cycling head pressure control (Ambient or Pressure)
- Flooded head pressure control
- Sub-cooling circuit
- Multi-sectioned coils
- Copper fins
- Wide selection of coated coils for corrosion protection
- Through-the-door disconnect switch
- Individual motor fusing
- Individual or paired motor contactors
- Control board with or without transformer
- Variable frequency drives
- Variable speed header end fan (not available with VFDs or VSEC motors)
- Hinged venturi panels
- Removable side access panels
- Extended condenser legs

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### Nomenclature:

**K**    **D**    **S**    **082**    **G**    **J**    **5**    **B**    **1**    **2**    **A**    **1**    **A**  
**I**    **II**    **III**    **IV**    **V**    **VI**    **VII**    **VIII**    **IX**    **X**    **XI**    **XII**    **XIII**

#### I. Model Series

K – Kramer

#### II. Unit type

D – Condenser

#### III. Series

S – Single fan wide  
D – Double fan wide

#### IV. Capacity – Three Number Characters

#### V. Voltage Code

|                  |                  |
|------------------|------------------|
| A – 115/1/60     | M – 200-220/1/50 |
| D – 208-230/1/60 | N – 200-220/3/50 |
| E – 208-230/3/60 | P – 380/1/50     |
| F – 460/1/60     | Q – 380/3/50     |
| G – 460V/3/60    | T – 380/3/60     |
| H – 575/1/60     | X – Other        |
| J – 575V/3/60    |                  |

#### VI. Motor/Fan Type

A – 1140 RPM, 0.33 HP, Metal Blade  
B – 1140 RPM, 1.5 HP, Metal Blade  
C – 850 RPM, 0.25 HP, Metal Blade  
D – 850 RPM, 1.5 HP, Metal Blade  
E – 550 RPM, 1/3 HP, Metal Blade  
F – 550 RPM, 1/3 HP, FB2  
G – 900 RPM, 1.5 HP, Variable Speed EC Motor and Fan Assembly  
H – 1140 RPM, 0.5 HP Totally Enclosed, Metal Blade  
J – 1140 RPM, 1.5 HP Totally Enclosed, Metal Blade  
K – 1140 RPM, 1.0 HP, Metal Blade  
L – 850 RPM, 1.0 HP, Metal Blade  
X – Other

#### VII. Length in Fans – A number between 1 and 7

#### VIII. Coil Density

A – 8 fpi  
B – 10 fpi  
C – 12 fpi  
D – 14 fpi  
X – Other

#### IX. Coil Material and Coating Options

|                                                   |                          |
|---------------------------------------------------|--------------------------|
| 1 – Aluminum fins (Al)                            |                          |
| 2 – Copper fins (Cu)                              |                          |
| 3 – Al + AST coating                              | } Post Coat<br>Materials |
| 4 – Al + Blygold                                  |                          |
| 5 – Al + Bronze Glow                              |                          |
| 6 – Al + Heresite                                 |                          |
| 7 – Al + Polyester coat - Pre Coated Fin Material |                          |
| X – Other                                         |                          |

#### X. Housing Material and Coatings

1 – Aluminum  
2 – Galvanized  
4 – Pueblo Tan pre-paint  
7 – Stainless Steel 316L  
X – Other

#### XI. Unit Design Configuration

A – Vertical Fan Discharge, Standard Legs  
B – Vertical Fan Discharge Floating Coil, Standard Legs  
C – Vertical Fan Discharge, Legs at every location  
D – Vertical Fan Discharge Floating Coil, Legs at every location  
E – Vertical Fan Discharge, 30" Extended Legs  
F – Vertical Fan Discharge Floating Coil, 30" Extended Legs  
G – Vertical Fan Discharge, 48" Extended Legs  
H – Vertical Fan Discharge Floating Coil, 48" Extended Legs  
J – Vertical Fan Discharge, 60" Extended Legs  
K – Vertical Fan Discharge Floating Coil, 60" Extended Legs  
L – Vertical Fan Discharge, 72" Extended Legs  
M – Vertical Fan Discharge Floating Coil, 72" Extended Legs  
N – Horizontal Fan Discharge,  
P – Horizontal Fan Discharge, Floating Coil  
Q – Vertical Fan Discharge, 21" Extended Legs  
R – Vertical Fan Discharge Floating Coil, 21" Extended Legs  
S – Vertical Fan Discharge, 21" Legs at every location  
T – Vertical Fan Discharge Floating Coil, 21" Legs at every location  
X – Other

#### XII. Circuit Splitting Options

1 – Full  
2 – 50-50  
3 – 50-25-25  
4 – 25-25-25-25  
X – Other

#### XIII. Revision Code – Single Alphanumeric Character

A – Initial Release

## Standard and Optional Features

| DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Notes                                                     | UNIT MODEL                                                                                     |                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                           | Small Models<br>001 to 011                                                                     | Large Models<br>008 to 250                                                                     |
| <b>General Construction and Configuration</b><br>Vertical Air Discharge Configuration<br>Horizontal Air Discharge Configuration<br>Galvanized Steel Frame and Casing<br>Aluminum Casing<br>White painted Galvanized Steel Casing<br>Pueblo Tan pre-paint Galvanized Steel Casing<br>AST Coated Galvanized Casing<br>Stainless Steel 304 Casing<br>Stainless Steel 316 Casing<br>Heavy Gauge Galvanized Steel Legs (Vert. Disch): <div>Leg Length<br/>21", 30", 48", 60" or 72"</div>                                                                                                                                                                                                                   | D<br>D,G<br><br><br><br><br><br><br><br><br><br>A         | Std<br>Opt<br>Std<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>15" (Std)<br>N/A         | Std<br>Opt<br>Std<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>18" (Std)<br>Opt         |
| <b>Condenser Coil</b><br>Heavy Gauge Aluminum Tube Sheets<br>Copper Tubes Mechanically Expanded into Aluminum Fins<br>Special Fin Materials: <div>Copper Fin Stock<br/>Polyester-Coated Fin Stock</div> Aluminum Fins with AST ElectroFin™, Heresite, Bronze Glow or Blygold Coated Coils<br>Floating coil design<br>Multi-Sectioning (No extra Charge)<br>Sub-Cooling Circuits (No extra Charge)                                                                                                                                                                                                                                                                                                      | <br><br><br><br><br><br><br>B                             | Std<br>Std<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt                                    | Std<br>Std<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt                                    |
| <b>Fan Section</b><br>6-Pole (1140 RPM), 1-Phase or 3-Phase Fan Motors: <div>Open Type<br/>Totally Enclosed<br/>Open Type</div> 8-Pole (850 RPM), 1-Phase or 3-Phase Fan Motors<br>Variable-Speed Fan Motors on Header End - See Control Panel Options<br>Fan Motor Mounting: <div>Welded heavy gauge rod mounting frames</div> Models with Motor code G include Variable Speed EC motor and fan assemblies<br>Fully Baffled Fan Modules<br>Flip Top' Hinged Fan Panels - Access for Coil Cleaning and Fan/Motor Service<br>Side Access Panels - for Ease of Coil Cleaning<br>Gravity Dampers                                                                                                          | E<br>E<br>F<br>C<br>G<br><br>G<br>G                       | Std<br>Opt<br>Opt<br>Opt<br>Std<br>N/A<br>Std<br>Std<br>Opt<br>N/A<br>Opt                      | Std<br>Opt<br>Opt<br>Opt<br>Std<br>Std<br>Std<br>Std<br>Opt<br>Opt<br>Opt                      |
| <b>Control Panel</b><br>Mounting Location: <div>Opposite Header End<br/>Header end, Left or Right Side</div> Temp. or Press. Fan Cycling - Individual or Paired-Fan Contactors (Must specify)<br>Custom Fan Cycling Wiring and Logic<br>Variable Speed Control: <div>Penn P-66 Pressure Controlled</div> Output Relay Boards for Computerized Fan Cycling (Computer control by others)<br>Analog output board (for units with Variable Speed EC motors)<br>Motor Fusing - Individually or in Pairs<br>Circuit Breakers<br>Fan Control Circuit Toggle Switches<br>Control Transformer<br>Fused or Non-Fused Disconnect Switch (Mounted)<br>VFD - Not available for models with Variable Speed EC Motors | <br><br><br><br><br><br><br><br><br><br><br>G<br><br>C, G | Std<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt | Std<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt<br>Opt |
| <b>Refrigerant Specialties</b><br>Flooded-Condenser Control Valve System<br>Field Manifold Kit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <br>B                                                     | Opt<br>Opt                                                                                     | Opt<br>Opt                                                                                     |
| <b>Shipping</b><br>Vertical Discharge Models <div>Small Style Condensers<br/>Large Style Condensers - Legs collapsed for shipping, must extend during installation</div> Horizontal Discharge Models <div>Legs Disassembled - Unit is Cartoned or Crated</div>                                                                                                                                                                                                                                                                                                                                                                                                                                         | <br>D<br><br>D                                            | <br>See note D<br>N/A<br>See note D                                                            | <br>N/A<br>Std<br>Std                                                                          |

### Notes:

- Contact factory
- All double fan-width units are two-section as standard. Requires field manifold kit for single-section operation.
- Header-End (lead fans) only.
- Legs are disassembled for small condenser models. Units are shipped in carton or crate. Models thru size 011 can be mounted in either horizontal or vertical configuration depending on method of leg assembly. Consideration must be given to the electrical box when mounted for horizontal air discharge. Large style condensers must be special ordered for use in horizontal discharge arrangement.
- 1140 RPM Single phase motors available for sizes up to 022 only.
- 850 RPM single phase motors available for small condensers thru size 009 only.
- Not available for units with EC motors

## Condenser Selection

Air-cooled condenser capacity ratings are based on the total heat rejection of the refrigeration system. Total heat of rejection is the sum of the net refrigeration effect and heat of compression added to the refrigerant in the compressor.

The heat of compression varies with the compressor design, so the compressor manufacturer's information should be used whenever possible. If the compressor manufacturer's heat of compression information is not available, Tables 1 and 2 (page 5) may be used to determine the heat of compression.

The following formulas may be used to calculate the total heat rejection (THR) for systems that fall outside the normal limits of single stage compressor applications, such as compound or cascade systems.

Suction cooled hermetic compressors:

$$\text{THR} = \text{Compressor Capacity (BTUH)} + (3413 \times \text{KW})$$

Open Compressors

$$\text{THR} = \text{Compressor Capacity (BTUH)} + (2545 \times \text{BHP})$$

## Elevation Correction

Elevation above sea level has an effect on the performance of air cooled condensers. Divide the required capacity by the Elevation Correction Factor in the table on page 5 to correct the requirement to Sea Level Conditions. The proper condenser can then be selected from the appropriate table on Pages 10,12,14,16 or 18.

## Single Section Condensers

All units are available for single section applications. All double fan width units are furnished with dual section coils and can be converted in the field for single section installations.

## Selection Example:

### Given:

Ambient Air Temperature = 95° F  
Maximum Condensing Temperature = 110° F  
Evaporator Temperature = 20° F  
Refrigerant = R-404A  
Compressor Capacity = 290,000 BTU  
Compressor Type = Suction Cooled Semi-Hermetic

### Solution:

Multiply the compressor capacity by the heat of compression factor to calculate the required total heat of rejection (THR). Table 1 shows that for 110°F condensing temperature and 20° F evaporator temperature, the heat of compression factor is 1.33. The required total heat rejection (THR) is:

$$290,000 \times 1.33 = 385,700 \text{ BTUH THR}$$

Divide the BTUH THR by the design condensing temperature of 15°F TD. (TD = Condensing Temperature - Ambient Temperature)

$$385,700 \div 15 = 25,713 \text{ BTUH per } 1^\circ\text{F TD}$$

Convert BTUH to MBH.

$$25,713 \text{ BTUH} \div 1000 = 25.713 \text{ MBH per } 1^\circ\text{F TD}$$

The correct selection of a single fan width unit with 1140 RPM fan motors (page 12) is a model KDS048\*B3 with a capacity of 26.0 MBH @ 10FPI.

Since the unit selection will almost never have the exact required capacity, the actual TD will vary slightly from the design TD. The actual TD can be calculated using the following formula:

$$\text{Actual TD} = \frac{\text{Design THR}}{\text{Actual Condenser THR}} \times \text{Design TD}$$

For this example the actual TD would be:

$$\text{Actual TD} = \frac{25.7}{26.0} \times 15 = 14.8^\circ\text{F TD}$$

**Table 1: Heat of Compression Factors**

Suction Cooled Compressors

| Evap<br>Temp<br>°F | Condensing Temperature °F |      |      |      |      |      |      |      |      |
|--------------------|---------------------------|------|------|------|------|------|------|------|------|
|                    | 90                        | 95   | 100  | 105  | 110  | 115  | 120  | 125  | 130  |
| -40                | 1.66                      | 1.70 | 1.73 | 1.76 | 1.80 | 1.90 | 2.00 | †    | †    |
| -35                | 1.61                      | 1.64 | 1.68 | 1.70 | 1.74 | 1.82 | 1.90 | †    | †    |
| -30                | 1.57                      | 1.60 | 1.62 | 1.65 | 1.68 | 1.74 | 1.80 | †    | †    |
| -25                | 1.53                      | 1.56 | 1.58 | 1.60 | 1.63 | 1.67 | 1.72 | †    | †    |
| -20                | 1.49                      | 1.51 | 1.53 | 1.55 | 1.58 | 1.61 | 1.65 | †    | †    |
| -15                | 1.46                      | 1.48 | 1.50 | 1.51 | 1.54 | 1.57 | 1.61 | †    | †    |
| -10                | 1.42                      | 1.44 | 1.46 | 1.48 | 1.50 | 1.53 | 1.57 | 1.60 | 1.64 |
| -5                 | 1.39                      | 1.41 | 1.43 | 1.45 | 1.47 | 1.50 | 1.53 | 1.56 | 1.60 |
| 0                  | 1.36                      | 1.38 | 1.40 | 1.42 | 1.44 | 1.47 | 1.50 | 1.53 | 1.56 |
| +5                 | 1.33                      | 1.35 | 1.37 | 1.39 | 1.41 | 1.43 | 1.46 | 1.49 | 1.52 |
| +10                | 1.31                      | 1.32 | 1.34 | 1.36 | 1.38 | 1.40 | 1.43 | 1.46 | 1.49 |
| +15                | 1.28                      | 1.30 | 1.32 | 1.33 | 1.35 | 1.37 | 1.40 | 1.43 | 1.46 |
| +20                | 1.26                      | 1.27 | 1.29 | 1.31 | 1.33 | 1.35 | 1.37 | 1.40 | 1.43 |
| +25                | 1.24                      | 1.25 | 1.27 | 1.29 | 1.31 | 1.33 | 1.35 | 1.37 | 1.40 |
| +30                | 1.22                      | 1.23 | 1.25 | 1.26 | 1.28 | 1.30 | 1.32 | 1.34 | 1.37 |
| +35                | 1.20                      | 1.21 | 1.23 | 1.25 | 1.26 | 1.27 | 1.29 | 1.31 | 1.34 |
| +40                | 1.18                      | 1.19 | 1.21 | 1.23 | 1.24 | 1.25 | 1.27 | 1.29 | 1.31 |
| +45                | 1.16                      | 1.17 | 1.19 | 1.21 | 1.22 | 1.23 | 1.25 | 1.26 | 1.28 |
| +50                | 1.14                      | 1.15 | 1.17 | 1.19 | 1.20 | 1.22 | 1.23 | 1.24 | 1.26 |

† Beyond the normal limits for single stage compressor application.

