



# AIR COOLED CONDENSER

550 RPM / FLYING BIRD 2

Catalog U860.0

April 2004



## Description:

Kramer's Remote Air Cooled Condensers are designed to provide the optimum in heat transfer efficiency and are constructed for years of reliable performance. The large air cooled condenser, now the accepted standard, is more than an assemblage of fans and coil. It is a highly engineered element of the refrigeration system. The reliability of the system depends as much on the performance of the condenser as on the performance of the compressor. Only the highest grades of commercially available Aluminum, Copper and galvanized steel go into the manufacture of each air cooled condenser. To ensure trouble free installation and operation, every unit must pass the high standards of our Quality Control Program at each stage of production.

## Features:

- Direct drive arrangement
- Vertical air flow
- CCE series uses 550 RPM motors, for high performance
- CCE series available with either the patented Flying Bird 2 assembly or standard metal fan blades
- Reduced decibel ratings from 1140 RPM motors
- Motors have inherent thermal overload protection
- Copper tube, Aluminum finned coils
- Leak tested at 450 PSIG
- Vinyl coated heavy gauge steel fan guards for safety and long life
- Heavy gauge galvanized steel construction for superior corrosion resistance
- Custom circuited coils for optimum performance based on actual application requirements
- UL and cUL Listed

## Options:

- Fan cycling head pressure control
- Flooded head pressure control
- Sub-cooling circuit
- Multi-circuiting
- Copper fins
- Wide selection of coated coils for corrosion protection
- Through-the-door disconnect switch
- Individual motor fusing
- Individual motor contactors
- Splitting relay
- Control board with transformer

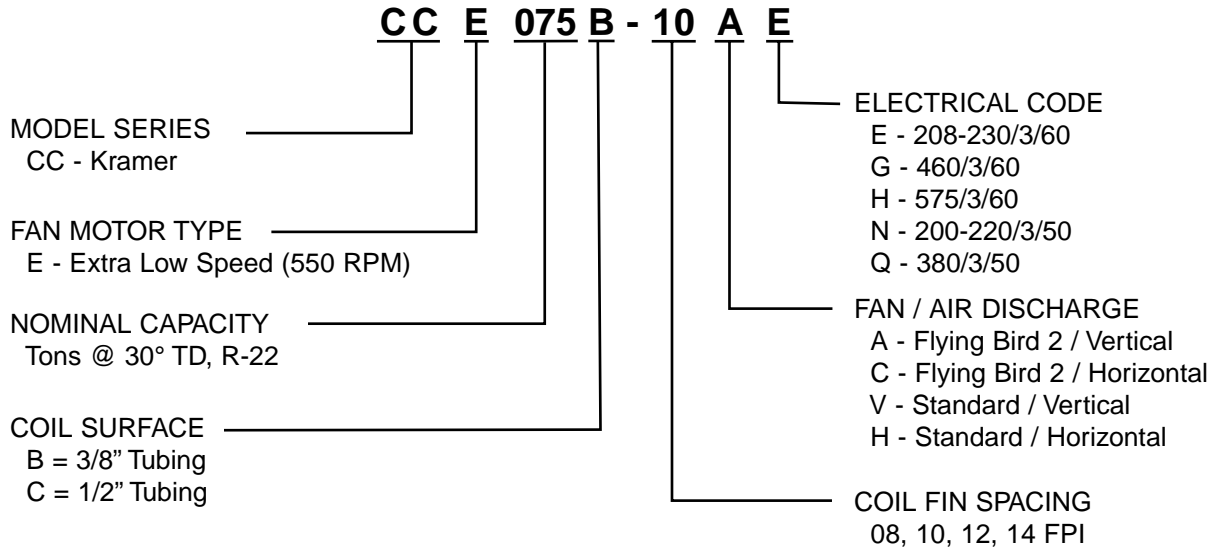


[www.kramerusa.net](http://www.kramerusa.net)

**KRAMER**

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## Nomenclature



Our New **FOURTEEN FAN** air cooled condenser on shipping skid.

Example of the *Flying Bird 2* impeller.



**The *Flying Bird 2* units incorporates many key features:**

- Reduces db levels
- Improved performance
- Configuration up to 14 fans
- Capacity up to 152 tons at 30°TD
- Non-corrosive durable injected composite plastic blades
- Ideal for coastal applications

NOTE: Shown with optional Copper Fin Coil

## Selections

For the proper selection of an air cooled condenser it is necessary to know the total heat rejection of the condenser. The Total Heat of Rejection (THR) is equivalent to the sum of the Net Refrigerating Effect (NRE) plus the heat of compression added by the compressor. The amount of heat added to the refrigerant will depend on the style of compressor, open or suction cooled, and the operating conditions of the system.

Whenever the THR values are available from the compressor manufacturer they should be used in selecting a condenser.

For those cases in which the THR data is unavailable it can be quickly estimated using the following equation and the appropriate factor from Tables 1 or 2.

**Eq. (1) THR = Compressor Capacity x Heat Rejection Factor**

In those cases where the refrigeration system is of a multiple or cascade style, the following equations should be used to estimate the total heat of rejection.

### Open Compressor

**Eq. (2) THR = Compressor Capacity + (2545 x BHP)**

### Suction Cooled Compressor

**Eq. (3) THR = Compressor Capacity + (3413 x KW)**

Altitude at which a condenser is to operate will also affect its capacity. In order to correctly select a condenser at a specific altitude, use the following equation and the appropriate correction factor from Table 3.

