

## **RCE SERIES™ - RCF SERIES™ REMOTE CONDENSERS**

### **R**EMOTE CONDENSERS FOR LARGE APPLICATIONS

Desert Aire designs RCE Series™ and RCF Series™ Remote Condensers to complement Desert Aire dehumidification and indoor climate control systems demanding large commercial thermal transfer solutions.

RCE Series and RCF Series Remote Condensers are featured in Standard (RCE) and Quiet (RCF) models for application flexibility and performance. Vertical airflow models fulfill most application needs; horizontal airflow models are available upon request.

Desert Aire supplies RCE Series and RCF Series Remote Condensers with a commitment to excellence that will provide you with years of reliable service. Our RCE Series and RCF Series Remote Condensers are easy to install too.

### **H**IGH PERFORMANCE, ENERGY EFFICIENCY AND DURABILITY

**MOTORS** - RCE Series and RCF Series Remote Condensers employ specialized configurations of Electronically Commutated Motors (ECM) and single speed external rotor motors to increase energy efficiency and thermal transfer capabilities. These configurations also provide a greater range of airflow rates.

Electronically Commutated Motors are used on the lead fan of each remote condenser circuit in order to improve head pressure stability; and to run at variable speeds to alter the amount of air the ECM drives through the system. All ECMs are controlled in response to condensing pressure inputs. Single speed motors are run in a Vernier sequence with the lead fan or fans to provide full modulation capability while minimizing cost. The single speed fan motors are cycled on and off using



pressure inputs. These configurations allow the ECMs to maintain consistent head pressures by ramping up and down in response to fluctuating loads or varying ambient temperatures.

**FANS AND CONTROLS** - The specialized configurations of EC and single speed fans with controls provide the lowest possible refrigerant charge and automatically maintain condensing pressures abient temperatures as low as -20°F. Swept fan blades are designed as part of the motor assemblies, not an addition to them. Precise matching of these two components increases energy efficiency and reduces sound pressure to lower levels.

**COILS** - Round Tube Coils-Enhanced tubing with advanced sinusoidal fin design are provided for optimal performance. Extensive use of 5/16" and 3/8" diameter tubing keeps refrigerant charge to a minimum.

The optional coated coils feature a uniform, flexible coating over the entire coil with negligible impact on thermal conductivity. 100% coverage is assured by the application process, even in the hard to reach center portions of the coil, without bridging between the fins. The coating protects the remote condenser from corrosive airborne particles, and is especially advantageous when your facility is located near a salt water coastline or potential source of corrosive airborne particles.



**NOTES:** All data contained in this document is subject to change without notice. Please consult factory for most current data. Condensers in this brochure are limited to an elevation difference of 10 feet (Remote Condenser below) and a maximum linear distance of 50 feet. Consult factory for high-lift model options or longer line requirements.

**CABINETS** - G90 galvanized steel cabinets provide years of durable finish protection and aesthetic appeal to our RCE Series and RCF Series Remote Condensers. Tall venturi fan panels add to our uncompromised energy efficiency and ultra-low sound. Fully baffled fan cells prevent “wind milling” and enhance performance. Motor lead raceways are fully enclosed to protect wiring.

### EASY INSTALLATION

After uncrating, the condenser can easily be lifted into place with the use of eye bolts located on top of the unit. At ground level, the condenser can rest on a solid surface such as a concrete slab. On roofs, the unit should be placed on channels or an I-beam frame.

### MULTIPLE REFRIGERATION CIRCUITS

Desert Aire’s RCE Series and RCF Series Remote Condensers are available in numerous dual-circuit designs to match the needs of dehumidification systems. Remote condensers with a single row of fans operate based on the highest signal from each circuit. Condensers with two rows of fans operate with independent fan operation for each refrigeration circuit. Available RCE Series and RCF Series configurations include 575V supply voltages.

Elevation above sea level has an effect on the performance of air-cooled condensers. The unit standard capacities shown in the Performance Table as MBH must be multiplied by the correction factors in Table 1 to correct for various elevations.