**Table 2: Heat of Compression Factors**

Open Compressors

| Evap<br>Temp<br>°F | Condensing Temperature °F |      |      |      |      |      |      |      |      |
|--------------------|---------------------------|------|------|------|------|------|------|------|------|
|                    | 90                        | 95   | 100  | 105  | 110  | 115  | 120  | 125  | 130  |
| -30                | 1.37                      | 1.39 | 1.42 | 1.44 | 1.47 | †    | †    | †    | †    |
| -20                | 1.33                      | 1.35 | 1.37 | 1.39 | 1.42 | 1.44 | 1.47 | †    | †    |
| -10                | 1.28                      | 1.30 | 1.32 | 1.34 | 1.37 | 1.39 | 1.42 | 1.44 | 1.47 |
| 0                  | 1.24                      | 1.26 | 1.28 | 1.30 | 1.32 | 1.34 | 1.37 | 1.39 | 1.41 |
| +10                | 1.21                      | 1.23 | 1.24 | 1.26 | 1.28 | 1.30 | 1.32 | 1.34 | 1.36 |
| +20                | 1.17                      | 1.18 | 1.20 | 1.22 | 1.24 | 1.26 | 1.28 | 1.30 | 1.32 |
| +30                | 1.14                      | 1.15 | 1.17 | 1.18 | 1.20 | 1.22 | 1.24 | 1.25 | 1.27 |
| +40                | 1.12                      | 1.14 | 1.15 | 1.16 | 1.17 | 1.18 | 1.20 | 1.21 | 1.23 |
| +50                | 1.09                      | 1.11 | 1.12 | 1.13 | 1.14 | 1.16 | 1.17 | 1.19 | 1.20 |

† Beyond the normal limits for single stage compressor application.

**Table 3: Elevation Correction Factors**

| Elevation (ft)    | 1000 | 2000 | 3000 | 4000 | 5000 | 6000 | 8000 | 10000 | 12000 | 14000 | 16000 |
|-------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| Correction Factor | 0.94 | 0.93 | 0.90 | 0.88 | 0.86 | 0.83 | 0.79 | 0.75  | 0.71  | 0.66  | 0.62  |

## Multi-Section Condensers

Air-cooled condensers with more than one section are available for applications where multiple refrigeration systems are connected to the same condenser. Multi-sectioning, except for small condensers, is covered in this section.

The condenser coil is divided into the proper number of sections and each section is supplied with an inlet and outlet connection. Each section is tagged for identification. When ordering, the sections must be placed in numerical sequence. The sections will be arranged in sequence with the number one section being on the left end when facing the header end of the unit.

### Example: Multi-Section Condenser Selection

#### Given:

Refer to Table 4, the Multi-Section Calculation Form below. Four suction cooled semi-hermetic compressors are shown with their operating conditions. Design ambient temperature is 95° F.

#### Procedure:

1. Complete the customer data in columns 1 through 6 in Table 4.
2. Fill in the heat of compression factors in column 7. If the compressor manufacturer's data is not available, use values from tables 1 and 2.
3. Multiply the values in column 6 by the values in column 7 and tabulate the results in column 8.
4. Next, divide the heat rejection values in column 8 by the design TD values in column 3 and enter the results in column 9.
5. Add all of the items in column 9 to obtain the total MBH required at 1° FTD. Use this value and the procedure on Page 4 to select the proper condenser model. For this example, the total MBH is 25.64. Therefore, the unit with 1140 RPM fan motors and double fan-width configuration, having enough capacity to meet this requirement, is a KDD041\*B2 with 14 FPI.
6. MBH per face tube values can be found by dividing the unit's capacity, found in the performance data tables, by the number of face tubes listed in Table 5. Be sure to apply the corresponding correction factors for refrigerants other than R-404A or R-407A. Enter the MBH per face tube value in column 10.

For Sections No. 1 & 2 in Table 4, the unit's capacity can be found by multiplying the R-22 correction factor (1.02) by the value in the R-404A table (26.1) on page 12. Divide this capacity by the number of face tubes available for the KDD041\*B2 listed in Table 5.

$$\text{MBH per face tube} = \frac{26.1 \times 1.02}{72} = 0.370$$

7. To determine the number of face tubes required for each section, divide column 9 by column 10 and enter the results in column 11.

8. Each section's number of face tubes in column 11 is a mathematical value and must be rounded off to a whole number and entered into column 12. Round each number off such that the section size assigned to each system is no smaller than 10% undersized.

9. Total the values in column 12. The sum must equal the number of face tubes available for the KDD041\*B2 as shown in Table 5. If it does not, one or more of the column 12 numbers will have to be adjusted so the sum does equal the available face tubes.

10. The actual TD in each coil section may vary slightly from the design TD. The actual TD can be calculated using the following formula:

$$\text{TD} = \frac{\text{Design TD} \times \text{adjusted THR @ 1° TD}}{\text{MBH per tube @ 1° TD} \times \text{No. of Tubes used}}$$

The actual TD for Section No. 3 would be:

$$\text{TD} = \frac{10 \times 4.98}{0.363 \times 15} = 9.1° \text{ F}$$

**Table 4: Multi-Section Calculation Form**

| 1           | 2            | 3              | 4                | 5                | 6                         | 7                          | 8              | 9                         | 10                | 11                         | 12                         |
|-------------|--------------|----------------|------------------|------------------|---------------------------|----------------------------|----------------|---------------------------|-------------------|----------------------------|----------------------------|
| Section No. | Refrig. Type | Design TD (°F) | Cond. Temp. (°F) | Evap. Temp. (°F) | Compressor Capacity (MBH) | Heat of Compression Factor | Heat Rejection | Adjusted THR (MBH) 1°F TD | MBH Per Face Tube | No. of Face Tubes Required | No. of Face Tubes Selected |
| 1           | 22           | 15             | 110              | 20               | 96.5                      | 1.33                       | 128.3          | 8.56                      | 0.370             | 23.13                      | 24                         |
| 2           | 22           | 15             | 110              | 20               | 81.1                      | 1.33                       | 107.9          | 7.19                      | 0.370             | 19.43                      | 20                         |
| 3           | 404          | 10             | 105              | -25              | 31.1                      | 1.6                        | 49.8           | 4.98                      | 0.363             | 13.71                      | 14                         |
| 4           | 404          | 10             | 105              | -25              | 28.9                      | 1.7                        | 49.1           | 4.91                      | 0.363             | 13.53                      | 14                         |



## Head Pressure Control Options and Refrigerant Charge Calculations

### Flooded Condenser

The Flooded Condenser Head Pressure Control Option maintains adequate condensing pressure while operating in low ambient temperatures. By flooding the condenser with liquid refrigerant, the amount of coil surface available for condensing is reduced. The resulting reduction in capacity ensures proper operation of the thermal expansion valve.

This option requires a modulating three-way valve, dependent on refrigerant discharge pressure, be placed at the condenser outlet. A fall in ambient temperature causes a corresponding fall in discharge pressure. The valve modulates allowing discharge gas to flow to the receiver, creating a higher pressure at the condenser outlet. This higher pressure reduces the flow out of the condenser, causing liquid refrigerant to back up in the coil. Flooding the condenser reduces the available condensing surface and raises the condensing pressure so that adequate high-side pressure is maintained.

A larger receiver and additional refrigerant are required for systems with flooded condenser control. The receiver can be conveniently installed directly under the condenser in most applications. However, if the system will be operational in ambient temperatures below 55° F, the receiver should be located in a warm environment or heated. In this situation, a check valve must be installed in the line between the receiver and expansion valve. This prevents refrigerant migration from the receiver to the condenser.

The amount of additional refrigerant charge is based on the lowest expected winter operating temperature and the design TD. In addition to the condenser charge, the operating charges of the evaporator, receiver and refrigerant lines must be added to determine the total system refrigerant charge. The pump-down capacity (80% of full capacity) of the receiver must be at least equal to the total system charge.

Table 5 shows the standard summer charge when using R-404A. The additional charge required for flooded condenser operation with a design TD of 15°F is also shown. Additional charge for alternate design TDs can be found using the correction factors in Table 6.

For flooded condenser control only, total charge = summer charge (Table 5) + additional charge (Table 5) × design TD correction factor (Table 6)

### Example: Single Section Unit with Flooded Condenser Head Pressure Control

#### Given:

A KDD055\*B Condenser with an R-404A summer charge of 24.4 lbs. (See Table 5) has a design TD of 10° F and will operate at a minimum ambient of 0° F.

#### Solution:

The additional charge needed to operate at 0° F can be found in Table 5 (63.3 lbs). Because the unit has a design TD of 10° F, the additional charge must be multiplied by a correction factor of 1.04 as shown in Table 6. Therefore, the required additional charge is  $63.3 \times 1.04 = 65.8$  lbs. The total operating charge for a minimum ambient of 0° F and a 10° design TD is  $24.4 + 65.8 = 90.2$  lbs.

### Example: Multi-Section Unit with Flooded Condenser Head Pressure Control

#### Given:

A KDS017 condenser split into two sections. One section has 22 face tubes of R-404A at a 10° TD and the other section has 14 face tubes of R-22 at a 15° TD. The unit will operate at a minimum ambient of 20° F.

#### Solution:

To calculate the winter charge for each section, the summer charge and additional charge for low ambient must be found. The summer charge can be calculated by multiplying the number of face tubes in the section by the charge per face tube value in Table 5. Next, divide the number of face tubes in the section by the total number of face tubes and multiply by the additional charge required for a minimum ambient of 20° F. Make sure to apply correction factors for design TDs other than 15° and for refrigerants other than R-404A or R-507. Adding the summer charge and additional charge for low ambient will yield the total winter charge.

For the R-404A section, the summer charge is  $22 \text{ tubes} \times 0.23 \text{ lbs. per face tube} = 5.06 \text{ lbs.}$  The additional charge equals the ratio of tubes in the section to total tubes times the additional charge at 20° F with a 15° F TD times the TD correction factor from Table 6, or  $22/36 \times 19.1 \times 1.05 = 12.26 \text{ lbs.}$  The winter charge is  $5.06 + 12.26 = 17.32 \text{ lbs.}$

For the R-22 section, the summer charge must be multiplied by a refrigerant correction factor of 1.13 as seen in the Table 5 footnotes. The summer charge is  $14 \times 0.23 \times 1.13 = 3.64 \text{ lbs.}$  The additional charge calculation also requires the use of the correction factor. The additional charge is  $14/36 \times 19.1 \times 1.13 = 8.39 \text{ lbs.}$  The winter charge is  $3.64 + 8.39 = 12.02 \text{ lbs.}$

**Table 5: Additional Refrigerant Charge for Flooded Condensers**

| Unit Size              |          |     |      | Number of Face Tubes | R-404A & 507*               |                            | Additional Charge Required for Low Ambient Temperatures, 15°F Design TD <sup>†</sup> |       |       |       |       |
|------------------------|----------|-----|------|----------------------|-----------------------------|----------------------------|--------------------------------------------------------------------------------------|-------|-------|-------|-------|
|                        |          |     |      |                      | Charge Per Face Tube (Lbs.) | Total Summer Charge (Lbs.) |                                                                                      |       |       |       |       |
| Motor Speed (RPM)      |          |     |      |                      |                             |                            |                                                                                      |       |       |       |       |
| SINGLE FAN-WIDTH UNITS |          |     |      |                      |                             |                            | MINIMUM AMBIENT TEMPERATURE (°F)                                                     |       |       |       |       |
| 1140                   | 850      | 550 | VSEC |                      |                             |                            | 60                                                                                   | 40    | 20    | 0     | -20   |
| 009                    | 009      | 008 | 011  | 36                   | 0.11                        | 4.1                        | 5.9                                                                                  | 8.3   | 9.6   | 10.5  | 11.2  |
| 011                    | 013      | 010 | 015  |                      | 0.17                        | 6.1                        | 9.1                                                                                  | 12.7  | 14.5  | 15.8  | 16.9  |
| 013                    | 014      | 011 | 017  |                      | 0.23                        | 8.1                        | 12.0                                                                                 | 16.0  | 18.3  | 20.7  | 21.8  |
| 017, 021               | ---      | 015 | 022  |                      | 0.23                        | 8.1                        | 11.8                                                                                 | 16.6  | 19.1  | 20.9  | 22.4  |
| 022, 028               | 019, 026 | 019 | 030  |                      | 0.34                        | 12.2                       | 18.2                                                                                 | 25.3  | 29.0  | 31.7  | 33.8  |
| 033                    | 029      | 021 | 033  |                      | 0.45                        | 16.2                       | 24.0                                                                                 | 31.9  | 36.6  | 41.3  | 43.7  |
| 041                    | 039      | 029 | 045  |                      | 0.51                        | 18.3                       | 27.3                                                                                 | 38.0  | 43.5  | 47.5  | 50.7  |
| 048                    | 044      | 032 | 051  |                      | 0.68                        | 24.3                       | 36.0                                                                                 | 47.9  | 54.9  | 62.0  | 65.5  |
| 055                    | 051      | 039 | 059  |                      | 0.68                        | 24.4                       | 36.5                                                                                 | 50.7  | 58.1  | 63.3  | 67.6  |
| 064                    | 058      | 043 | 067  |                      | 0.90                        | 32.4                       | 48.0                                                                                 | 63.8  | 73.2  | 82.7  | 87.4  |
| 070                    | 063      | 049 | 073  |                      | 1.41                        | 50.9                       | 80.3                                                                                 | 111.0 | 126.9 | 138.2 | 147.4 |
| 082                    | 077      | 054 | 089  |                      | 1.93                        | 69.6                       | 93.2                                                                                 | 135.8 | 159.1 | 175.8 | 189.1 |
| 098                    | 092      | 068 | 107  |                      | 2.32                        | 83.5                       | 111.8                                                                                | 163.0 | 190.9 | 211.0 | 226.9 |
| 114                    | 107      | 079 | 125  |                      | 2.71                        | 97.4                       | 130.5                                                                                | 190.1 | 222.7 | 246.1 | 264.7 |
| DOUBLE FAN-WIDTH UNITS |          |     |      |                      |                             |                            |                                                                                      |       |       |       |       |
| 041                    | 037      | 030 | 043  | 72                   | 0.23                        | 16.2                       | 23.7                                                                                 | 33.2  | 38.3  | 41.9  | 44.8  |
| 055                    | 052      | 039 | 059  |                      | 0.34                        | 24.4                       | 36.5                                                                                 | 50.7  | 58.1  | 63.3  | 67.6  |
| 064                    | 056      | 043 | 067  |                      | 0.45                        | 32.4                       | 48.0                                                                                 | 63.8  | 73.2  | 82.7  | 84.4  |
| 082                    | 076      | 058 | 089  |                      | 0.51                        | 36.6                       | 96.3                                                                                 | 133.2 | 152.3 | 165.9 | 172.6 |
| 097                    | 087      | 064 | 102  |                      | 0.68                        | 48.6                       | 72.0                                                                                 | 95.8  | 109.7 | 124.0 | 131.0 |
| 110                    | 103      | 077 | 118  |                      | 0.68                        | 48.8                       | 72.9                                                                                 | 101.3 | 116.1 | 126.7 | 135.2 |
| 127                    | 116      | 086 | 135  |                      | 0.90                        | 64.8                       | 96.0                                                                                 | 127.7 | 146.3 | 165.4 | 174.7 |
| 140                    | 126      | 098 | 147  |                      | 1.41                        | 101.7                      | 160.6                                                                                | 222.0 | 253.8 | 276.5 | 294.9 |
| 164                    | 152      | 108 | 179  |                      | 1.93                        | 139.2                      | 186.4                                                                                | 271.6 | 318.2 | 351.6 | 378.2 |
| 196                    | 183      | 136 | 214  |                      | 2.32                        | 167.0                      | 223.7                                                                                | 325.9 | 381.8 | 421.9 | 453.8 |
| 229                    | 213      | 158 | 250  |                      | 2.71                        | 194.8                      | 261.0                                                                                | 380.2 | 445.5 | 492.2 | 529.5 |

<sup>†</sup> Based on 90°F Condensing Temperature

\* For R-22 multiply by 1.13

\* For R-134A multiply by 1.15

\* For R-410A multiply by 1.02

\* For R407A or R407C, multiply by 1.09

**Table 6: Low Ambient Design TD Correction Factors**

| Minimum Ambient Temperature (°F) | Design TD |      |      |      |      |
|----------------------------------|-----------|------|------|------|------|
|                                  | 30        | 25   | 20   | 15   | 10   |
| 60                               | 0         | 0.40 | 0.76 | 1.00 | 1.24 |
| 40                               | 0.73      | 0.84 | 0.92 | 1.00 | 1.09 |
| 20                               | 0.86      | 0.92 | 0.95 | 1.00 | 1.05 |
| 0                                | 0.91      | 0.94 | 0.97 | 1.00 | 1.04 |
| -20                              | 0.93      | 0.96 | 0.98 | 1.00 | 1.02 |

## Fan Cycling Control Option

The cycling of condenser fans provides an automatic means of maintaining condensing pressure control at low ambient air temperature conditions. It also results in substantial fan motor power savings in lower ambient. Temperature sensing thermostats or pressure controls determine whether the motor is on or off. The minimum ambient temperatures for units with the Fan Cycling Control Option can be found in Table 7.