**Eq. (4) THR Corrected = THR Design x Altitude Correction Factor**

### Selection Example

#### Given:

Altitude ..... 5000 ft.  
 Ambient Temperature ..... 100°F  
 Evaporator Temperature ..... 20°F  
 Maximum Condensing Temperature ..... 110°F  
 Refrigerant ..... R-22  
 Compressor Capacity (NRE) ..... 225,000 BTUH  
 Compressor Type ..... Suction Cooled

Assume compressor THR is not available

### Calculate:

1. Total Heat Rejection
2. Design temperature difference
3. Condenser size
4. Actual system TD
5. Actual condensing temperature

### Solution:

1. Calculate the system THR from Table 2, a suction cooled compressor, at 110°F condensing temperature and 20°F evaporator temperature, will have a heat rejection factor of 1.33.

THR = Compressor Capacity x Heat Rejection Factor

THR = 299,250 BTUH

THR Corrected "Altitude" = THR x Altitude Corr. Factor

THR Corrected "Altitude" = 336,656 BTUH

2. Design TD = Condensing Temp. - Ambient Temp.

Design TD = 10°F

3. Select condenser size:

From page 5 locate double width CCE section of the page.

Then using the TD of 10°F calculated in Step 2, go to the appropriate column and select a condenser whose THR equals or exceeds that of which we calculated in Step 1; 336,656 BTUH.

A model CCE075B-08A with a THR of 352,000 BTUH will meet the required conditions.

4. Eq.(5) Actual TD =  $\frac{\text{Design TD} \times \text{Design THR}}{\text{Actual Condenser Capacity at Design TD}}$

Actual TD = 9.6°F

5. Eq.(6) Actual Condensing Temp. = Actual TD + Ambient Temp.

Actual Condensing Temp. = 109.6°F

## HEAT REJECTION FACTORS

**TABLE 1 - OPEN COMPRESSOR**

| EVAP. TEMP. | CONDENSING TEMPERATURE |      |      |      |      |      |      |      |
|-------------|------------------------|------|------|------|------|------|------|------|
|             | 90°                    | 100° | 105° | 110° | 115° | 120° | 125° | 130° |
| -40°        | 1.45                   | 1.48 | 1.52 | 1.56 | 1.58 | 1.61 |      |      |
| -35°        | 1.42                   | 1.45 | 1.47 | 1.51 | 1.54 | 1.57 |      |      |
| -30°        | 1.39                   | 1.41 | 1.44 | 1.47 | 1.50 | 1.53 |      |      |
| -25°        | 1.37                   | 1.39 | 1.41 | 1.44 | 1.46 | 1.49 | 1.52 |      |
| -20°        | 1.34                   | 1.37 | 1.39 | 1.41 | 1.43 | 1.45 | 1.48 | 1.51 |
| -15°        | 1.31                   | 1.34 | 1.37 | 1.38 | 1.40 | 1.42 | 1.45 | 1.47 |
| -10°        | 1.28                   | 1.31 | 1.33 | 1.37 | 1.38 | 1.40 | 1.42 | 1.45 |
| 0°          | 1.24                   | 1.28 | 1.29 | 1.32 | 1.33 | 1.35 | 1.38 | 1.41 |
| 10°         | 1.21                   | 1.24 | 1.26 | 1.28 | 1.30 | 1.31 | 1.34 | 1.36 |
| 20°         | 1.18                   | 1.21 | 1.23 | 1.24 | 1.26 | 1.28 | 1.30 | 1.32 |
| 30°         | 1.15                   | 1.18 | 1.20 | 1.21 | 1.23 | 1.24 | 1.26 | 1.28 |
| 40°         | 1.13                   | 1.15 | 1.17 | 1.18 | 1.19 | 1.20 | 1.22 | 1.24 |
| 50°         | 1.11                   | 1.13 | 1.14 | 1.15 | 1.16 | 1.17 | 1.18 | 1.20 |

**TABLE 2 - SUCTION COOLED COMPRESSOR**

| EVAP. TEMP. | CONDENSING TEMPERATURE |      |      |      |      |      |      |      |
|-------------|------------------------|------|------|------|------|------|------|------|
|             | 90°                    | 100° | 105° | 110° | 115° | 120° | 125° | 130° |
| -40°        | 1.67                   | 1.71 | 1.75 | 1.79 | 1.84 | 1.90 |      |      |
| -35°        | 1.63                   | 1.67 | 1.70 | 1.73 | 1.78 | 1.83 |      |      |
| -30°        | 1.58                   | 1.62 | 1.65 | 1.68 | 1.72 | 1.77 |      |      |
| -25°        | 1.54                   | 1.58 | 1.60 | 1.64 | 1.67 | 1.71 | 1.76 |      |
| -20°        | 1.49                   | 1.53 | 1.56 | 1.58 | 1.63 | 1.66 | 1.70 | 1.75 |
| -15°        | 1.46                   | 1.50 | 1.52 | 1.54 | 1.58 | 1.62 | 1.65 | 1.69 |
| -10°        | 1.42                   | 1.46 | 1.48 | 1.50 | 1.53 | 1.57 | 1.62 | 1.64 |
| 0°          | 1.36                   | 1.40 | 1.42 | 1.44 | 1.47 | 1.50 | 1.54 | 1.56 |
| 10°         | 1.31                   | 1.34 | 1.36 | 1.38 | 1.40 | 1.43 | 1.47 | 1.49 |
| 20°         | 1.26                   | 1.29 | 1.31 | 1.33 | 1.35 | 1.37 | 1.40 | 1.43 |
| 30°         | 1.22                   | 1.25 | 1.26 | 1.28 | 1.30 | 1.32 | 1.35 | 1.37 |
| 40°         | 1.18                   | 1.21 | 1.22 | 1.24 | 1.25 | 1.27 | 1.30 | 1.32 |
| 50°         | 1.14                   | 1.17 | 1.18 | 1.20 | 1.21 | 1.23 | 1.25 | 1.27 |