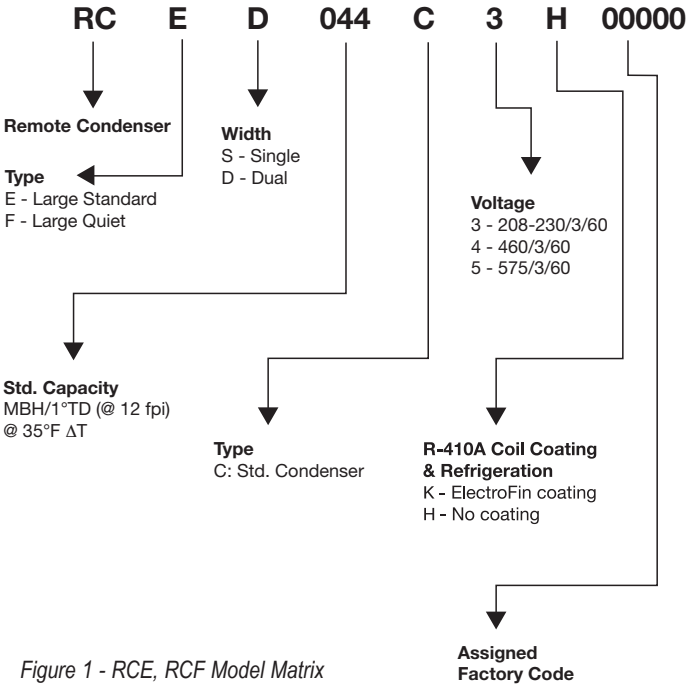


Figure 1 - RCE, RCF Model Matrix

### ELEVATION CORRECTION FACTORS

| ELEVATION (FEET)  | 1,000 | 2,000 | 3,000 | 4,000 | 5,000 | 6,000 | 7,000 | 8,000 |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| CORRECTION FACTOR | .98   | .96   | .93   | .91   | .89   | .87   | .85   | .81   |

Table 1 - Elevation Correction Factors



## SOUND AND POWER

### RCE STANDARD SERIES

Desert Aire's RCE units are for customers seeking the most economical solution for their capacity requirements. This group of condensers offers quality sound and power benefits. Enhanced motor technology using an 1100rpm blower/fan combination provides lower noise levels and significant energy savings.

### RCF QUIET SERIES

Desert Aire's RCF units are for customers seeking exceptional low noise, energy efficiency and capacity solutions. The units feature 500 rpm motors coupled with specially

designed blades that are precisely mounted in venturi fan panels to provide unprecedented low sound levels. While RCF units may require more fans, these remote condensers actually require significantly lower power consumption through their optimized blower efficiency.

### STANDARD FEATURES

Standard equipment on RCE Series and RCF Series Remote Condensers include a door interlock and a main terminal block for motor lead termination. Also included is a main disconnect switch. Standard control panels are rated at 10kA SCCR when power is supplied with Class J fuses.