The Fan Cycling Control Option consists of a weatherproof enclosure, fan contactors, and either ambient thermostat(s) or pressure control(s). The enclosure is factory mounted and completely factory wired. Power must be supplied from a fused disconnect switch to the power circuit terminal block; control circuit power must be supplied to the control terminal block.

Table 8 shows the recommended temperature set points for the thermostats. Thermostat 1 is for the second fan from the header end, Thermostat 2 for the third fan from the header end, etc. The fan(s) nearest the header end must run continuously, and cannot be cycled.

## Fan Speed Control Option – Available only with Fan Cycling Control Option

Designed to enhance the performance of the Fan Cycling Control Option by reducing the RPM and air volume of the lead (header end) fan motor(s) after all other (lag) fans have cycled off. The lead fan(s) must run continuously, even in the lowest ambient temperature. By reducing their CFM, adequate head pressure can be maintained at lower ambient temperatures without resorting to flooded condenser head pressure controls. This option includes a Johnson P66 or P266 Speed Controller, 24 volt transformer, single phase fan motor and pressure line piped from the last return bend in the circuit opposite the header end to the speed control. Double fan-width models require two controllers for the two lead fan motors. All components are factory mounted and wired. Controller decreases fan motor RPM as head pressure decreases. See Table 7 for minimum ambient temperatures for units with both the Fan Cycling Control Option and Fan Speed Control Option.



**Table 7: Minimum Ambient with Fan Cycling Control**

| # of Fans Long | Design TD* | Minimum Ambient Temp. (°F) |                        |
|----------------|------------|----------------------------|------------------------|
|                |            | Without Fan Speed Control  | With Fan Speed Control |
| 2              | 30         | 35                         | 10                     |
|                | 25         | 45                         | 23                     |
|                | 20         | 54                         | 37                     |
|                | 15         | 63                         | 50                     |
|                | 10         | 72                         | 63                     |
| 3              | 30         | 15                         | -16                    |
|                | 25         | 28                         | 2                      |
|                | 20         | 40                         | 19                     |
|                | 15         | 53                         | 37                     |
|                | 10         | 65                         | 55                     |
| 4              | 30         | -2                         | -25                    |
|                | 25         | 13                         | -15                    |
|                | 20         | 28                         | 6                      |
|                | 15         | 44                         | 27                     |
|                | 10         | 59                         | 48                     |
| 5              | 30         | -17                        | -25                    |
|                | 25         | 1                          | -25                    |
|                | 20         | 19                         | -5                     |
|                | 15         | 36                         | 19                     |
|                | 10         | 54                         | 42                     |
| 6              | 30         | -25                        | -25                    |
|                | 25         | -10                        | -25                    |
|                | 20         | 10                         | -14                    |
|                | 15         | 30                         | 12                     |
|                | 10         | 50                         | 38                     |
| 7              | 30         | -25                        | -25                    |
|                | 25         | -19                        | -25                    |
|                | 20         | 3                          | -22                    |
|                | 15         | 24                         | 6                      |
|                | 10         | 46                         | 34                     |

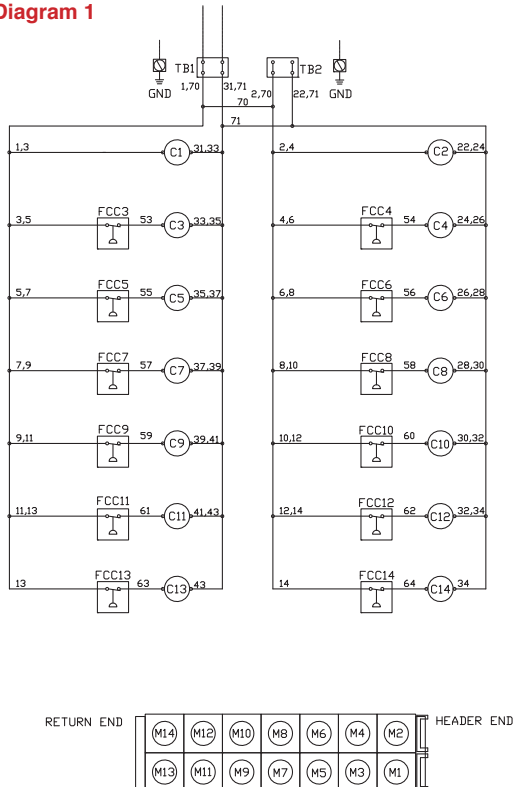
\* Based on approximately 90°F condensing temperature.

**Table 8: Recommended Fan Cycling Thermostat Settings**

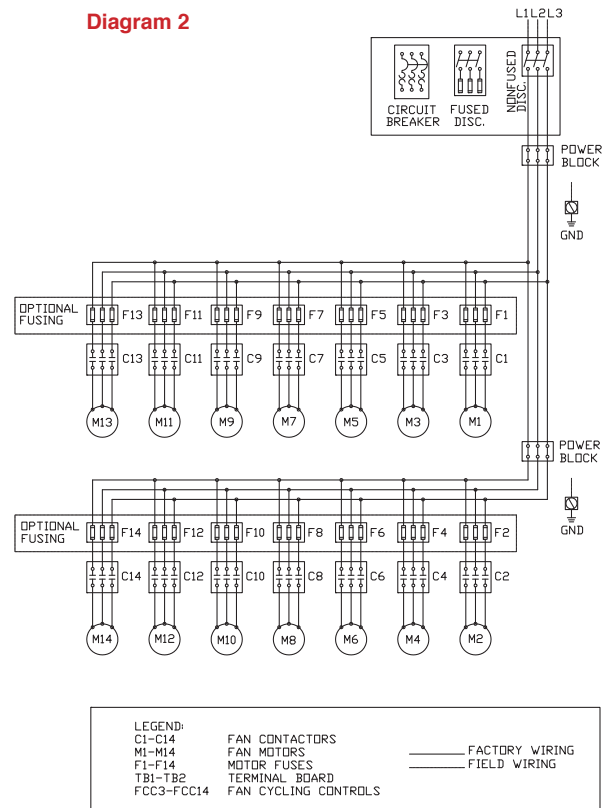
| # of Fans Long | Design TD* | Thermostat Setpoint (°F) |    |    |    |    |    |
|----------------|------------|--------------------------|----|----|----|----|----|
|                |            | 1                        | 2  | 3  | 4  | 5  | 6  |
| 2              | 30         | 60                       |    |    |    |    |    |
|                | 25         | 65                       |    |    |    |    |    |
|                | 20         | 70                       |    |    |    |    |    |
|                | 15         | 75                       |    |    |    |    |    |
|                | 10         | 80                       |    |    |    |    |    |
| 3              | 30         | 47                       | 60 |    |    |    |    |
|                | 25         | 54                       | 65 |    |    |    |    |
|                | 20         | 61                       | 70 |    |    |    |    |
|                | 15         | 69                       | 75 |    |    |    |    |
|                | 10         | 76                       | 80 |    |    |    |    |
| 4              | 30         | 35                       | 51 | 60 |    |    |    |
|                | 25         | 45                       | 58 | 65 |    |    |    |
|                | 20         | 54                       | 64 | 70 |    |    |    |
|                | 15         | 63                       | 71 | 75 |    |    |    |
|                | 10         | 72                       | 77 | 80 |    |    |    |
| 5              | 30         | 25                       | 43 | 53 | 60 |    |    |
|                | 25         | 36                       | 51 | 60 | 65 |    |    |
|                | 20         | 47                       | 59 | 66 | 70 |    |    |
|                | 15         | 57                       | 67 | 72 | 75 |    |    |
|                | 10         | 68                       | 74 | 78 | 80 |    |    |
| 6              | 30         | 15                       | 35 | 47 | 55 | 60 |    |
|                | 25         | 28                       | 45 | 54 | 61 | 65 |    |
|                | 20         | 40                       | 54 | 61 | 66 | 70 |    |
|                | 15         | 53                       | 63 | 69 | 72 | 75 |    |
|                | 10         | 65                       | 72 | 76 | 78 | 80 |    |
| 7              | 30         | 6                        | 28 | 41 | 50 | 56 | 60 |
|                | 25         | 20                       | 39 | 49 | 56 | 61 | 65 |
|                | 20         | 34                       | 49 | 57 | 63 | 67 | 70 |
|                | 15         | 48                       | 59 | 66 | 70 | 73 | 75 |
|                | 10         | 62                       | 69 | 74 | 77 | 79 | 80 |

\*Setpoint is the temperature at which the fan(s) cycle off.

**Diagram 1**



**Diagram 2**



\* FCC3 - FCC14 are only present in units with the Fan Cycling Control Option, and can be either ambient temperature controls or pressure controls.

## Performance Data - THR MBH 1°F TD

## Variable Speed EC Fan Motors

| Unit Size | Refrigerants-404A & 507 |    |    |    | Refrigerant-407A |    |    |    |
|-----------|-------------------------|----|----|----|------------------|----|----|----|
|           | FPI                     |    |    |    | FPI              |    |    |    |
|           | 8                       | 10 | 12 | 14 | 8                | 10 | 12 | 14 |

## SINGLE FAN-WIDTH MODELS

|                 |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|
| KDS011*G1B12A1A | 5.2  | 5.9  | 6.4  | 6.9  | 4.9  | 5.6  | 6.0  | 6.5  |
| KDS015*G1B12A1A | 7.2  | 8.0  | 8.6  | 9.1  | 7.0  | 7.8  | 8.4  | 8.9  |
| KDS017*G1B12A1A | 8.3  | 9.1  | 9.5  | 10.1 | 8.3  | 9.2  | 9.6  | 10.2 |
| KDS022*G2B12A1A | 10.3 | 11.7 | 12.8 | 13.8 | 9.7  | 11.0 | 12.1 | 13.1 |
| KDS030*G2B12A1A | 14.4 | 16.0 | 17.2 | 18.2 | 14.0 | 15.6 | 16.8 | 17.7 |
| KDS033*G2B12A1A | 16.6 | 18.1 | 19.0 | 20.1 | 16.7 | 18.2 | 19.2 | 20.2 |
| KDS045*G3B12A1A | 21.6 | 24.1 | 25.8 | 27.3 | 21.1 | 23.5 | 25.2 | 26.7 |
| KDS051*G3B12A1A | 25.4 | 27.7 | 29.2 | 30.9 | 25.5 | 27.9 | 29.4 | 31.0 |
| KDS059*G4B12A1A | 28.7 | 31.9 | 34.2 | 36.2 | 28.0 | 31.1 | 33.4 | 35.3 |
| KDS067*G4B12A1A | 33.5 | 36.5 | 38.5 | 40.6 | 33.7 | 36.7 | 38.7 | 40.9 |
| KDS073*G5B12A1A | 36.1 | 39.7 | 42.5 | 44.5 | 35.9 | 39.4 | 42.2 | 44.2 |
| KDS089*G5B12A1A | 44.9 | 48.3 | 50.1 | 53.1 | 46.0 | 49.6 | 51.4 | 54.5 |
| KDS107*G6B12A1A | 53.8 | 57.9 | 60.1 | 63.7 | 55.2 | 59.5 | 61.7 | 65.4 |
| KDS125*G7B12A1A | 62.8 | 67.6 | 70.1 | 74.3 | 64.4 | 69.3 | 71.9 | 76.3 |

## DOUBLE FAN-WIDTH MODELS

|                 |       |       |       |       |       |       |       |       |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|
| KDD043*G2B12A2A | 20.4  | 23.2  | 25.5  | 27.5  | 19.3  | 21.9  | 24.1  | 26.0  |
| KDD059*G2B12A2A | 28.7  | 31.9  | 34.2  | 36.2  | 28.0  | 31.1  | 33.4  | 35.3  |
| KDD067*G2B12A2A | 33.0  | 36.0  | 38.0  | 40.1  | 33.2  | 36.2  | 38.2  | 40.3  |
| KDD089*G3B12A2A | 43.2  | 48.1  | 51.5  | 54.5  | 42.1  | 46.9  | 50.3  | 53.2  |
| KDD102*G3B12A2A | 50.7  | 55.3  | 58.3  | 61.6  | 51.0  | 55.6  | 58.7  | 61.9  |
| KDD118*G4B12A2A | 57.5  | 64.0  | 68.6  | 72.6  | 56.0  | 62.4  | 66.9  | 70.8  |
| KDD135*G4B12A2A | 66.9  | 73.0  | 77.0  | 81.3  | 67.3  | 73.4  | 77.4  | 81.8  |
| KDD147*G5B12A2A | 72.2  | 79.3  | 84.9  | 89.0  | 71.7  | 78.7  | 84.3  | 88.4  |
| KDD179*G5B12A2A | 89.8  | 96.7  | 100.3 | 106.4 | 92.2  | 99.3  | 102.9 | 109.2 |
| KDD214*G6B12A2A | 107.7 | 116.0 | 120.3 | 127.6 | 110.6 | 119.0 | 123.4 | 130.9 |
| KDD250*G7B12A2A | 125.6 | 135.2 | 140.2 | 148.8 | 128.9 | 138.8 | 143.9 | 152.7 |

\* voltage code place holder

For R-22 capacity, multiply R404A unit capacity by 1.02

For R-410A capacity, multiply R404A unit capacity by 1.08

For R-134 capacity multiply R-404A unit capacity by .97

For R-407C capacity, multiply R407A capacity by .98

Note: R-407A Ratings are based on Mean Condensing Temperature which is the average of the Dew Point and Bubble Point temperatures corresponding to the refrigerant temperature at the condenser inlet.

Condensers with Variable Speed Electronically Commutated (VSEC) motors provide quiet and highly efficient condenser operation. While maximum performance is required to meet peak daytime demands, lower speed and lower noise levels characterize off-peak and night time conditions.