**TABLE 3 - Altitude Correction Factor (ft.)**

| Altitude | Sea Level | 1000  | 2000  | 3000  | 4000  | 5000  | 6000  | 7000  | 8000  | 9000  | 10000 |
|----------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Factor   | 1.0       | 1.029 | 1.052 | 1.076 | 1.101 | 1.125 | 1.151 | 1.177 | 1.204 | 1.231 | 1.260 |

## Performance Data - Single Fan Width Models†

| CCE Model | Fan Conf. | STANDARD METAL BLADE, R-22†<br>Total Heat of Rejection, MBH |       |       |       |       | FLYING BIRD 2 BLADE, R-22†<br>Total Heat of Rejection, MBH |       |       |       |       |
|-----------|-----------|---|-------|-------|-------|-------|--|-------|-------|-------|-------|
|           |           | 1°TD  | 10°TD | 15°TD | 20°TD | 30°TD | 1°TD   | 10°TD | 15°TD | 20°TD | 30°TD |
| 017B-08   | 1 x 2     | 6.6   | 66    | 99    | 132   | 198   | 6.8  | 68    | 102   | 136   | 204   |
| 017B-10   | 1 x 2     | 7.4   | 74    | 112   | 149   | 223   | 7.7  | 77    | 115   | 153   | 230   |
| 017B-12   | 1 x 2     | 8.1   | 81    | 121   | 161   | 242   | 8.3  | 83    | 125   | 166   | 249   |
| 017B-14   | 1 x 2     | 8.6   | 86    | 129   | 171   | 257   | 8.8  | 88    | 132   | 176   | 265   |
| 019B-08   | 1 x 2     | 8.6   | 86    | 129   | 172   | 258   | 8.9  | 89    | 133   | 177   | 266   |
| 019B-10   | 1 x 2     | 9.5   | 95    | 143   | 190   | 286   | 9.8  | 98    | 147   | 196   | 294   |
| 020B-12   | 1 x 2     | 10.0  | 100   | 150   | 200   | 300   | 10.3   | 103   | 154   | 206   | 309   |
| 020B-14   | 1 x 2     | 10.2  | 102   | 154   | 205   | 307   | 10.5   | 105   | 158   | 211   | 316   |
| 021B-08   | 1 x 2     | 9.9   | 99    | 148   | 198   | 297   | 10.2   | 102   | 153   | 204   | 306   |
| 021B-10   | 1 x 2     | 10.5  | 105   | 158   | 210   | 315   | 10.8   | 108   | 162   | 216   | 325   |
| 021B-12   | 1 x 2     | 10.8  | 108   | 162   | 216   | 324   | 11.1   | 111   | 167   | 223   | 334   |
| 022B-14   | 1 x 2     | 11.3  | 113   | 169   | 226   | 339   | 11.6   | 116   | 174   | 232   | 349   |
| 028B-08   | 1 x 3     | 13.3  | 133   | 199   | 265   | 398   | 13.7   | 137   | 205   | 273   | 410   |
| 028B-10   | 1 x 3     | 14.3  | 143   | 215   | 287   | 430   | 14.8   | 148   | 222   | 295   | 443   |
| 030B-12   | 1 x 3     | 15.1  | 151   | 226   | 302   | 453   | 15.5   | 155   | 233   | 311   | 466   |
| 030B-14   | 1 x 3     | 15.5  | 155   | 233   | 310   | 465   | 16.0   | 160   | 239   | 319   | 479   |
| 032B-08   | 1 x 3     | 15.0  | 150   | 224   | 299   | 449   | 15.4   | 154   | 231   | 308   | 462   |
| 032B-10   | 1 x 3     | 15.7  | 157   | 236   | 314   | 471   | 16.2   | 162   | 243   | 323   | 485   |
| 032B-12   | 1 x 3     | 16.4  | 164   | 246   | 328   | 492   | 16.9   | 169   | 253   | 338   | 506   |
| 032B-14   | 1 x 3     | 16.5  | 165   | 248   | 330   | 496   | 17.0   | 170   | 255   | 340   | 510   |
| 037B-08   | 1 x 4     | 17.6  | 176   | 264   | 352   | 528   | 18.1   | 181   | 272   | 363   | 544   |
| 037B-10   | 1 x 4     | 19.0  | 190   | 285   | 380   | 570   | 19.6   | 196   | 294   | 391   | 587   |
| 040B-12   | 1 x 4     | 20.0  | 200   | 300   | 400   | 600   | 20.6   | 206   | 309   | 412   | 617   |
| 040B-14   | 1 x 4     | 20.5  | 205   | 307   | 409   | 614   | 21.1   | 211   | 316   | 421   | 632   |
| 043B-08   | 1 x 4     | 19.8  | 198   | 297   | 396   | 595   | 20.4   | 204   | 306   | 408   | 612   |
| 043B-10   | 1 x 4     | 21.1  | 211   | 317   | 423   | 634   | 21.8   | 218   | 326   | 435   | 653   |
| 043B-12   | 1 x 4     | 21.4  | 214   | 321   | 428   | 643   | 22.1   | 221   | 331   | 441   | 662   |
| 045B-14   | 1 x 4     | 22.5  | 225   | 338   | 451   | 676   | 23.2   | 232   | 348   | 464   | 696   |
| 050*-08   | 1 x 5     | 22.3  | 223   | 335   | 446   | 669   | 23.0   | 230   | 344   | 459   | 689   |
| 050*-10   | 1 x 5     | 24.3  | 243   | 365   | 487   | 730   | 25.1   | 251   | 376   | 501   | 752   |
| 050*-12   | 1 x 5     | 25.3  | 253   | 379   | 506   | 759   | 26.0   | 260   | 391   | 521   | 781   |
| 050*-14   | 1 x 5     | 26.0  | 260   | 390   | 520   | 780   | 26.8   | 268   | 402   | 536   | 803   |
| 052*-08   | 1 x 5     | 25.4  | 254   | 380   | 507   | 761   | 26.1   | 261   | 392   | 522   | 783   |
| 052*-10   | 1 x 5     | 26.7  | 267   | 401   | 534   | 802   | 27.5   | 275   | 413   | 550   | 825   |
| 055*-12   | 1 x 5     | 27.7  | 277   | 415   | 554   | 830   | 28.5   | 285   | 427   | 570   | 855   |
| 055*-14   | 1 x 5     | 28.1  | 281   | 422   | 562   | 844   | 28.9   | 289   | 434   | 579   | 868   |
| 062*-08   | 1 x 6     | 31.5  | 315   | 473   | 630   | 945   | 32.4   | 324   | 487   | 649   | 973   |
| 062*-10   | 1 x 6     | 33.7  | 337   | 505   | 674   | 1011  | 34.7   | 347   | 520   | 694   | 1040  |
| 064C-12   | 1 x 6     | 34.0  | 340   | 510   | 680   | 1020  | 35.0   | 350   | 525   | 700   | 1050  |
| 066C-14   | 1 x 6     | 34.4  | 344   | 516   | 688   | 1032  | 35.4   | 354   | 531   | 708   | 1062  |
| 071*-08   | 1 x 7     | 36.7  | 367   | 551   | 735   | 1102  | 37.8   | 378   | 567   | 756   | 1134  |
| 074*-10   | 1 x 7     | 39.2  | 392   | 587   | 783   | 1175  | 40.3   | 403   | 605   | 806   | 1209  |
| 076C-12   | 1 x 7     | 39.6  | 396   | 595   | 793   | 1189  | 40.8   | 408   | 612   | 816   | 1224  |

† - For R-404A applications multiply required capacity ratings by 0.98 and for R-134a selections multiply required capacity by 1.05 then make selection from R-22 table using corrected capacity.

**Shaded areas** indicate that specific models will require 1/2" diameter tubing over the standard 3/8" diameter tubing at certain operating TD's. At TD's not listed in the performance tables, conversion to 1/2" tube diameter tubing may be required for optimal performance. Contact factory for non-standard conditions.

\* - Change asterisk in model number to a "B" for 3/8" tubes or a "C" for 1/2" tubes when specifying model number.

## Performance Data - Double Fan Width Models†

| CCE Model | Fan Conf. | STANDARD METAL FANS, R-22†   |       |       |       |       | FLYING BIRD 2 BLADE, R-22†   |       |       |       |       |
|-----------|-----------|------------------------------|-------|-------|-------|-------|------------------------------|-------|-------|-------|-------|
|           |           | Total Heat of Rejection, MBH |       |       |       |       | Total Heat of Rejection, MBH |       |       |       |       |
|           |           | 1°TD                         | 10°TD | 15°TD | 20°TD | 30°TD | 1°TD                         | 10°TD | 15°TD | 20°TD | 30°TD |
| 034B-08   | 2 x 2     | 13.2                         | 132   | 198   | 264   | 396   | 13.6                         | 136   | 204   | 272   | 408   |
| 034B-10   | 2 x 2     | 14.9                         | 149   | 223   | 297   | 446   | 15.3                         | 153   | 230   | 306   | 459   |
| 034B-12   | 2 x 2     | 16.1                         | 161   | 242   | 323   | 484   | 16.6                         | 166   | 249   | 332   | 498   |
| 034B-14   | 2 x 2     | 17.1                         | 171   | 257   | 343   | 514   | 17.6                         | 176   | 265   | 353   | 529   |
| 038B-08   | 2 x 2     | 17.2                         | 172   | 258   | 344   | 516   | 17.7                         | 177   | 266   | 354   | 531   |
| 038B-10   | 2 x 2     | 19.0                         | 190   | 286   | 381   | 571   | 19.6                         | 196   | 294   | 392   | 588   |
| 041B-12   | 2 x 2     | 20.0                         | 200   | 300   | 400   | 600   | 20.6                         | 206   | 309   | 412   | 617   |
| 041B-14   | 2 x 2     | 20.5                         | 205   | 307   | 409   | 614   | 21.1                         | 211   | 316   | 421   | 632   |
| 044B-08   | 2 x 2     | 19.8                         | 198   | 297   | 396   | 594   | 20.4                         | 204   | 306   | 407   | 611   |
| 044B-10   | 2 x 2     | 21.0                         | 210   | 315   | 421   | 631   | 21.6                         | 216   | 325   | 433   | 649   |
| 044B-12   | 2 x 2     | 21.6                         | 216   | 324   | 432   | 649   | 22.3                         | 223   | 334   | 445   | 668   |
| 046B-14   | 2 x 2     | 22.6                         | 226   | 339   | 451   | 677   | 23.2                         | 232   | 349   | 465   | 697   |
| 051B-08   | 2 x 3     | 20.9                         | 209   | 313   | 418   | 626   | 21.5                         | 215   | 322   | 430   | 645   |
| 051B-10   | 2 x 3     | 23.4                         | 234   | 350   | 467   | 701   | 24.0                         | 240   | 361   | 481   | 721   |
| 051B-12   | 2 x 3     | 24.6                         | 246   | 369   | 492   | 737   | 25.3                         | 253   | 380   | 506   | 759   |
| 051B-14   | 2 x 3     | 25.8                         | 258   | 387   | 515   | 773   | 26.5                         | 265   | 398   | 531   | 796   |
| 056B-08   | 2 x 3     | 26.5                         | 265   | 398   | 530   | 796   | 27.3                         | 273   | 410   | 546   | 819   |
| 056B-10   | 2 x 3     | 28.7                         | 287   | 430   | 574   | 861   | 29.5                         | 295   | 443   | 591   | 886   |
| 060B-12   | 2 x 3     | 30.2                         | 302   | 453   | 604   | 906   | 31.1                         | 311   | 466   | 622   | 932   |
| 060B-14   | 2 x 3     | 31.0                         | 310   | 465   | 620   | 930   | 31.9                         | 319   | 479   | 638   | 958   |