Utilizing state of the art programmable VSEC fan motor assemblies, these condensers provide the flexibility to meet these challenging requirements while delivering quiet, energy efficient and trouble free operation.

### SPECIFICATIONS VARIABLE SPEED EC Fan Motors

| Unit | Fan |     |     |                  | Maximum     | Connections | Conn | Approximate    | Unit | 208-230/3/60 |     |      | 460/3/60 |     |      | 575/3/60 |     |      |
|------|-----|-----|-----|------------------|-------------|-------------|------|----------------|------|--------------|-----|------|----------|-----|------|----------|-----|------|
| Size | Qty | Dia | CFM | dBA <sup>†</sup> | Circuit Qty | (inches)    | Qty  | Net Wgt. (lbs) | kW   | FLA          | MCA | MOPD | FLA      | MCA | MOPD | FLA      | MCA | MOPD |

#### SINGLE FAN-WIDTH MODELS

|     |   |      |       |      |    |       |   |      |       |      |      |    |      |      |    |               |  |  |
|-----|---|------|-------|------|----|-------|---|------|-------|------|------|----|------|------|----|---------------|--|--|
| 011 | 1 | 31.5 | 12270 | 59.1 | 12 | 1 5/8 | 2 | 345  | 1.44  | 4.2  | 15.0 | 15 | 2.1  | 15.0 | 15 | Not Available |  |  |
| 015 | 1 | 31.5 | 11390 | 59.1 | 18 | 1 5/8 | 2 | 365  | 1.44  | 4.2  | 15.0 | 15 | 2.1  | 15.0 | 15 |               |  |  |
| 017 | 1 | 31.5 | 10620 | 59.1 | 24 | 1 5/8 | 2 | 390  | 1.44  | 4.2  | 15.0 | 15 | 2.1  | 15.0 | 15 |               |  |  |
| 022 | 2 | 31.5 | 24540 | 62.0 | 18 | 1 5/8 | 2 | 630  | 2.88  | 8.4  | 15.0 | 15 | 4.2  | 15.0 | 15 |               |  |  |
| 030 | 2 | 31.5 | 22780 | 62.0 | 27 | 1 5/8 | 2 | 675  | 2.88  | 8.4  | 15.0 | 15 | 4.2  | 15.0 | 15 |               |  |  |
| 033 | 2 | 31.5 | 21240 | 62.0 | 36 | 1 5/8 | 2 | 725  | 2.88  | 8.4  | 15.0 | 15 | 4.2  | 15.0 | 15 |               |  |  |
| 045 | 3 | 31.5 | 34170 | 63.7 | 27 | 2 1/8 | 2 | 980  | 4.32  | 12.6 | 15.0 | 15 | 6.3  | 15.0 | 15 |               |  |  |
| 051 | 3 | 31.5 | 31860 | 63.7 | 36 | 2 1/8 | 2 | 1150 | 4.32  | 12.6 | 15.0 | 15 | 6.3  | 15.0 | 15 |               |  |  |
| 059 | 4 | 31.5 | 45560 | 65.0 | 27 | 2 1/8 | 2 | 1250 | 5.76  | 16.8 | 17.9 | 20 | 8.4  | 15.0 | 15 |               |  |  |
| 067 | 4 | 31.5 | 42840 | 65.0 | 36 | 2 1/8 | 2 | 1350 | 5.76  | 16.8 | 17.9 | 20 | 8.4  | 15.0 | 15 |               |  |  |
| 073 | 5 | 31.5 | 56950 | 65.9 | 27 | 2 5/8 | 2 | 1600 | 7.20  | 21.0 | 22.1 | 25 | 10.5 | 15.0 | 15 |               |  |  |
| 089 | 5 | 31.5 | 53100 | 65.9 | 36 | 2 5/8 | 2 | 1740 | 7.20  | 21.0 | 22.1 | 25 | 10.5 | 15.0 | 15 |               |  |  |
| 107 | 6 | 31.5 | 63720 | 66.8 | 36 | 2 5/8 | 2 | 2050 | 8.64  | 25.2 | 26.3 | 30 | 12.6 | 15.0 | 15 |               |  |  |
| 125 | 7 | 31.5 | 74340 | 67.4 | 36 | 2 5/8 | 2 | 2375 | 10.08 | 29.4 | 30.5 | 35 | 14.7 | 15.2 | 20 |               |  |  |

#### DOUBLE FAN-WIDTH MODELS

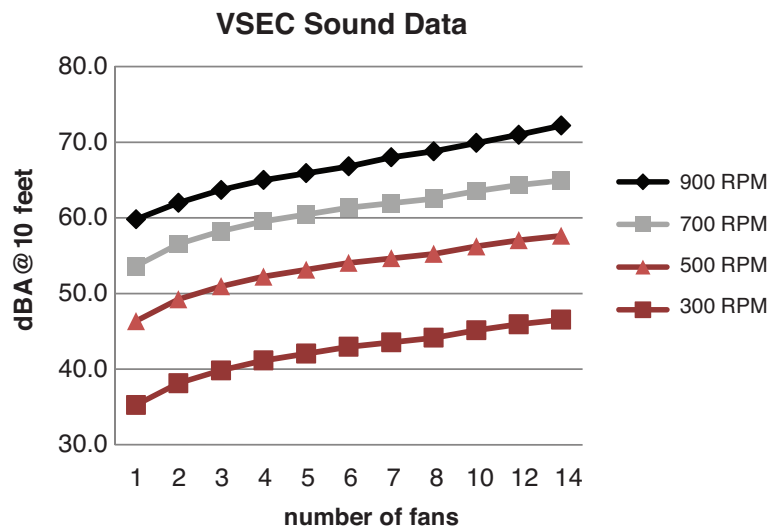
|     |    |      |        |      |    |       |   |      |       |      |      |    |      |      |    |               |  |  |
|-----|----|------|--------|------|----|-------|---|------|-------|------|------|----|------|------|----|---------------|--|--|
| 043 | 4  | 31.5 | 49080  | 67.1 | 36 | 1 5/8 | 4 | 1115 | 5.76  | 16.8 | 17.9 | 20 | 8.4  | 15.0 | 15 | Not Available |  |  |
| 059 | 4  | 31.5 | 45560  | 67.1 | 54 | 1 5/8 | 4 | 1210 | 5.76  | 16.8 | 17.9 | 20 | 8.4  | 15.0 | 15 |               |  |  |
| 067 | 4  | 31.5 | 42480  | 67.1 | 72 | 1 5/8 | 4 | 1310 | 5.76  | 16.8 | 17.9 | 20 | 8.4  | 15.0 | 15 |               |  |  |
| 089 | 6  | 31.5 | 68340  | 68.8 | 54 | 2 1/8 | 4 | 1750 | 8.64  | 25.2 | 26.3 | 30 | 12.6 | 15.0 | 15 |               |  |  |
| 102 | 6  | 31.5 | 63720  | 68.8 | 72 | 2 1/8 | 4 | 1900 | 8.64  | 25.2 | 26.3 | 30 | 12.6 | 15.0 | 15 |               |  |  |
| 118 | 8  | 31.5 | 91120  | 70.1 | 54 | 2 1/8 | 4 | 2250 | 11.52 | 33.6 | 34.7 | 35 | 16.8 | 17.3 | 20 |               |  |  |
| 135 | 8  | 31.5 | 84960  | 70.1 | 72 | 2 1/8 | 4 | 2450 | 11.52 | 33.6 | 34.7 | 35 | 16.8 | 17.3 | 20 |               |  |  |
| 147 | 10 | 31.5 | 113900 | 71.0 | 54 | 2 5/8 | 4 | 2890 | 14.40 | 42.0 | 43.1 | 45 | 21.0 | 21.5 | 25 |               |  |  |
| 179 | 10 | 31.5 | 106200 | 71.0 | 72 | 2 5/8 | 4 | 3170 | 14.40 | 42.0 | 43.1 | 45 | 21.0 | 21.5 | 25 |               |  |  |
| 214 | 12 | 31.5 | 127440 | 71.6 | 72 | 2 5/8 | 4 | 3745 | 17.28 | 50.4 | 51.5 | 60 | 25.2 | 25.7 | 30 |               |  |  |
| 250 | 14 | 31.5 | 148680 | 72.2 | 72 | 2 5/8 | 4 | 4340 | 20.16 | 58.8 | 59.9 | 60 | 29.4 | 29.9 | 30 |               |  |  |

<sup>†</sup>Sound pressure dBA @ 10 feet.

\* = Voltage code place holder

Design operating conditions may result in connection sizes which are different from those listed above.

### VARIABLE SPEED EC MOTOR - SOUND DATA dBA@ 10 FT.



## Performance Data - THR MBH 1°F TD

## 1140 RPM Fan Motors

| Unit Size | Refrigerants-404A & 507 |    |    |    | Refrigerant-407A |    |    |    |
|-----------|-------------------------|----|----|----|------------------|----|----|----|
|           | FPI                     |    |    |    | FPI              |    |    |    |
|           | 8                       | 10 | 12 | 14 | 8                | 10 | 12 | 14 |

## SMALL CONDENSERS

|                 |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|
| KDS001*A1B12A1A | 0.73 | 0.84 | 0.90 | 1.04 | 0.67 | 0.77 | 0.82 | 0.95 |
| KDS002*A1B12A1A | 1.17 | 1.33 | 1.46 | 1.57 | 1.11 | 1.26 | 1.38 | 1.48 |
| KDS003*A1B12A1A | 1.60 | 1.81 | 1.99 | 2.15 | 1.52 | 1.72 | 1.89 | 2.04 |
| KDS005*A1B12A1A | 2.23 | 2.48 | 2.66 | 2.81 | 2.18 | 2.43 | 2.61 | 2.75 |
| KDS007*A2B12A1A | 3.42 | 3.89 | 4.27 | 4.60 | 3.25 | 3.69 | 4.05 | 4.37 |
| KDS009*A2B12A1A | 4.56 | 5.08 | 5.45 | 5.76 | 4.47 | 4.98 | 5.34 | 5.64 |
| KDS011*A2B12A1A | 5.31 | 5.79 | 6.10 | 6.45 | 5.37 | 5.85 | 6.16 | 6.52 |

## SINGLE FAN-WIDTH MODELS

|                 |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|
| KDS009*B1B12A1A | 4.9  | 5.6  | 6.1  | 6.6  | 4.7  | 5.3  | 5.8  | 6.3  |
| KDS011*B1B12A1A | 6.7  | 7.5  | 8.0  | 8.4  | 6.6  | 7.3  | 7.8  | 8.2  |
| KDS013*B1B12A1A | 8.2  | 8.9  | 9.3  | 9.6  | 8.3  | 9.0  | 9.4  | 9.7  |
| KDS017*B2B12A1A | 8.0  | 9.1  | 10.0 | 10.7 | 7.7  | 8.7  | 9.6  | 10.3 |
| KDS021*B2B12A1A | 9.8  | 11.1 | 12.2 | 13.1 | 9.3  | 10.5 | 11.5 | 12.4 |
| KDS022*B2B12A1A | 10.7 | 11.9 | 12.7 | 13.4 | 10.5 | 11.6 | 12.3 | 13.1 |
| KDS028*B2B12A1A | 13.4 | 14.9 | 15.9 | 16.7 | 13.1 | 14.5 | 15.6 | 16.4 |
| KDS033*B2B12A1A | 16.3 | 17.7 | 18.6 | 19.1 | 16.4 | 17.8 | 18.8 | 19.3 |
| KDS041*B3B12A1A | 20.1 | 22.3 | 23.9 | 25.1 | 19.7 | 21.8 | 23.4 | 24.6 |
| KDS048*B3B12A1A | 24.0 | 26.0 | 27.4 | 28.7 | 24.2 | 26.3 | 27.6 | 29.0 |
| KDS055*B4B12A1A | 26.8 | 29.7 | 31.8 | 33.4 | 26.2 | 29.1 | 31.2 | 32.8 |
| KDS064*B4B12A1A | 31.6 | 34.5 | 36.4 | 38.3 | 31.9 | 34.8 | 36.8 | 38.7 |
| KDS070*B5B12A1A | 34.6 | 38.0 | 40.5 | 42.3 | 34.5 | 37.9 | 40.4 | 42.2 |
| KDS082*B5B12A1A | 41.2 | 44.3 | 46.4 | 48.5 | 42.5 | 45.7 | 47.8 | 50.0 |
| KDS098*B6B12A1A | 49.3 | 53.0 | 54.3 | 58.0 | 50.9 | 54.7 | 56.0 | 59.8 |
| KDS114*B7B12A1A | 57.5 | 61.9 | 63.4 | 67.6 | 59.3 | 63.8 | 65.4 | 69.7 |

## DOUBLE FAN-WIDTH MODELS

|                 |       |       |       |       |       |       |       |       |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|
| KDD041*B2B12A2A | 19.6  | 22.2  | 24.3  | 26.1  | 18.6  | 21.1  | 23.1  | 24.8  |
| KDD055*B2B12A2A | 26.8  | 29.7  | 31.8  | 33.4  | 26.2  | 29.1  | 31.2  | 32.8  |
| KDD064*B2B12A2A | 31.9  | 34.7  | 36.4  | 38.3  | 32.3  | 35.0  | 36.8  | 38.7  |
| KDD082*B3B12A2A | 39.8  | 44.5  | 47.3  | 50.3  | 39.0  | 43.6  | 46.3  | 49.2  |
| KDD097*B3B12A2A | 48.1  | 52.2  | 54.8  | 58.5  | 48.6  | 52.7  | 55.4  | 59.1  |
| KDD110*B4B12A2A | 53.5  | 59.4  | 63.7  | 66.9  | 52.4  | 58.2  | 62.4  | 65.5  |
| KDD127*B4B12A2A | 63.1  | 68.9  | 72.9  | 76.6  | 63.8  | 69.7  | 73.6  | 77.4  |
| KDD140*B5B12A2A | 69.1  | 75.9  | 81.0  | 84.6  | 69.0  | 75.7  | 80.8  | 84.4  |
| KDD164*B5B12A2A | 82.5  | 88.7  | 92.8  | 97.0  | 85.1  | 91.5  | 95.7  | 100.1 |
| KDD196*B6B12A2A | 98.6  | 106.1 | 108.7 | 115.9 | 101.7 | 109.4 | 112.1 | 119.5 |
| KDD229*B7B12A2A | 115.1 | 123.7 | 126.8 | 135.2 | 118.7 | 127.6 | 130.8 | 139.4 |

\* voltage code place holder

For R-22 capacity, multiply R404A unit capacity by 1.02

For R-410A capacity, multiply R404A unit capacity by 1.08

For R-134 capacity multiply R-404A unit capacity by .97

For R-407C capacity, multiply R407A capacity by .98

Note: R-407A Ratings are based on Mean Temperature which is the average of the Dew Point and Bubble Point temperatures corresponding to the refrigerant temperature at the condenser inlet.