| 065B-08   | 2 x 3     | 29.9                         | 299   | 449   | 598   | 898   | 30.8                         | 308   | 462   | 616   | 924   |
| 065B-10   | 2 x 3     | 31.4                         | 314   | 471   | 628   | 942   | 32.3                         | 323   | 485   | 647   | 970   |
| 065B-12   | 2 x 3     | 32.8                         | 328   | 492   | 656   | 984   | 33.8                         | 338   | 506   | 675   | 1013  |
| 065B-14   | 2 x 3     | 33.0                         | 330   | 496   | 661   | 991   | 34.0                         | 340   | 510   | 680   | 1021  |
| 075B-08   | 2 x 4     | 35.2                         | 352   | 528   | 704   | 1057  | 36.3                         | 363   | 544   | 725   | 1088  |
| 075B-10   | 2 x 4     | 38.0                         | 380   | 570   | 760   | 1140  | 39.1                         | 391   | 587   | 783   | 1174  |
| 080B-12   | 2 x 4     | 40.0                         | 400   | 600   | 800   | 1200  | 41.2                         | 412   | 617   | 823   | 1235  |
| 080B-14   | 2 x 4     | 40.9                         | 409   | 614   | 819   | 1228  | 42.1                         | 421   | 632   | 843   | 1264  |
| 086B-08   | 2 x 4     | 39.6                         | 396   | 595   | 793   | 1189  | 40.8                         | 408   | 612   | 816   | 1224  |
| 086B-10   | 2 x 4     | 42.3                         | 423   | 634   | 846   | 1269  | 43.5                         | 435   | 653   | 871   | 1306  |
| 086B-12   | 2 x 4     | 42.8                         | 428   | 643   | 857   | 1285  | 44.1                         | 441   | 662   | 882   | 1323  |
| 088B-14   | 2 x 4     | 45.1                         | 451   | 676   | 902   | 1353  | 46.4                         | 464   | 696   | 928   | 1393  |
| 100*-08   | 2 x 5     | 44.6                         | 446   | 669   | 892   | 1338  | 45.9                         | 459   | 689   | 918   | 1378  |
| 100*-10   | 2 x 5     | 48.7                         | 487   | 730   | 974   | 1461  | 50.1                         | 501   | 752   | 1002  | 1504  |
| 100*-12   | 2 x 5     | 50.6                         | 506   | 759   | 1012  | 1518  | 52.1                         | 521   | 781   | 1042  | 1563  |
| 100*-14   | 2 x 5     | 52.0                         | 520   | 780   | 1040  | 1561  | 53.6                         | 536   | 803   | 1071  | 1607  |
| 105*-08   | 2 x 5     | 50.7                         | 507   | 761   | 1015  | 1522  | 52.2                         | 522   | 783   | 1044  | 1567  |
| 105*-10   | 2 x 5     | 53.4                         | 534   | 802   | 1069  | 1603  | 55.0                         | 550   | 825   | 1100  | 1651  |
| 110*-12   | 2 x 5     | 55.4                         | 554   | 830   | 1107  | 1661  | 57.0                         | 570   | 855   | 1140  | 1710  |
| 110*-14   | 2 x 5     | 56.2                         | 562   | 844   | 1125  | 1687  | 57.9                         | 579   | 868   | 1158  | 1737  |
| 126*-08   | 2 x 6     | 63.0                         | 630   | 945   | 1260  | 1891  | 64.9                         | 649   | 973   | 1298  | 1946  |
| 126*-10   | 2 x 6     | 67.4                         | 674   | 1011  | 1348  | 2021  | 69.4                         | 694   | 1040  | 1387  | 2081  |
| 129C-12   | 2 x 6     | 68.0                         | 680   | 1020  | 1360  | 2040  | 70.0                         | 700   | 1050  | 1400  | 2101  |
| 133C-14   | 2 x 6     | 68.8                         | 688   | 1032  | 1376  | 2063  | 70.8                         | 708   | 1062  | 1416  | 2124  |
| 142*-08   | 2 x 7     | 73.5                         | 735   | 1102  | 1469  | 2204  | 75.6                         | 756   | 1134  | 1512  | 2269  |
| 147*-10   | 2 x 7     | 78.3                         | 783   | 1175  | 1566  | 2349  | 80.6                         | 806   | 1209  | 1612  | 2418  |
| 152C-12   | 2 x 7     | 79.3                         | 793   | 1189  | 1585  | 2378  | 81.6                         | 816   | 1224  | 1632  | 2448  |

For R-404A applications multiply required capacity ratings by 0.98 and for R-134a selections multiply required capacity by 1.05 then make selection from R-22 table using corrected capacity.