# SPECIFICATIONS 1140 RPM Fan Motors

| Unit<br>Size | Fan |     |     |                  | Maximum<br>Circuit Qty | Conn.<br>(inches) | Conn<br>Qty | Net<br>Wgt. (lbs) | Unit<br>kW | 208-230/1/60 |     |      | 208-230/3/60 |     |      | 460/1/60 |     |      | 460/3/60 |     |      | 575/1/60 |     |      |
|--------------|-----|-----|-----|------------------|------------------------|-------------------|-------------|-------------------|------------|--------------|-----|------|--------------|-----|------|----------|-----|------|----------|-----|------|----------|-----|------|
|              | Qty | Dia | CFM | dBA <sup>†</sup> |                        |                   |             |                   |            | FLA          | MCA | MOPD | FLA          | MCA | MOPD | FLA      | MCA | MOPD | FLA      | MCA | MOPD | FLA      | MCA | MOPD |

## SMALL CONDENSERS

|     |   |    |      |      |    |       |   |     |      |     |      |      |     |      |    |     |      |    |     |      |    |     |      |    |
|-----|---|----|------|------|----|-------|---|-----|------|-----|------|------|-----|------|----|-----|------|----|-----|------|----|-----|------|----|
| 001 | 1 | 18 | 3020 | 47.0 | 5  | 7/8   | 2 | 80  | 0.28 | 3.2 | 15.0 | 15.0 | 1.8 | 15.0 | 15 | 1.3 | 15.0 | 15 | 0.9 | 15.0 | 15 | 1.0 | 15.0 | 15 |
| 002 | 1 | 18 | 2840 | 47.0 | 10 | 7/8   | 2 | 86  | 0.28 | 3.2 | 15.0 | 15.0 | 1.8 | 15.0 | 15 | 1.3 | 15.0 | 15 | 0.9 | 15.0 | 15 | 1.0 | 15.0 | 15 |
| 003 | 1 | 22 | 4450 | 57.0 | 12 | 7/8   | 2 | 107 | 0.47 | 3.2 | 15.0 | 15.0 | 1.8 | 15.0 | 15 | 1.3 | 15.0 | 15 | 0.9 | 15.0 | 15 | 1.0 | 15.0 | 15 |
| 005 | 1 | 22 | 3900 | 57.0 | 18 | 7/8   | 2 | 116 | 0.47 | 3.2 | 15.0 | 15.0 | 1.8 | 15.0 | 15 | 1.3 | 15.0 | 15 | 0.9 | 15.0 | 15 | 1.0 | 15.0 | 15 |
| 007 | 2 | 22 | 8640 | 60.0 | 18 | 1 1/8 | 2 | 164 | 0.94 | 6.4 | 15.0 | 15.0 | 3.6 | 15.0 | 15 | 2.6 | 15.0 | 15 | 1.8 | 15.0 | 15 | 2.0 | 15.0 | 15 |
| 009 | 2 | 22 | 7780 | 60.0 | 27 | 1 1/8 | 2 | 179 | 0.94 | 6.4 | 15.0 | 15.0 | 3.6 | 15.0 | 15 | 2.6 | 15.0 | 15 | 1.8 | 15.0 | 15 | 2.0 | 15.0 | 15 |
| 011 | 2 | 22 | 7080 | 60.0 | 36 | 1 1/8 | 2 | 195 | 0.94 | 6.4 | 15.0 | 15.0 | 3.6 | 15.0 | 15 | 2.6 | 15.0 | 15 | 1.8 | 15.0 | 15 | 2.0 | 15.0 | 15 |

## SINGLE FAN-WIDTH MODELS

| Unit<br>Size | Fan |     |       |                  | Maximum<br>Circuit Qty | Conn.<br>(inches) | Conn<br>Qty | Net<br>Wgt. (lbs) | Unit<br>kW | 208-230/1/60 |      |      | 208-230/3/60 |      |      | 460/1/60 |      |      | 460/3/60 |      |      | 575/3/60 |      |      |
|--------------|-----|-----|-------|------------------|------------------------|-------------------|-------------|-------------------|------------|--------------|------|------|--------------|------|------|----------|------|------|----------|------|------|----------|------|------|
|              | Qty | Dia | CFM   | dBA <sup>†</sup> |                        |                   |             |                   |            | FLA          | MCA  | MOPD | FLA          | MCA  | MOPD | FLA      | MCA  | MOPD | FLA      | MCA  | MOPD | FLA      | MCA  | MOPD |
| 009          | 1   | 30  | 11400 | 71.0             | 12                     | 1 3/8             | 2           | 305               | 1.8        | 4.7          | 15.0 | 20.0 | 6.5          | 15.0 | 20   | 2.4      | 15.0 | 20.0 | 3.3      | 15.0 | 15   | 2.2      | 15.0 | 15   |
| 011          | 1   | 30  | 10700 | 71.0             | 18                     | 1 3/8             | 2           | 330               | 1.8        | 4.7          | 15.0 | 20.0 | 6.5          | 15.0 | 20   | 2.4      | 15.0 | 20.0 | 3.3      | 15.0 | 15   | 2.2      | 15.0 | 15   |
| 013          | 1   | 30  | 10140 | 71.0             | 24                     | 1 3/8             | 2           | 360               | 1.8        | 4.7          | 15.0 | 20.0 | 6.5          | 15.0 | 20   | 2.4      | 15.0 | 20.0 | 3.3      | 15.0 | 15   | 2.2      | 15.0 | 15   |
| 017          | 2   | 30  | 15500 | 73.8             | 18                     | 1 5/8             | 2           | 560               | 2.0        | 9.4          | 15.0 | 20.0 | 13.0         | 15.0 | 20   | 4.7      | 15.0 | 20.0 | 6.6      | 15.0 | 15   | 4.3      | 15.0 | 15   |
| 021          | 2   | 30  | 22800 | 74.1             | 18                     | 1 5/8             | 2           | 575               | 2.0        | ---          | ---  | ---  | 13.0         | 15.0 | 20   | ---      | ---  | ---  | 6.6      | 15.0 | 15   | 4.3      | 15.0 | 15   |
| 022          | 2   | 30  | 15400 | 73.8             | 27                     | 1 5/8             | 2           | 590               | 3.6        | 9.4          | 15.0 | 20.0 | 13.0         | 15.0 | 20   | 4.7      | 15.0 | 20.0 | 6.6      | 15.0 | 15   | 4.3      | 15.0 | 15   |
| 028          | 2   | 30  | 21400 | 74.1             | 27                     | 1 5/8             | 2           | 610               | 3.6        | ---          | ---  | ---  | 13.0         | 15.0 | 20   | ---      | ---  | ---  | 6.6      | 15.0 | 15   | 4.3      | 15.0 | 15   |
| 033          | 2   | 30  | 20280 | 74.1             | 36                     | 1 5/8             | 2           | 660               | 3.6        | ---          | ---  | ---  | 13.0         | 15.0 | 20   | ---      | ---  | ---  | 6.6      | 15.0 | 15   | 4.3      | 15.0 | 15   |
| 041          | 3   | 30  | 32100 | 75.9             | 27                     | 2 1/8             | 2           | 880               | 5.4        | ---          | ---  | ---  | 19.5         | 21.2 | 25   | ---      | ---  | ---  | 9.9      | 15.0 | 15   | 6.5      | 15.0 | 15   |
| 048          | 3   | 30  | 30420 | 75.9             | 36                     | 2 1/8             | 2           | 950               | 5.4        | ---          | ---  | ---  | 19.5         | 21.2 | 25   | ---      | ---  | ---  | 9.9      | 15.0 | 15   | 6.5      | 15.0 | 15   |
| 055          | 4   | 30  | 42800 | 77.3             | 27                     | 2 1/8             | 2           | 1120              | 7.2        | ---          | ---  | ---  | 26.0         | 27.7 | 30   | ---      | ---  | ---  | 13.2     | 15.0 | 15   | 8.6      | 15.0 | 15   |
| 064          | 4   | 30  | 40560 | 77.3             | 36                     | 2 5/8             | 2           | 1220              | 7.2        | ---          | ---  | ---  | 26.0         | 27.7 | 30   | ---      | ---  | ---  | 13.2     | 15.0 | 15   | 8.6      | 15.0 | 15   |
| 070          | 5   | 30  | 53500 | 78.0             | 27                     | 2 5/8             | 2           | 1440              | 9.0        | ---          | ---  | ---  | 32.5         | 34.2 | 40   | ---      | ---  | ---  | 16.5     | 17.4 | 20   | 10.8     | 15.0 | 15   |
| 082          | 5   | 30  | 50700 | 78.0             | 36                     | 2 5/8             | 2           | 1575              | 9.0        | ---          | ---  | ---  | 32.5         | 34.2 | 40   | ---      | ---  | ---  | 16.5     | 17.4 | 20   | 10.8     | 15.0 | 15   |
| 098          | 6   | 30  | 60840 | 78.8             | 36                     | 2 5/8             | 2           | 1855              | 10.8       | ---          | ---  | ---  | 39.0         | 40.7 | 45   | ---      | ---  | ---  | 19.8     | 20.7 | 25   | 12.9     | 15.0 | 15   |
| 114          | 7   | 30  | 70980 | 79.2             | 36                     | 2 5/8             | 2           | 2150              | 12.6       | ---          | ---  | ---  | 45.5         | 47.2 | 50   | ---      | ---  | ---  | 23.1     | 24.0 | 25   | 15.1     | 15.6 | 20   |

## DOUBLE FAN-WIDTH MODELS

|     |    |    |        |      |    |       |   |      |      |     |     |     |      |      |     |     |     |     |      |      |    |      |      |    |
|-----|----|----|--------|------|----|-------|---|------|------|-----|-----|-----|------|------|-----|-----|-----|-----|------|------|----|------|------|----|
| 041 | 4  | 30 | 45600  | 77.3 | 36 | 1 5/8 | 4 | 985  | 7.2  | --- | --- | --- | 26.0 | 27.6 | 30  | --- | --- | --- | 13.2 | 15.0 | 15 | 8.6  | 15.0 | 15 |
| 055 | 4  | 30 | 42800  | 77.3 | 54 | 1 5/8 | 4 | 1080 | 7.2  | --- | --- | --- | 26.0 | 27.6 | 30  | --- | --- | --- | 13.2 | 15.0 | 15 | 8.6  | 15.0 | 15 |
| 064 | 4  | 30 | 45600  | 77.3 | 72 | 1 5/8 | 4 | 1180 | 7.2  | --- | --- | --- | 26.0 | 27.6 | 30  | --- | --- | --- | 13.2 | 15.0 | 15 | 8.6  | 15.0 | 15 |
| 082 | 6  | 30 | 64200  | 78.8 | 54 | 2 1/8 | 4 | 1555 | 10.8 | --- | --- | --- | 39.0 | 40.7 | 45  | --- | --- | --- | 19.8 | 20.7 | 25 | 12.9 | 15.0 | 15 |
| 097 | 6  | 30 | 60840  | 78.8 | 72 | 2 1/8 | 4 | 1703 | 10.8 | --- | --- | --- | 39.0 | 40.7 | 45  | --- | --- | --- | 19.8 | 20.7 | 25 | 12.9 | 15.0 | 15 |
| 110 | 8  | 30 | 85600  | 80.0 | 54 | 2 1/8 | 4 | 1990 | 14.4 | --- | --- | --- | 52.0 | 53.7 | 60  | --- | --- | --- | 26.4 | 27.3 | 30 | 17.2 | 17.7 | 20 |
| 127 | 8  | 30 | 81120  | 80.0 | 72 | 2 1/8 | 4 | 2190 | 14.4 | --- | --- | --- | 52.0 | 53.7 | 60  | --- | --- | --- | 26.4 | 27.3 | 30 | 17.2 | 17.7 | 20 |
| 140 | 10 | 30 | 107000 | 81.2 | 54 | 2 5/8 | 4 | 2565 | 18.0 | --- | --- | --- | 65.0 | 66.7 | 70  | --- | --- | --- | 33.0 | 33.9 | 35 | 21.5 | 22.0 | 25 |
| 164 | 10 | 30 | 101400 | 81.2 | 72 | 2 5/8 | 4 | 2842 | 18.0 | --- | --- | --- | 65.0 | 66.7 | 70  | --- | --- | --- | 33.0 | 33.9 | 35 | 21.5 | 22.0 | 25 |
| 196 | 12 | 30 | 121680 | 81.6 | 72 | 2 5/8 | 4 | 3355 | 21.6 | --- | --- | --- | 78.0 | 79.7 | 80  | --- | --- | --- | 39.6 | 40.5 | 45 | 25.8 | 26.3 | 30 |
| 229 | 14 | 30 | 141960 | 82.3 | 72 | 2 5/8 | 4 | 3880 | 25.2 | --- | --- | --- | 91.0 | 92.7 | 100 | --- | --- | --- | 46.2 | 47.1 | 50 | 30.1 | 30.6 | 35 |

<sup>†</sup>Sound pressure dBA @ 10 feet.

Variance from standard operating conditions may result in connection sizes which are different from those listed above.

## Performance Data - THR MBH 1°F TD

850 RPM with 0.25 HP Fan Motors

| Unit Size               | Refrigerants-404A & 507 |      |      |      | Refrigerants-R-407A |      |      |      |
|-------------------------|-------------------------|------|------|------|---------------------|------|------|------|
|                         | FPI                     |      |      |      | FPI                 |      |      |      |
|                         | 8                       | 10   | 12   | 14   | 8                   | 10   | 12   | 14   |
| <b>SMALL CONDENSERS</b> |                         |      |      |      |                     |      |      |      |
| KDS001*C1B12A1A         | 0.68                    | 0.79 | 0.88 | 0.97 | 0.63                | 0.73 | 0.81 | 0.90 |
| KDS002*C1B12A1A         | 1.09                    | 1.24 | 1.36 | 1.47 | 1.05                | 1.19 | 1.31 | 1.41 |
| KDS003*C1B12A1A         | 1.44                    | 1.63 | 1.79 | 1.93 | 1.38                | 1.57 | 1.72 | 1.86 |
| KDS004*C1B12A1A         | 1.97                    | 2.19 | 2.35 | 2.49 | 1.97                | 2.19 | 2.35 | 2.49 |
| KDS006*C2B12A1A         | 3.09                    | 3.51 | 3.86 | 4.16 | 2.97                | 3.37 | 3.71 | 4.00 |
| KDS008*C2B12A1A         | 4.05                    | 4.51 | 4.83 | 5.11 | 4.04                | 4.50 | 4.82 | 5.10 |
| KDS009*C2B12A1A         | 4.53                    | 4.94 | 5.21 | 5.50 | 4.69                | 5.12 | 5.39 | 5.70 |

## 850 RPM with 1-1/2 HP Fan Motors

SINGLE FAN-WIDTH MODELS

|                 |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|
| KDS009*D1B12A1A | 4.5  | 5.1  | 5.6  | 6.0  | 4.3  | 4.9  | 5.4  | 5.8  |
| KDS013*D1B12A1A | 6.3  | 7.0  | 7.2  | 7.5  | 6.3  | 7.0  | 7.2  | 7.5  |
| KDS014*D1B12A1A | 7.2  | 7.8  | 8.2  | 8.7  | 7.5  | 8.1  | 8.5  | 9.0  |
| KDS019*D2B12A1A | 9.0  | 10.3 | 11.2 | 12.1 | 8.6  | 9.8  | 10.7 | 11.5 |
| KDS026*D2B12A1A | 12.6 | 13.9 | 14.3 | 15.0 | 12.4 | 13.7 | 14.1 | 14.8 |
| KDS029*D2B12A1A | 14.3 | 15.5 | 16.3 | 17.4 | 14.5 | 15.8 | 16.6 | 17.7 |
| KDS039*D3B12A1A | 19.0 | 21.0 | 22.0 | 23.0 | 18.6 | 20.7 | 21.7 | 22.6 |
| KDS044*D3B12A1A | 22.0 | 23.8 | 25.0 | 26.3 | 22.3 | 24.2 | 25.5 | 25.5 |
| KDS051*D4B12A1A | 25.1 | 27.9 | 29.0 | 30.0 | 24.7 | 27.4 | 28.5 | 29.5 |
| KDS058*D4B12A1A | 28.9 | 31.4 | 32.1 | 34.7 | 29.4 | 31.9 | 32.6 | 35.3 |
| KDS063*D5B12A1A | 31.1 | 34.1 | 35.9 | 37.4 | 31.2 | 34.2 | 36.0 | 37.5 |
| KDS077*D5B12A1A | 38.3 | 41.1 | 42.8 | 43.9 | 39.7 | 42.7 | 44.4 | 45.6 |
| KDS092*D6B12A1A | 45.9 | 49.3 | 51.5 | 52.7 | 47.6 | 51.2 | 53.4 | 54.7 |
| KDS107*D7B12A1A | 53.6 | 57.6 | 60.1 | 61.5 | 55.6 | 59.7 | 62.4 | 63.8 |