**Shaded areas** indicate that specific models will require 1/2" diameter tubing over the standard 3/8" diameter tubing at certain operating TD's. At TD's not listed in the performance tables, conversion to 1/2" tube diameter tubing may be required for optimal performance. Contact factory for non-standard conditions.

\* - Change asterisk in model number to a "B" for 3/8" tubes or a "C" for 1/2" tubes when specifying model number.

## Electrical & Physical Data

### Single Fan Width Models

| CCE Model | Fan Data |          |         |                        |      | Motor Data 3 Phase |                  |      |                  |      |                           | Standard Ref.     |                   | Approximate       |                   |       |      |
|-----------|----------|----------|---------|------------------------|------|--------------------|------------------|------|------------------|------|---------------------------|-------------------|-------------------|-------------------|-------------------|-------|------|
|           | Qty.     | Dia (in) | Nom CFM | dBA 30 ft <sup>†</sup> |      | Nom HP             | Total Motor Amps |      | Min Circuit Amps |      | Watts (208V) <sup>1</sup> |                   | Charge (lbs.)     |                   | Weight (lbs.)     |       |      |
|           |          |          |         | FB2                    | Std  |                    | 208-230          | 460  | 208-230          | 460  | FB2                       | Std               | R-404A            | R-22 <sup>*</sup> | Net               | Ship. |      |
| 017       | 2        | 30       | 13,000  | 47.5                   | 49.5 | 1/3                | 5.6              | 2.8  | 15               | 15   | 670                       | 950               | 6.1               | 6.2               | 540               | 890   |      |
| 019       |          |          | 12,700  |                        |      |                    |                  |      |                  |      |                           |                   | 9.2               | 9.4               | 560               | 910   |      |
| 020       |          |          | 11,900  |                        |      |                    |                  |      |                  |      |                           |                   | 9.2               | 9.4               | 590               | 940   |      |
| 021       |          |          | 12,000  |                        |      |                    |                  |      |                  |      |                           |                   | 12.3              | 12.5              | 630               | 980   |      |
| 022       |          |          | 10,700  |                        |      |                    |                  |      |                  |      |                           |                   | 12.3              | 12.5              | 650               | 1000  |      |
| 028       | 3        |          | 19,100  | 49.5                   | 50.5 |                    | 1/3              | 8.4  | 4.2              | 15   | 15                        | 1005              | 1425              | 13.6              | 13.9              | 790   | 1190 |
| 030       |          |          | 18,000  |                        |      |                    |                  |      |                  |      |                           |                   |                   | 13.6              | 13.9              | 860   | 1260 |
| 032       |          |          | 16,500  |                        |      |                    |                  |      |                  |      |                           |                   |                   | 18.2              | 18.5              | 940   | 1340 |
| 037       | 4        |          | 25,400  | 51.5                   | 52   |                    | 1/3              | 11.2 | 5.6              | 15   | 15                        | 1340              | 1900              | 18.1              | 18.4              | 1030  | 1530 |
| 040       |          |          | 24,000  |                        |      |                    |                  |      |                  |      |                           |                   |                   | 18.1              | 18.4              | 1090  | 1590 |
| 043       |          | 23,900   | 24.1    |                        |      | 24.6               |                  |      |                  |      |                           |                   |                   | 1170              | 1670              |       |      |
| 045       |          | 21,400   | 24.1    |                        |      | 24.6               |                  |      |                  |      |                           |                   |                   | 1210              | 1710              |       |      |
| 050       | 5        | 30,900   | 52      | 52.5                   | 1/3  | 14.0               | 7.0              | 15   | 15               | 1675 | 2375                      | 22.5 <sup>2</sup> | 22.9 <sup>2</sup> | 1360 <sup>3</sup> | 1910 <sup>3</sup> |       |      |
| 052       |          | 30,100   |         |                        |      |                    |                  |      |                  |      |                           | 30.0 <sup>2</sup> | 30.6 <sup>2</sup> | 1400 <sup>3</sup> | 1950 <sup>3</sup> |       |      |
| 055       |          | 27,300   |         |                        |      |                    |                  |      |                  |      |                           | 30.0 <sup>2</sup> | 30.6 <sup>2</sup> | 1500 <sup>3</sup> | 2050 <sup>3</sup> |       |      |
| 062       | 6        | 36,100   | 52.5    | 53                     | 1/3  | 16.8               | 8.4              | 17.2 | 15               | 2010 | 2850                      | 35.9 <sup>2</sup> | 36.6 <sup>2</sup> | 1580 <sup>3</sup> | 2230 <sup>3</sup> |       |      |
| 064       |          | 33,500   |         |                        |      |                    |                  |      |                  |      |                           | 65.9              | 67.3              | 1795              | 2445              |       |      |
| 066       |          | 32,100   |         |                        |      |                    |                  |      |                  |      |                           | 65.9              | 67.3              | 1855              | 2505              |       |      |
| 071       | 7        | 43,400   | 53      | 53.5                   | 1/3  | 19.6               | 9.8              | 20.3 | 15               | 2345 | 3025                      | 41.8 <sup>2</sup> | 42.6 <sup>2</sup> | 1840 <sup>3</sup> | 2610 <sup>3</sup> |       |      |
| 074       |          | 40,700   |         |                        |      |                    |                  |      |                  |      |                           | 41.8 <sup>2</sup> | 42.6 <sup>2</sup> | 1910 <sup>3</sup> | 2680 <sup>3</sup> |       |      |
| 076       |          | 39,100   |         |                        |      |                    |                  |      |                  |      |                           | 76.8              | 78.4              | 2080              | 2850              |       |      |

### Double Fan Width Models

| CCE Model | Fan Data |          |         |                        |      | Motor Data 3 Phase |                  |      |                  |      |                           | Standard Ref.     |                   | Approximate       |                   |       |      |
|-----------|----------|----------|---------|------------------------|------|--------------------|------------------|------|------------------|------|---------------------------|-------------------|-------------------|-------------------|-------------------|-------|------|
|           | Qty.     | Dia (in) | Nom CFM | dBA 30 ft <sup>†</sup> |      | Nom HP             | Total Motor Amps |      | Min Circuit Amps |      | Watts (208V) <sup>1</sup> |                   | Charge (lbs.)     |                   | Weight (lbs.)     |       |      |
|           |          |          |         | FB2                    | STD  |                    | 208-230          | 460  | 208-230          | 460  | FB2                       | STD               | R-404A            | R-22 <sup>*</sup> | Net               | Ship. |      |
| 034       | 4        | 30       | 26,000  | 51.5                   | 52   | 1/3                | 11.2             | 5.6  | 15               | 15   | 1340                      | 1900              | 12.1              | 12.4              | 1080              | 1780  |      |
| 038       |          |          | 25,400  |                        |      |                    |                  |      |                  |      |                           |                   | 18.2              | 18.6              | 1130              | 1830  |      |
| 041       |          |          | 23,800  |                        |      |                    |                  |      |                  |      |                           |                   | 18.2              | 18.6              | 1190              | 1890  |      |
| 044       |          |          | 24,000  |                        |      |                    |                  |      |                  |      |                           |                   | 24.3              | 24.8              | 1260              | 1960  |      |
| 046       |          |          | 21,400  |                        |      |                    |                  |      |                  |      |                           |                   | 24.3              | 24.8              | 1300              | 2030  |      |
| 051       | 6        |          | 41,000  | 52.5                   | 53   |                    | 1/3              | 16.8 | 8.4              | 17.5 | 15                        | 2010              | 2850              | 18.0              | 18.4              | 1550  | 2350 |
| 056       |          |          | 38,200  |                        |      |                    |                  |      |                  |      |                           |                   |                   | 27.1              | 27.6              | 1630  | 2430 |
| 060       |          |          | 36,000  |                        |      |                    |                  |      |                  |      |                           |                   |                   | 27.1              | 27.6              | 1720  | 2520 |
| 065       |          |          | 33,000  |                        |      |                    |                  |      |                  |      |                           |                   |                   | 36.1              | 36.8              | 1890  | 2690 |
| 075       | 8        |          | 50,800  | 53                     | 53.5 |                    | 1/3              | 22.4 | 11.2             | 23.1 | 15                        | 2680              | 3800              | 35.9              | 36.7              | 2070  | 3070 |
| 080       |          | 48,000   | 35.9    |                        |      | 36.7               |                  |      |                  |      |                           |                   |                   | 2200              | 3200              |       |      |
| 086       |          | 47,800   | 47.9    |                        |      | 48.9               |                  |      |                  |      |                           |                   |                   | 2340              | 3340              |       |      |
| 088       |          | 42,800   | 47.9    |                        |      | 48.9               |                  |      |                  |      |                           |                   |                   | 2420              | 3420              |       |      |
| 100       | 10       | 61,800   | 53.5    | 54                     | 1/3  | 28.0               | 14.0             | 28.7 | 15               | 3350 | 4750                      | 44.8 <sup>2</sup> | 45.7 <sup>2</sup> | 2725 <sup>3</sup> | 3825 <sup>3</sup> |       |      |
| 105       |          | 60,200   |         |                        |      |                    |                  |      |                  |      |                           | 59.7 <sup>2</sup> | 60.9 <sup>2</sup> | 2810 <sup>3</sup> | 3910 <sup>3</sup> |       |      |
| 110       |          | 54,600   |         |                        |      |                    |                  |      |                  |      |                           | 59.7 <sup>2</sup> | 60.9 <sup>2</sup> | 3010 <sup>3</sup> | 4110 <sup>3</sup> |       |      |
| 126       | 12       | 72,200   | 54      | 55                     | 1/3  | 33.6               | 16.8             | 34.3 | 17.2             | 4020 | 5700                      | 71.5 <sup>2</sup> | 73.0 <sup>2</sup> | 3300 <sup>3</sup> | 4600 <sup>3</sup> |       |      |
| 129       |          | 67,000   |         |                        |      |                    |                  |      |                  |      |                           | 131.5             | 134.2             | 3590              | 4890              |       |      |
| 133       |          | 64,200   |         |                        |      |                    |                  |      |                  |      |                           | 131.5             | 134.2             | 3720              | 5020              |       |      |
| 142       | 14       | 86,800   | 54.5    | 55.5                   | 1/3  | 39.2               | 19.6             | 39.9 | 20.0             | 4690 | 6650                      | 83.4 <sup>2</sup> | 85.1 <sup>2</sup> | 3680 <sup>3</sup> | 5180 <sup>3</sup> |       |      |
| 147       |          | 81,400   |         |                        |      |                    |                  |      |                  |      |                           | 83.4 <sup>2</sup> | 85.1 <sup>2</sup> | 3820 <sup>3</sup> | 5320 <sup>3</sup> |       |      |
| 152       |          | 78,200   |         |                        |      |                    |                  |      |                  |      |                           | 153.2             | 156.4             | 4160              | 5660              |       |      |