DOUBLE FAN-WIDTH MODELS

|                 |       |       |       |       |       |       |       |       |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|
| KDD037*D2B12A2A | 17.6  | 20.0  | 21.9  | 23.5  | 16.8  | 19.0  | 20.8  | 22.4  |
| KDD052*D2B12A2A | 25.1  | 27.8  | 29.0  | 29.8  | 24.7  | 27.4  | 28.5  | 29.3  |
| KDD056*D2B12A2A | 28.9  | 30.5  | 32.0  | 31.1  | 29.4  | 31.0  | 32.5  | 31.6  |
| KDD076*D3B12A2A | 37.7  | 41.3  | 43.5  | 46.3  | 37.1  | 40.7  | 42.8  | 45.6  |
| KDD087*D3B12A2A | 43.4  | 47.1  | 49.5  | 53.0  | 44.1  | 47.9  | 50.3  | 53.9  |
| KDD103*D4B12A2A | 50.2  | 55.8  | 58.0  | 59.9  | 49.4  | 54.9  | 57.1  | 59.0  |
| KDD116*D4B12A2A | 57.9  | 62.8  | 64.2  | 69.4  | 58.8  | 63.9  | 65.3  | 70.6  |
| KDD126*D5B12A2A | 62.3  | 68.3  | 71.9  | 74.8  | 62.4  | 68.4  | 72.0  | 75.0  |
| KDD152*D5B12A2A | 76.5  | 82.3  | 85.7  | 87.9  | 79.3  | 85.3  | 88.8  | 91.1  |
| KDD183*D6B12A2A | 91.8  | 98.7  | 103.1 | 105.4 | 95.2  | 102.3 | 106.9 | 109.4 |
| KDD213*D7B12A2A | 107.1 | 115.1 | 120.3 | 123.0 | 111.1 | 119.4 | 124.7 | 127.6 |

\* voltage code place holder

For R-22 capacity, multiply R404A unit capacity by 1.02

For R-410A capacity, multiply R404A unit capacity by 1.08

For R-134 capacity multiply R-404A unit capacity by .97

For R-407C capacity, multiply R407A capacity by .98

Note: R-407A Ratings are based on Mean Condensing Temperature which is the average of the Dew Point and Bubble Point temperatures corresponding to the refrigerant temperature at the condenser inlet.



## SPECIFICATIONS

## 850 RPM with 0.25 HP Fan Motors

| Unit<br>Size |     |     |     |                  |                        |                |             | 208-230/1/60      |            |     | 208-230/3/60 |      |     | 460/1/60 |      |     | 460/3/60 |      |     | 575/1/60 |      |     |     |      |
|--------------|-----|-----|-----|------------------|------------------------|----------------|-------------|-------------------|------------|-----|--------------|------|-----|----------|------|-----|----------|------|-----|----------|------|-----|-----|------|
|              | Fan |     |     |                  | Maximum<br>Circuit Qty | Conn<br>inches | Conn<br>Qty | Net<br>Wgt. (lbs) | Unit<br>kW | FLA | MCA          | MOPD | FLA | MCA      | MOPD | FLA | MCA      | MOPD | FLA | MCA      | MOPD | FLA | MCA | MOPD |
|              | Qty | Dia | CFM | dBA <sup>†</sup> |                        |                |             |                   |            |     |              |      |     |          |      |     |          |      |     |          |      |     |     |      |

## SINGLE FAN-WIDTH MODELS

|     |   |    |      |      |    |       |   |     |      |     |      |      |     |      |    |     |      |    |     |      |    |               |  |  |
|-----|---|----|------|------|----|-------|---|-----|------|-----|------|------|-----|------|----|-----|------|----|-----|------|----|---------------|--|--|
| 001 | 1 | 18 | 2470 | 44.0 | 5  | 7/8   | 2 | 80  | 0.11 | 1.4 | 15.0 | 15.0 | 1.1 | 15.0 | 15 | 0.7 | 15.0 | 15 | 0.6 | 15.0 | 15 | Not Available |  |  |
| 002 | 1 | 18 | 2110 | 44.0 | 10 | 7/8   | 2 | 86  | 0.11 | 1.4 | 15.0 | 15.0 | 1.1 | 15.0 | 15 | 0.7 | 15.0 | 15 | 0.6 | 15.0 | 15 |               |  |  |
| 003 | 1 | 22 | 3290 | 52.0 | 12 | 7/8   | 2 | 107 | 0.20 | 1.4 | 15.0 | 15.0 | 1.1 | 15.0 | 15 | 0.7 | 15.0 | 15 | 0.6 | 15.0 | 15 |               |  |  |
| 004 | 1 | 22 | 2880 | 52.0 | 18 | 7/8   | 2 | 116 | 0.20 | 1.4 | 15.0 | 15.0 | 1.1 | 15.0 | 15 | 0.7 | 15.0 | 15 | 0.6 | 15.0 | 15 |               |  |  |
| 006 | 2 | 22 | 6390 | 55.0 | 18 | 1 1/8 | 2 | 164 | 0.40 | 2.8 | 15.0 | 15.0 | 2.2 | 15.0 | 15 | 1.4 | 15.0 | 15 | 1.2 | 15.0 | 15 |               |  |  |
| 008 | 2 | 22 | 5760 | 55.0 | 27 | 1 1/8 | 2 | 179 | 0.40 | 2.8 | 15.0 | 15.0 | 2.2 | 15.0 | 15 | 1.4 | 15.0 | 15 | 1.2 | 15.0 | 15 |               |  |  |
| 009 | 2 | 22 | 5170 | 55.0 | 36 | 1 1/8 | 2 | 195 | 0.40 | 2.8 | 15.0 | 15.0 | 2.2 | 15.0 | 15 | 1.4 | 15.0 | 15 | 1.2 | 15.0 | 15 |               |  |  |

## 850 RPM with 1-1/2 HP Fan Motors

## SINGLE FAN-WIDTH MODELS

| Unit<br>Size | Fan |     |       |                  | Maximum<br>Circuit Qty | Conn.<br>inches | Conn<br>Qty | Net<br>Wgt. (lbs) | Unit<br>kW | 208-230/1/60  |      |      | 208-230/3/60 |               |      | 460/1/60 |     |               | 460/3/60 |     |      | 575/3/60 |     |      |
|--------------|-----|-----|-------|------------------|------------------------|-----------------|-------------|-------------------|------------|---------------|------|------|--------------|---------------|------|----------|-----|---------------|----------|-----|------|----------|-----|------|
|              | Qty | Dia | CFM   | dBA <sup>1</sup> |                        |                 |             |                   |            | FLA           | MCA  | MOPD | FLA          | MCA           | MOPD | FLA      | MCA | MOPD          | FLA      | MCA | MOPD | FLA      | MCA | MOPD |
| 009          | 1   | 30  | 10690 | 66.9             | 12                     | 1 3/8           | 2           | 305               | 1.45       | Not Available | 6.5  | 15.0 | 15           | Not Available | 3.3  | 15.0     | 15  | Not Available |          |     |      |          |     |      |
| 013          | 1   | 30  | 9960  | 66.9             | 18                     | 1 3/8           | 2           | 330               | 1.45       |               | 6.5  | 15.0 | 15           |               | 3.3  | 15.0     | 15  |               |          |     |      |          |     |      |
| 014          | 1   | 30  | 9300  | 66.9             | 24                     | 1 3/8           | 2           | 360               | 1.45       |               | 6.5  | 15.0 | 15           |               | 3.3  | 15.0     | 15  |               |          |     |      |          |     |      |
| 019          | 2   | 30  | 21380 | 69.8             | 18                     | 1 5/8           | 2           | 590               | 2.90       |               | 13.0 | 15.0 | 20           |               | 6.6  | 15.0     | 15  |               |          |     |      |          |     |      |
| 026          | 2   | 30  | 19920 | 69.8             | 27                     | 1 5/8           | 2           | 610               | 2.90       |               | 13.0 | 15.0 | 20           |               | 6.6  | 15.0     | 15  |               |          |     |      |          |     |      |
| 029          | 2   | 30  | 18600 | 69.8             | 36                     | 1 5/8           | 2           | 660               | 2.90       |               | 13.0 | 15.0 | 20           |               | 6.6  | 15.0     | 15  |               |          |     |      |          |     |      |
| 039          | 3   | 30  | 29880 | 71.8             | 27                     | 2 1/8           | 2           | 880               | 4.35       |               | 19.5 | 21.2 | 25           |               | 9.9  | 15.0     | 15  |               |          |     |      |          |     |      |
| 044          | 3   | 30  | 27900 | 71.8             | 36                     | 2 1/8           | 2           | 950               | 4.35       |               | 19.5 | 21.2 | 25           |               | 9.9  | 15.0     | 15  |               |          |     |      |          |     |      |
| 051          | 4   | 30  | 39840 | 73.1             | 27                     | 2 1/8           | 2           | 1120              | 5.80       |               | 26.0 | 27.7 | 30           |               | 13.2 | 15.0     | 15  |               |          |     |      |          |     |      |
| 058          | 4   | 30  | 37200 | 73.1             | 36                     | 2 5/8           | 2           | 1220              | 5.80       |               | 26.0 | 27.7 | 30           |               | 13.2 | 15.0     | 15  |               |          |     |      |          |     |      |
| 063          | 5   | 30  | 49800 | 74.2             | 27                     | 2 5/8           | 2           | 1440              | 7.25       | 32.5          | 34.2 | 40   | 16.5         | 17.4          | 20   |          |     |               |          |     |      |          |     |      |
| 077          | 5   | 30  | 46500 | 74.2             | 36                     | 2 5/8           | 2           | 1575              | 7.25       | 32.5          | 34.2 | 40   | 16.5         | 17.4          | 20   |          |     |               |          |     |      |          |     |      |
| 092          | 6   | 30  | 55800 | 74.8             | 36                     | 2 5/8           | 2           | 1855              | 8.70       | 39.0          | 40.7 | 45   | 19.8         | 20.7          | 25   |          |     |               |          |     |      |          |     |      |
| 107          | 7   | 30  | 65100 | 75.0             | 36                     | 2 5/8           | 2           | 2150              | 10.15      | 45.5          | 47.2 | 50   | 23.1         | 24.0          | 25   |          |     |               |          |     |      |          |     |      |

## DOUBLE FAN-WIDTH MODELS

|     |    |    |        |      |    |       |   |      |       |               |  |  |      |      |     |               |  |  |      |      |    |               |  |  |
|-----|----|----|--------|------|----|-------|---|------|-------|---------------|--|--|------|------|-----|---------------|--|--|------|------|----|---------------|--|--|
| 037 | 4  | 30 | 42760  | 73.1 | 36 | 1 5/8 | 4 | 985  | 5.80  | Not Available |  |  | 26.0 | 27.6 | 30  | Not Available |  |  | 13.2 | 15.0 | 15 | Not Available |  |  |
| 052 | 4  | 30 | 39840  | 73.1 | 54 | 1 5/8 | 4 | 1080 | 5.80  |               |  |  | 26.0 | 27.6 | 30  |               |  |  | 13.2 | 15.0 | 15 |               |  |  |
| 056 | 4  | 30 | 37200  | 73.1 | 72 | 1 5/8 | 4 | 1180 | 5.80  |               |  |  | 26.0 | 27.6 | 30  |               |  |  | 13.2 | 15.0 | 15 |               |  |  |
| 076 | 6  | 30 | 59760  | 74.8 | 54 | 2 1/8 | 4 | 1555 | 8.70  |               |  |  | 39.0 | 40.7 | 45  |               |  |  | 19.8 | 20.7 | 25 |               |  |  |
| 087 | 6  | 30 | 55800  | 74.8 | 72 | 2 1/8 | 4 | 1703 | 8.70  |               |  |  | 39.0 | 40.7 | 45  |               |  |  | 19.8 | 20.7 | 25 |               |  |  |
| 103 | 8  | 30 | 79680  | 76.0 | 54 | 2 1/8 | 4 | 1990 | 11.60 |               |  |  | 52.0 | 53.7 | 60  |               |  |  | 26.4 | 27.3 | 30 |               |  |  |
| 116 | 8  | 30 | 74400  | 76.0 | 72 | 2 1/8 | 4 | 2190 | 11.60 |               |  |  | 52.0 | 53.7 | 60  |               |  |  | 26.4 | 27.3 | 30 |               |  |  |
| 126 | 10 | 30 | 99600  | 76.9 | 54 | 2 5/8 | 4 | 2565 | 14.50 |               |  |  | 65.0 | 66.7 | 70  |               |  |  | 33.0 | 33.9 | 35 |               |  |  |
| 152 | 10 | 30 | 93000  | 76.9 | 72 | 2 5/8 | 4 | 2842 | 14.50 |               |  |  | 65.0 | 66.7 | 70  |               |  |  | 33.0 | 33.9 | 35 |               |  |  |
| 183 | 12 | 30 | 111600 | 77.3 | 72 | 2 5/8 | 4 | 3355 | 17.40 | Not Available |  |  | 78.0 | 79.7 | 80  | Not Available |  |  | 39.6 | 40.5 | 45 | Not Available |  |  |
| 213 | 14 | 30 | 130200 | 77.9 | 72 | 2 5/8 | 4 | 3880 | 20.30 |               |  |  | 91.0 | 92.7 | 100 |               |  |  | 46.2 | 47.1 | 50 |               |  |  |

<sup>1</sup>Sound pressure dBA @ 10 feet.

Variance from standard operating conditions may result in connection sizes which are different from those listed above.

## Performance Data - THR MBH 1°F TD 850 RPM with 1 HP Fan Motors

| Unit Size | Refrigerants-404A & 507 |    |    |    |
|-----------|-------------------------|----|----|----|
|           | FPI                     |    |    |    |
|           | 8                       | 10 | 12 | 14 |

| Refrigerant-407A |   |    |    |    |
|------------------|---|----|----|----|
| FPI              |   |    |    |    |
|                  | 8 | 10 | 12 | 14 |

### SINGLE FAN-WIDTH MODELS

|                 |      |      |      |      |
|-----------------|------|------|------|------|
| KDS008*L1B12A1A | 4.0  | 4.5  | 4.9  | 5.2  |
| KDS011*L1B12A1A | 5.4  | 6.0  | 6.3  | 6.5  |
| KDS013*L1B12A1A | 6.6  | 7.1  | 7.4  | 7.7  |
| KDS014*L2B12A1A | 6.6  | 7.5  | 8.2  | 8.8  |
| KDS017*L2B12A1A | 8.0  | 9.0  | 9.8  | 10.4 |
| KDS018*L2B12A1A | 8.7  | 9.6  | 10.3 | 10.9 |
| KDS022*L2B12A1A | 10.8 | 11.9 | 12.5 | 13.0 |
| KDS026*L2B12A1A | 13.3 | 14.3 | 14.8 | 15.5 |
| KDS035*L3B12A1A | 17.1 | 18.8 | 19.7 | 20.5 |
| KDS040*L3B12A1A | 20.0 | 21.4 | 22.3 | 23.2 |
| KDS046*L4B12A1A | 22.7 | 25.1 | 26.3 | 27.3 |
| KDS053*L4B12A1A | 26.6 | 28.5 | 29.6 | 30.9 |
| KDS056*L5B12A1A | 27.8 | 30.4 | 31.9 | 33.2 |
| KDS069*L5B12A1A | 35.0 | 37.4 | 38.6 | 39.7 |
| KDS083*L6B12A1A | 42.0 | 44.9 | 46.4 | 47.6 |
| KDS097*L7B12A1A | 48.9 | 52.4 | 54.1 | 55.5 |

|      |      |      |      |
|------|------|------|------|
| 3.8  | 4.3  | 4.7  | 5.0  |
| 5.4  | 6.0  | 6.3  | 6.5  |
| 6.9  | 7.4  | 7.7  | 8.0  |
| 6.3  | 7.2  | 7.9  | 8.5  |
| 7.6  | 8.7  | 9.4  | 10.0 |
| 8.7  | 9.6  | 10.3 | 10.9 |
| 10.8 | 11.9 | 12.5 | 13.0 |
| 13.8 | 14.8 | 15.3 | 16.0 |
| 17.0 | 18.8 | 19.7 | 20.5 |
| 20.7 | 22.2 | 23.1 | 24.1 |
| 22.7 | 25.0 | 26.3 | 27.3 |
| 27.5 | 29.5 | 30.7 | 32.0 |
| 28.3 | 31.0 | 32.5 | 33.7 |
| 36.9 | 39.5 | 40.8 | 41.9 |
| 44.3 | 47.4 | 49.0 | 50.3 |
| 51.7 | 55.3 | 57.1 | 58.7 |

### DOUBLE FAN-WIDTH MODELS

|                 |      |       |       |       |
|-----------------|------|-------|-------|-------|
| KDD033*L2B12A2A | 15.7 | 17.7  | 19.2  | 20.6  |
| KDD046*L2B12A2A | 22.7 | 25.1  | 26.3  | 27.3  |
| KDD053*L2B12A2A | 26.6 | 28.5  | 29.6  | 30.9  |
| KDD070*L3B12A2A | 34.1 | 37.6  | 39.5  | 41.0  |
| KDD081*L3B12A2A | 40.8 | 43.8  | 45.5  | 47.4  |
| KDD093*L4B12A2A | 45.5 | 50.1  | 52.7  | 54.7  |
| KDD106*L4B12A2A | 53.2 | 57.1  | 59.3  | 61.8  |
| KDD112*L5B12A2A | 55.5 | 60.8  | 63.9  | 66.3  |
| KDD138*L5B12A2A | 69.9 | 74.9  | 77.3  | 79.4  |
| KDD166*L6B12A2A | 83.9 | 89.8  | 92.7  | 95.2  |
| KDD194*L7B12A2A | 97.9 | 104.8 | 108.2 | 111.1 |

|       |       |       |       |
|-------|-------|-------|-------|
| 15.1  | 17.0  | 18.5  | 19.8  |
| 22.7  | 25.0  | 26.3  | 27.3  |
| 27.5  | 29.5  | 30.7  | 32.0  |
| 34.1  | 37.5  | 39.4  | 40.9  |
| 42.2  | 45.3  | 47.1  | 49.1  |
| 45.4  | 50.0  | 52.6  | 54.6  |
| 55.1  | 59.1  | 61.4  | 64.0  |
| 56.5  | 61.9  | 65.0  | 67.5  |
| 73.8  | 79.1  | 81.6  | 83.8  |
| 88.6  | 94.9  | 97.9  | 100.5 |
| 103.4 | 110.7 | 114.2 | 117.3 |

\* voltage code place holder

For R-22 capacity, multiply R404A unit capacity by 1.02

For R-410A capacity, multiply R404A unit capacity by 1.08

For R-134 capacity multiply R-404A unit capacity by .97

For R-407C capacity, multiply R407A capacity by .98

Note: R-407A Ratings are based on Mean Condensing Temperature which is the average of the Dew Point and Bubble Point temperatures corresponding to the refrigerant temperature at the condenser inlet.

# SPECIFICATIONS

## 850 RPM with 1 HP Fan Motors

| Unit<br>Size | Fan |     |     |      | Maximum<br>Circuit Qty. | Conn.<br>(inches) | Conn<br>Qty | Net<br>Wgt. (lbs) | Unit<br>kW | 208-230/3/60 |     |      | 460/3/60 |     |      | 575/3/60 |     |      |
|--------------|-----|-----|-----|------|-------------------------|-------------------|-------------|-------------------|------------|--------------|-----|------|----------|-----|------|----------|-----|------|
|              | Qty | Dia | CFM | dBA† |                         |                   |             |                   |            | FLA          | MCA | MOPD | FLA      | MCA | MOPD | FLA      | MCA | MOPD |

### SINGLE FAN-WIDTH MODELS

|     |   |    |       |      |    |       |   |      |     |      |      |    |      |      |    |      |      |    |
|-----|---|----|-------|------|----|-------|---|------|-----|------|------|----|------|------|----|------|------|----|
| 008 | 1 | 30 | 8490  | 65.0 | 12 | 1 3/8 | 2 | 300  | 0.9 | 4.0  | 15.0 | 15 | 2.0  | 15.0 | 15 | 2.1  | 15.0 | 15 |
| 011 | 1 | 30 | 7910  | 65.0 | 18 | 1 3/8 | 2 | 325  | 0.9 | 4.0  | 15.0 | 15 | 2.0  | 15.0 | 15 | 2.1  | 15.0 | 15 |
| 013 | 1 | 30 | 7470  | 65.0 | 24 | 1 3/8 | 2 | 355  | 0.9 | 4.0  | 15.0 | 15 | 2.0  | 15.0 | 15 | 2.1  | 15.0 | 15 |
| 014 | 2 | 30 | 11700 | 66.5 | 18 | 1 5/8 | 2 | 550  | 1.4 | 8.0  | 15.0 | 15 | 4.0  | 15.0 | 15 | 4.2  | 15.0 | 15 |
| 017 | 2 | 30 | 16980 | 68.0 | 18 | 1 5/8 | 2 | 550  | 1.8 | 8.0  | 15.0 | 15 | 4.0  | 15.0 | 15 | 4.2  | 15.0 | 15 |
| 018 | 2 | 30 | 11500 | 66.5 | 27 | 1 5/8 | 2 | 600  | 1.4 | 8.0  | 15.0 | 15 | 4.0  | 15.0 | 15 | 4.2  | 15.0 | 15 |
| 022 | 2 | 30 | 15820 | 68.0 | 27 | 1 5/8 | 2 | 600  | 1.8 | 8.0  | 15.0 | 15 | 4.0  | 15.0 | 15 | 4.2  | 15.0 | 15 |
| 026 | 2 | 30 | 14940 | 68.0 | 36 | 1 5/8 | 2 | 650  | 1.8 | 8.0  | 15.0 | 15 | 4.0  | 15.0 | 15 | 4.2  | 15.0 | 15 |
| 035 | 3 | 30 | 23730 | 69.8 | 27 | 2 1/8 | 2 | 860  | 2.7 | 12.0 | 15.0 | 15 | 6.0  | 15.0 | 15 | 6.3  | 15.0 | 15 |
| 040 | 3 | 30 | 22410 | 69.8 | 36 | 2 1/8 | 2 | 930  | 2.7 | 12.0 | 15.0 | 15 | 6.0  | 15.0 | 15 | 6.3  | 15.0 | 15 |
| 046 | 4 | 30 | 31640 | 71.0 | 27 | 2 1/8 | 2 | 1090 | 3.6 | 16.0 | 17.0 | 20 | 8.0  | 15.0 | 15 | 8.4  | 15.0 | 15 |
| 053 | 4 | 30 | 29880 | 71.0 | 36 | 2 5/8 | 2 | 1190 | 3.6 | 16.0 | 17.0 | 20 | 8.0  | 15.0 | 15 | 8.4  | 15.0 | 15 |
| 056 | 5 | 30 | 39550 | 72.0 | 27 | 2 5/8 | 2 | 1405 | 4.5 | 20.0 | 21.0 | 25 | 10.0 | 15.0 | 15 | 10.5 | 15.0 | 15 |
| 069 | 5 | 30 | 37350 | 72.0 | 36 | 2 5/8 | 2 | 1540 | 4.5 | 20.0 | 21.0 | 25 | 10.0 | 15.0 | 15 | 10.5 | 15.0 | 15 |
| 083 | 6 | 30 | 44820 | 72.8 | 36 | 2 5/8 | 2 | 1815 | 5.4 | 24.0 | 25.0 | 25 | 12.0 | 15.0 | 15 | 12.6 | 15.0 | 15 |
| 097 | 7 | 30 | 52290 | 73.4 | 36 | 2 5/8 | 2 | 2100 | 6.3 | 28.0 | 29.0 | 30 | 14.0 | 15.0 | 15 | 14.7 | 15.2 | 20 |

### DOUBLE FAN-WIDTH MODELS

|     |    |    |        |      |    |       |   |      |      |      |      |    |      |      |    |      |      |    |
|-----|----|----|--------|------|----|-------|---|------|------|------|------|----|------|------|----|------|------|----|
| 033 | 4  | 30 | 33960  | 71.0 | 36 | 1 5/8 | 4 | 955  | 3.6  | 16.0 | 17.0 | 20 | 8.0  | 15.0 | 15 | 8.4  | 15.0 | 15 |
| 046 | 4  | 30 | 31640  | 71.0 | 54 | 1 5/8 | 4 | 1050 | 3.6  | 16.0 | 17.0 | 20 | 8.0  | 15.0 | 15 | 8.4  | 15.0 | 15 |
| 053 | 4  | 30 | 29880  | 71.0 | 72 | 1 5/8 | 4 | 1150 | 3.6  | 16.0 | 17.0 | 20 | 8.0  | 15.0 | 15 | 8.4  | 15.0 | 15 |
| 070 | 6  | 30 | 47460  | 72.8 | 54 | 2 1/8 | 4 | 1515 | 5.4  | 24.0 | 25.0 | 25 | 12.0 | 15.0 | 15 | 12.6 | 15.0 | 15 |
| 081 | 6  | 30 | 44820  | 72.8 | 72 | 2 1/8 | 4 | 1660 | 5.4  | 24.0 | 25.0 | 25 | 12.0 | 15.0 | 15 | 12.6 | 15.0 | 15 |
| 093 | 8  | 30 | 63280  | 74.0 | 54 | 2 1/8 | 4 | 1935 | 7.2  | 32.0 | 33.0 | 35 | 16.0 | 16.5 | 20 | 16.8 | 17.3 | 20 |
| 106 | 8  | 30 | 59760  | 74.0 | 72 | 2 1/8 | 4 | 2135 | 7.2  | 32.0 | 33.0 | 35 | 16.0 | 16.5 | 20 | 16.8 | 17.3 | 20 |
| 112 | 10 | 30 | 79100  | 75.0 | 54 | 2 5/8 | 4 | 2495 | 9.0  | 40.0 | 41.0 | 45 | 20.0 | 20.5 | 25 | 21.0 | 21.5 | 25 |
| 138 | 10 | 30 | 74700  | 75.0 | 72 | 2 5/8 | 4 | 2770 | 9.0  | 40.0 | 41.0 | 45 | 20.0 | 20.5 | 25 | 21.0 | 21.5 | 25 |
| 166 | 12 | 30 | 89640  | 75.8 | 72 | 2 5/8 | 4 | 3270 | 10.8 | 48.0 | 49.0 | 50 | 24.0 | 24.5 | 25 | 25.2 | 25.7 | 30 |
| 194 | 14 | 30 | 104580 | 76.4 | 72 | 2 5/8 | 4 | 3780 | 12.6 | 56.0 | 57.0 | 60 | 28.0 | 28.5 | 30 | 29.4 | 29.9 | 30 |

†Sound pressure dBA @ 10 feet.

Variance from standard operating conditions may result in connection sizes which are different from those listed above.

## Performance Data - THR MBH 1°F TD

## 550 RPM Fan Motors

| Unit Size | Refrigerants-404A & 507 |    |    |    | Refrigerant-407A |    |    |    |
|-----------|-------------------------|----|----|----|------------------|----|----|----|
|           | FPI                     |    |    |    | FPI              |    |    |    |
|           | 8                       | 10 | 12 | 14 | 8                | 10 | 12 | 14 |

## SINGLE FAN-WIDTH MODELS

|                 |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|
| KDS008*E1B12A1A | 3.7  | 4.1  | 4.5  | 4.7  | 3.6  | 4.0  | 4.4  | 4.6  |
| KDS010*E1B12A1A | 4.8  | 5.3  | 5.5  | 5.6  | 4.9  | 5.4  | 5.6  | 5.7  |
| KDS011*E1B12A1A | 5.5  | 5.8  | 6.0  | 6.2  | 5.9  | 6.2  | 6.4  | 6.6  |
| KDS015*E2B12A1A | 7.3  | 8.2  | 8.9  | 9.4  | 7.1  | 8.1  | 8.7  | 9.2  |
| KDS019*E2B12A1A | 9.5  | 10.5 | 11.0 | 11.2 | 9.7  | 10.7 | 11.3 | 11.5 |
| KDS021*E2B12A1A | 10.9 | 11.5 | 11.9 | 12.4 | 11.6 | 12.3 | 12.6 | 13.2 |
| KDS029*E3B12A1A | 14.6 | 15.8 | 16.6 | 17.1 | 15.0 | 16.2 | 16.9 | 17.5 |
| KDS032*E3B12A1A | 16.5 | 17.3 | 18.1 | 18.2 | 17.5 | 18.4 | 19.2 | 19.4 |
| KDS039*E4B12A1A | 19.3 | 20.9 | 22.0 | 22.5 | 19.8 | 21.4 | 22.5 | 23.1 |
| KDS043*E4B12A1A | 21.8 | 23.3 | 23.6 | 24.8 | 23.2 | 24.8 | 25.2 | 26.4 |
| KDS049*E5B12A1A | 24.3 | 26.6 | 27.5 | 28.4 | 25.4 | 27.7 | 28.7 | 29.6 |
| KDS054*E5B12A1A | 27.6 | 29.1 | 30.2 | 30.6 | 30.0 | 31.6 | 32.8 | 33.2 |
| KDS068*E6B12A1A | 34.3 | 36.7 | 37.0 | 37.5 | 37.3 | 39.9 | 40.3 | 40.7 |
| KDS079*E7B12A1A | 40.0 | 42.7 | 43.2 | 43.7 | 43.5 | 46.4 | 46.9 | 47.5 |

## DOUBLE FAN-WIDTH MODELS

|                 |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|
| KDD030*E2B12A2A | 14.5 | 16.3 | 17.7 | 18.8 | 14.2 | 16.0 | 17.4 | 18.4 |
| KDD039*E2B12A2A | 18.9 | 20.9 | 22.0 | 22.5 | 19.4 | 21.4 | 22.5 | 23.1 |
| KDD043*E2B12A2A | 21.8 | 23.1 | 23.8 | 24.8 | 23.2 | 24.6 | 25.4 | 26.4 |
| KDD058*E3B12A2A | 29.2 | 31.5 | 33.2 | 34.1 | 29.9 | 32.3 | 34.0 | 34.9 |
| KDD064*E3B12A2A | 32.9 | 34.5 | 36.1 | 36.3 | 35.1 | 36.8 | 38.5 | 38.7 |
| KDD077*E4B12A2A | 38.8 | 41.8 | 44.0 | 45.0 | 39.7 | 42.8 | 45.0 | 46.0 |
| KDD086*E4B12A2A | 43.6 | 46.5 | 47.1 | 49.6 | 46.5 | 49.5 | 50.2 | 52.8 |
| KDD098*E5B12A2A | 48.6 | 53.0 | 55.1 | 56.7 | 50.6 | 55.3 | 57.5 | 59.1 |
| KDD108*E5B12A2A | 55.2 | 58.2 | 60.3 | 61.3 | 60.1 | 63.3 | 65.6 | 66.6 |
| KDD136*E6B12A2A | 68.7 | 73.5 | 74.1 | 74.9 | 74.7 | 79.8 | 80.5 | 81.5 |
| KDD158*E7B12A2A | 80.0 | 85.3 | 86.4 | 87.4 | 87.0 | 92.7 | 93.9 | 95.0 |

\* voltage code place holder

For R-22 capacity, multiply R404A unit capacity by 1.02

For R-410A capacity, multiply R404A unit capacity by 1.08

For R-134 capacity multiply R-404A unit capacity by .97

For R-407C capacity, multiply R407A capacity by .98

Note: R-407A Ratings are based on Mean Condensing

Temperature which is the average of the Dew

Point and Bubble Point temperatures corresponding

to the refrigerant temperature at the condenser inlet.