† dBA corrections for other distances: 10ft = +10, 60ft = -6, 90ft = -9, 120ft = -12

\* Multiply R-22 charge by 0.97 for R-134A, or 1.05 for R-502

<sup>1</sup> Multiply Watts by 1.1 for 230 or 460 Volts

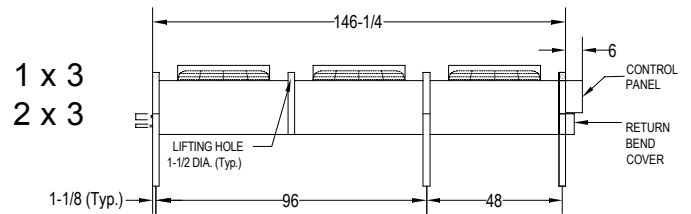
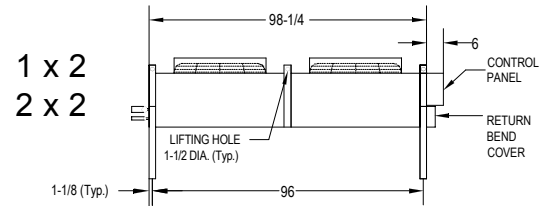
<sup>2</sup> Multiply refrigerant weight by 1.84 for models requiring 1/2 inch tube coils

<sup>3</sup> Multiply weight by 1.05 for models requiring 1/2 inch tube coils

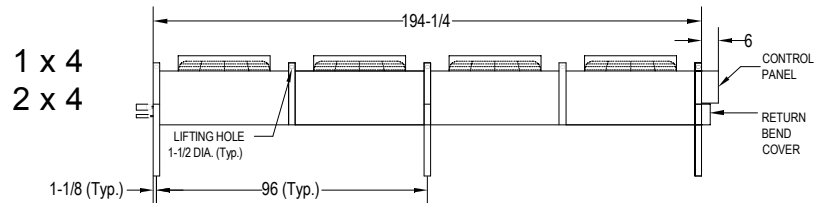
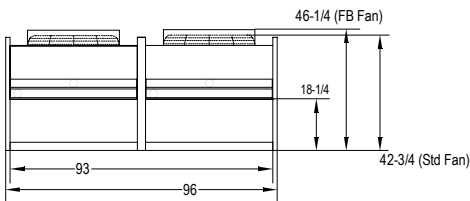
## Physical Dimensions

### NOTES:

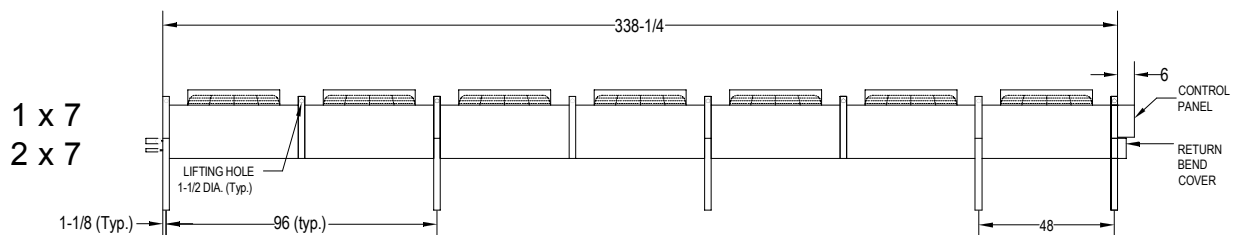
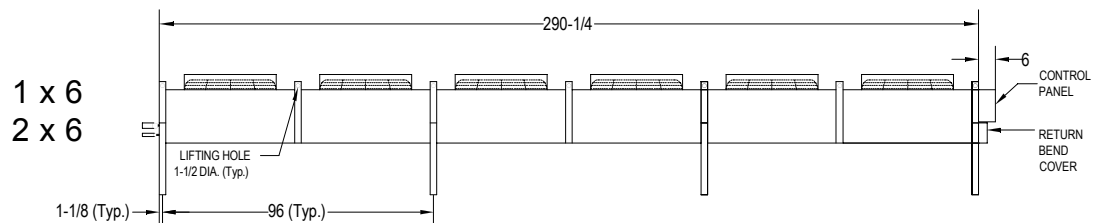
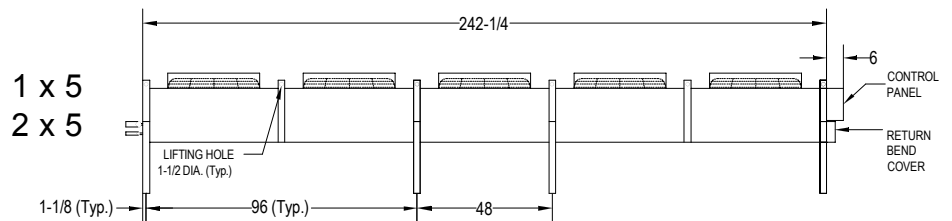
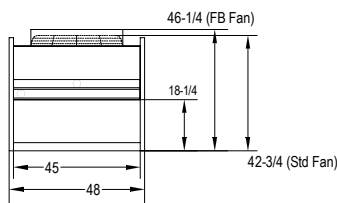
- \* Mounting legs are retracted for shipping purposes, and must be lowered in position for unit installation.
- \* All dimensions are in inches.
- \* All mounting holes are 5/8" diam.
- \* Units are available in horizontal airflow arrangements.



END VIEW - Double Fan Width Model



END VIEW - Single Fan Width Model



P/N - 122301069 04/04 RP 2000