SPECIFICATIONS  
550 RPM Fan Motors

| Unit<br>Size | Fan |     |     |                  | Maximum<br>Circuit Qty | Connections<br>(inches) | Conn<br>Qty | Approximate<br>Net Wgt. (lbs) | Unit<br>kW | 208-230/3/60 |     |      | 460/3/60 |     |      | 575/3/60 |     |      |
|--------------|-----|-----|-----|------------------|------------------------|-------------------------|-------------|-------------------------------|------------|--------------|-----|------|----------|-----|------|----------|-----|------|
|              | Qty | Dia | CFM | dBA <sup>†</sup> |                        |                         |             |                               |            | FLA          | MCA | MOPD | FLA      | MCA | MOPD | FLA      | MCA | MOPD |

SINGLE FAN-WIDTH MODELS

|     |   |      |       |      |    |       |   |      |      |      |      |    |     |      |    |               |  |  |
|-----|---|------|-------|------|----|-------|---|------|------|------|------|----|-----|------|----|---------------|--|--|
| 008 | 1 | 30.0 | 5840  | 58.0 | 12 | 1 3/8 | 2 | 305  | 0.35 | 2.8  | 15.0 | 15 | 1.4 | 15.0 | 15 | Not Available |  |  |
| 010 | 1 | 30.0 | 5490  | 58.0 | 18 | 1 3/8 | 2 | 330  | 0.35 | 2.8  | 15.0 | 15 | 1.4 | 15.0 | 15 |               |  |  |
| 011 | 1 | 30.0 | 5180  | 58.0 | 24 | 1 3/8 | 2 | 360  | 0.35 | 2.8  | 15.0 | 15 | 1.4 | 15.0 | 15 |               |  |  |
| 015 | 2 | 30.0 | 11680 | 60.8 | 18 | 1 5/8 | 2 | 560  | 0.70 | 5.6  | 15.0 | 15 | 2.8 | 15.0 | 15 |               |  |  |
| 019 | 2 | 30.0 | 10980 | 60.8 | 27 | 1 5/8 | 2 | 610  | 0.70 | 5.6  | 15.0 | 15 | 2.8 | 15.0 | 15 |               |  |  |
| 021 | 2 | 30.0 | 10360 | 60.8 | 36 | 1 5/8 | 2 | 660  | 0.70 | 5.6  | 15.0 | 15 | 2.8 | 15.0 | 15 |               |  |  |
| 029 | 3 | 30.0 | 16470 | 62.7 | 27 | 2 1/8 | 2 | 880  | 1.05 | 8.4  | 15.0 | 15 | 4.2 | 15.0 | 15 |               |  |  |
| 032 | 3 | 30.0 | 15540 | 62.7 | 36 | 2 1/8 | 2 | 950  | 1.05 | 8.4  | 15.0 | 15 | 4.2 | 15.0 | 15 |               |  |  |
| 039 | 4 | 30.0 | 21960 | 63.5 | 27 | 2 1/8 | 2 | 1120 | 1.40 | 11.2 | 15.0 | 15 | 5.6 | 15.0 | 15 |               |  |  |
| 043 | 4 | 30.0 | 20720 | 63.5 | 36 | 2 1/8 | 2 | 1220 | 1.40 | 11.2 | 15.0 | 15 | 5.6 | 15.0 | 15 |               |  |  |
| 049 | 5 | 30.0 | 27450 | 63.4 | 27 | 2 5/8 | 2 | 1435 | 1.75 | 14.0 | 15.0 | 15 | 7.0 | 15.0 | 15 |               |  |  |
| 054 | 5 | 30.0 | 25900 | 64.3 | 36 | 2 5/8 | 2 | 1575 | 1.75 | 14.0 | 15.0 | 15 | 7.0 | 15.0 | 15 |               |  |  |
| 068 | 6 | 30.0 | 31080 | 64.8 | 36 | 2 5/8 | 2 | 1855 | 2.10 | 16.8 | 17.5 | 20 | 8.4 | 15.0 | 15 |               |  |  |
| 079 | 7 | 30.0 | 36260 | 65.1 | 36 | 2 5/8 | 2 | 2150 | 2.45 | 19.6 | 20.3 | 25 | 9.8 | 15.0 | 15 |               |  |  |

DOUBLE FAN-WIDTH MODELS

|     |    |      |       |      |    |       |   |      |      |      |      |    |      |      |    |               |  |  |
|-----|----|------|-------|------|----|-------|---|------|------|------|------|----|------|------|----|---------------|--|--|
| 030 | 4  | 30.0 | 23360 | 63.5 | 36 | 1 5/8 | 4 | 985  | 1.40 | 11.2 | 15.0 | 15 | 5.6  | 15.0 | 15 | Not Available |  |  |
| 039 | 4  | 30.0 | 21960 | 63.5 | 54 | 1 5/8 | 4 | 1080 | 1.40 | 11.2 | 15.0 | 15 | 5.6  | 15.0 | 15 |               |  |  |
| 043 | 4  | 30.0 | 20720 | 63.5 | 72 | 1 5/8 | 4 | 1180 | 1.40 | 11.2 | 15.0 | 15 | 5.6  | 15.0 | 15 |               |  |  |
| 058 | 6  | 30.0 | 32940 | 64.8 | 54 | 2 1/8 | 4 | 1555 | 2.10 | 16.8 | 17.5 | 20 | 8.4  | 15.0 | 15 |               |  |  |
| 064 | 6  | 30.0 | 31080 | 64.8 | 72 | 2 1/8 | 4 | 1705 | 2.10 | 16.8 | 17.5 | 25 | 8.4  | 15.0 | 15 |               |  |  |
| 077 | 8  | 30.0 | 43920 | 65.3 | 54 | 2 1/8 | 4 | 1990 | 2.80 | 22.4 | 23.1 | 25 | 11.2 | 15.0 | 15 |               |  |  |
| 086 | 8  | 30.0 | 41440 | 65.3 | 72 | 2 1/8 | 4 | 2190 | 2.80 | 22.4 | 23.1 | 25 | 11.2 | 15.0 | 15 |               |  |  |
| 098 | 10 | 30.0 | 54900 | 66.1 | 54 | 2 5/8 | 4 | 2565 | 3.50 | 28.0 | 28.7 | 30 | 14.0 | 15.0 | 15 |               |  |  |
| 108 | 10 | 30.0 | 51800 | 66.1 | 72 | 2 5/8 | 4 | 2840 | 3.50 | 28.0 | 28.7 | 30 | 14.0 | 15.0 | 15 |               |  |  |
| 136 | 12 | 30.0 | 62160 | 66.8 | 72 | 2 5/8 | 4 | 3355 | 4.20 | 33.6 | 34.3 | 35 | 16.8 | 20.0 | 20 |               |  |  |
| 158 | 14 | 30.0 | 72520 | 67.3 | 72 | 2 5/8 | 4 | 3880 | 4.90 | 39.2 | 39.9 | 40 | 19.6 | 20.0 | 20 |               |  |  |

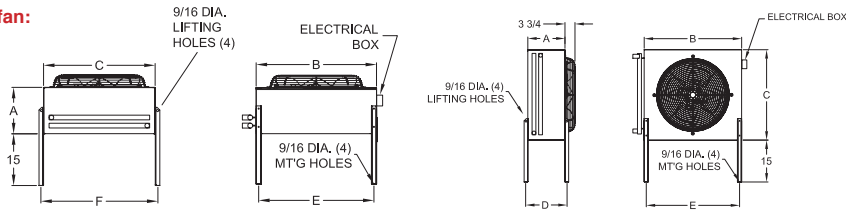
<sup>†</sup>Sound pressure dBA @ 10 feet.

Variance from standard operating conditions may result in connection sizes which are different from those listed above.

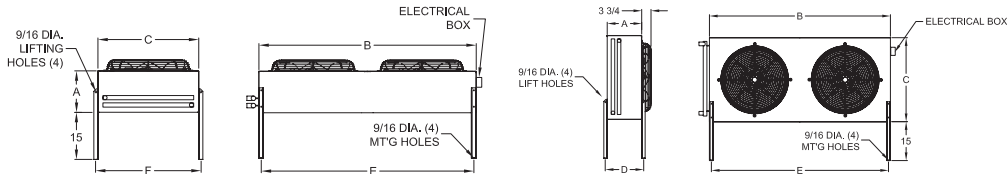
## SMALL CONDENSERS

| KDS       | Drawing   | A | B      | C  | D       | E      | F      |
|-----------|-----------|---|--------|----|---------|--------|--------|
| KDS001*A1 | KDS001*C1 | 1 | 12 1/2 | 28 | 25 9/16 | 13 3/4 | 26 5/8 |
| KDS002*A1 | KDS002*C1 | 1 | 12 1/2 | 28 | 25 9/16 | 13 3/4 | 26 5/8 |
| KDS003*A1 | KDS003*C1 | 1 | 14 3/8 | 33 | 30 9/16 | 15 5/8 | 31 5/8 |
| KDS005*A1 | KDS004*C1 | 1 | 14 3/8 | 33 | 30 9/16 | 15 5/8 | 31 5/8 |
| KDS007*A2 | KDS006*C2 | 2 | 14 3/8 | 66 | 30 9/16 | 15 5/8 | 64 5/8 |
| KDS009*A2 | KDS008*C2 | 2 | 14 3/8 | 66 | 30 9/16 | 15 5/8 | 64 5/8 |
| KDS011*A2 | KDS009*C2 | 2 | 14 3/8 | 66 | 30 9/16 | 15 5/8 | 64 5/8 |

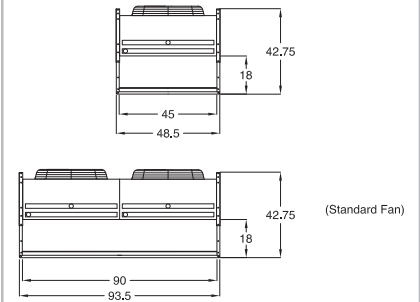
### 1 fan:



### 2 FAN:

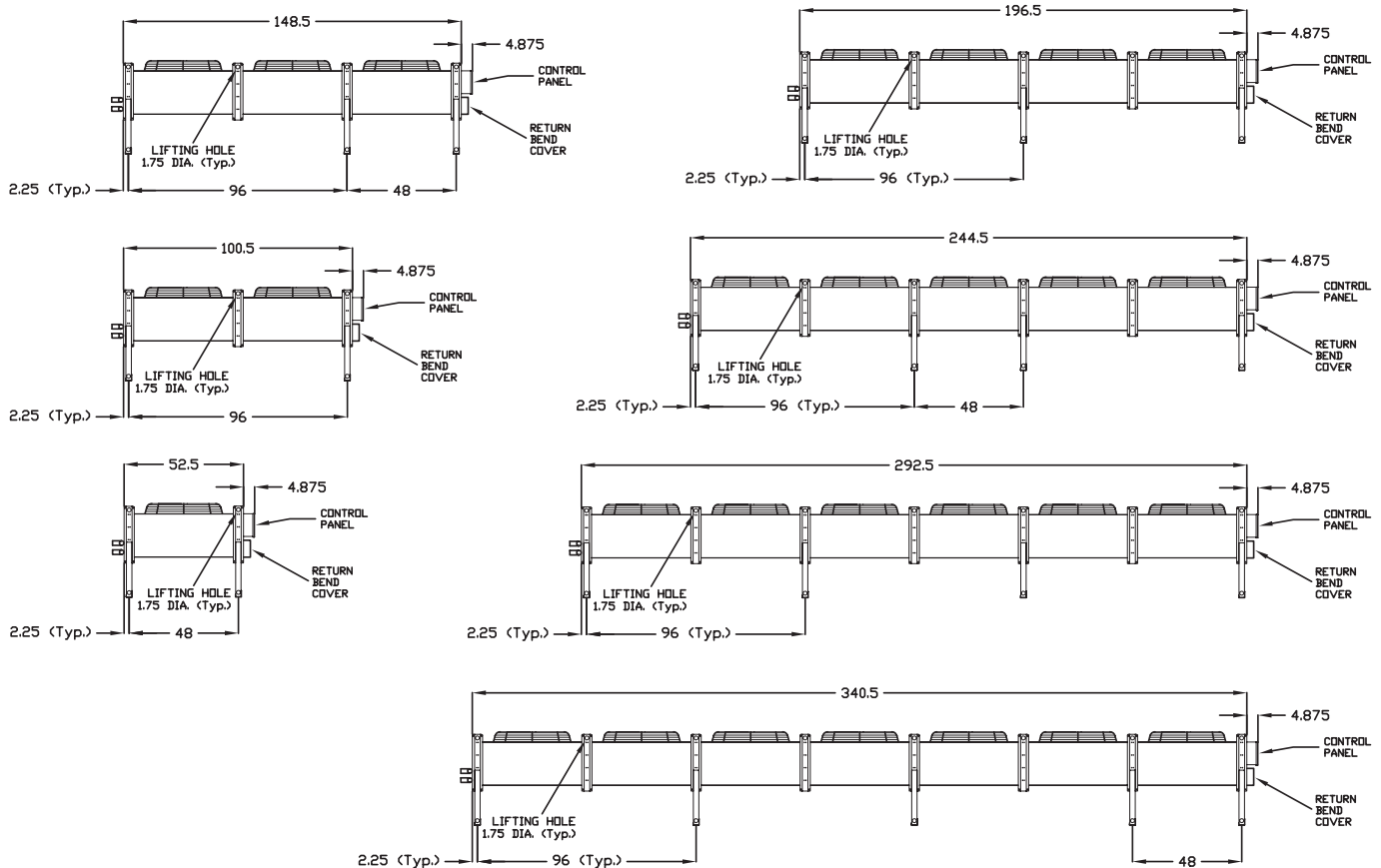


## LARGE CONDENSER widths



\*For units with motor/fan types (position VI of the model number):  
Motor code E or F, Unit height is 46.25"  
Motor code G, Unit height is 50.75"

## LARGE CONDENSER lengths



Due to ongoing product development, specifications are subject to change without notice.