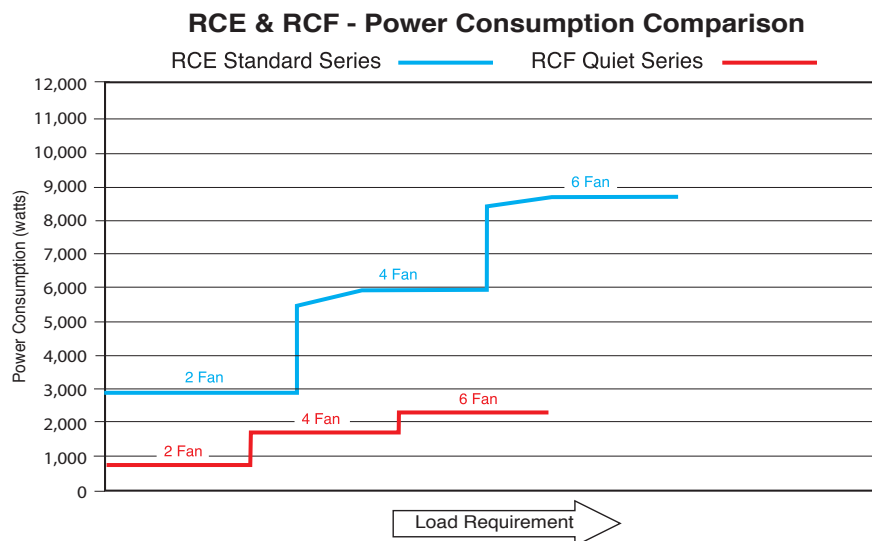


Figure 2 - Power Consumption Comparison

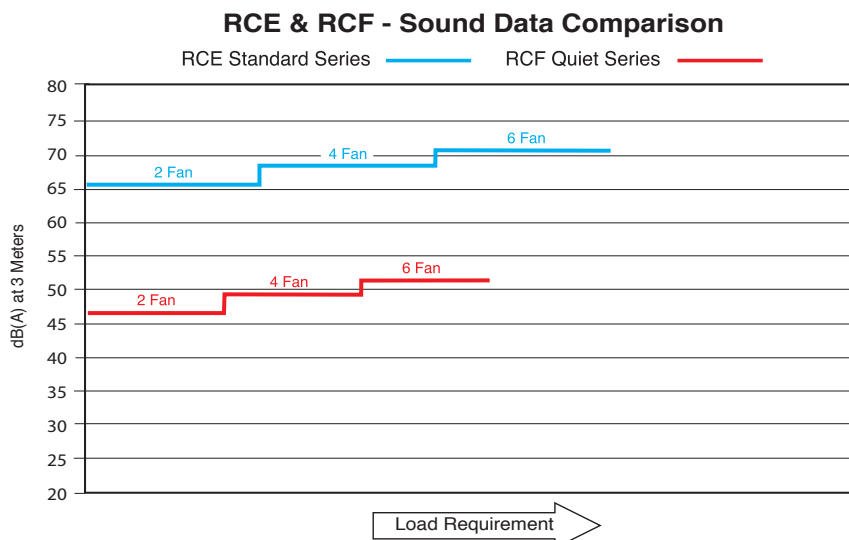


Figure 3 - Unit Sound Data

# ELECTRICAL DATA

|          | MODEL                          | CFM    | ROC SCCR<br>(208/230/<br>460V)* | 208-230/3/60 |      |        | 460/3/60 |      |        | 575/3/60 |      |        | Unit kW<br>3 PHASE |
|----------|--------------------------------|--------|---------------------------------|--------------|------|--------|----------|------|--------|----------|------|--------|--------------------|
|          |                                |        |                                 | FLA          | MCA  | MOPD** | FLA      | MCA  | MOPD** | FLA      | MCA  | MOPD** |                    |
| STANDARD | 1100 RPM<br>SINGLE<br>STANDARD |        |                                 |              |      |        |          |      |        |          |      |        |                    |
|          | RCES018C                       | 22,540 | 5kA                             | 12.5         | 14.2 | 20     | 6.5      | 7.4  | 15     | 6        | 6.7  | 15     | 2.9                |
|          | RCES022C                       | 34,390 | 5kA                             | 19.3         | 21   | 25     | 10.1     | 11   | 15     | 9.1      | 9.8  | 15     | 4.2                |
|          | RCES026C                       | 33,220 | 5kA                             | 19.3         | 21   | 25     | 10.1     | 11   | 15     | 9.1      | 9.8  | 15     | 4.3                |
|          | RCES030C                       | 45,860 | 5kA                             | 26.1         | 27.8 | 30     | 13.7     | 14.6 | 15     | 12.2     | 12.9 | 15     | 5.6                |
|          | RCES035C                       | 44,300 | 5kA                             | 26.1         | 27.8 | 30     | 13.7     | 14.6 | 15     | 12.2     | 12.9 | 15     | 5.7                |
|          | RCES040C                       | 54,480 | 5kA                             | 32.9         | 34.6 | 40     | 17.3     | 18.2 | 20     | 15.3     | 16   | 20     | 7.3                |
|          | RCES046C                       | 52,060 | 5kA                             | 32.9         | 34.6 | 40     | 17.3     | 18.2 | 20     | 15.3     | 16   | 20     | 7.6                |
|          | 1100 RPM<br>DUAL<br>STANDARD   |        |                                 |              |      |        |          |      |        |          |      |        |                    |
|          | RCED022C                       | 47,090 | 5kA                             | 25           | 26.7 | 30     | 12.9     | 13.8 | 15     | 11.9     | 12.7 | 15     | 5.4                |
|          | RCED029C                       | 45,270 | 5kA                             | 25           | 26.7 | 30     | 12.9     | 13.8 | 15     | 11.9     | 12.7 | 15     | 5.6                |
|          | RCED035C                       | 43,630 | 5kA                             | 25           | 26.7 | 30     | 12.9     | 13.8 | 15     | 11.9     | 12.7 | 15     | 5.8                |
|          | RCED044C                       | 68,050 | 5kA                             | 38.6         | 40.3 | 45     | 20.1     | 21   | 25     | 18.1     | 18.9 | 20     | 8.4                |
|          | RCED052C                       | 65,580 | 5kA                             | 38.6         | 40.3 | 45     | 20       | 21   | 25     | 18.1     | 18.9 | 20     | 8.7                |
| QUIET    | 500 RPM<br>SINGLE<br>QUIET     |        |                                 |              |      |        |          |      |        |          |      |        |                    |
|          | RCFS016C                       | 20,033 | 5kA                             | 9.9          | 11.3 | 15     | 5.3      | 6    | 15     | 4.5      | 5.2  | 15     | 1.1                |
|          | RCFS018C                       | 18,828 | 5kA                             | 9.9          | 11.3 | 15     | 5.2      | 6    | 15     | 4.5      | 5.2  | 15     | 1.2                |
|          | RCFS021C                       | 26,711 | 5kA                             | 12           | 13.4 | 15     | 6.5      | 7.2  | 15     | 5.3      | 6    | 15     | 1.6                |
|          | RCFS023C                       | 25,104 | 5kA                             | 12           | 13.4 | 15     | 6.5      | 7.2  | 15     | 5.3      | 6    | 15     | 1.6                |
|          | RCFS027C                       | 30,737 | 5kA                             | 14.1         | 15.5 | 20     | 7.7      | 8.4  | 15     | 6.1      | 6.8  | 15     | 2.0                |
|          | RCFS030C                       | 28,418 | 5kA                             | 14.1         | 15.5 | 20     | 7.7      | 8.4  | 15     | 6.1      | 6.8  | 15     | 2.0                |
|          | RCFS036C                       | 34,101 | 5kA                             | 16.2         | 17.6 | 20     | 8.9      | 9.6  | 15     | 6.9      | 7.6  | 15     | 2.4                |
|          | RCFS042C                       | 39,789 | 5kA                             | 18.3         | 19.7 | 25     | 10.1     | 10.8 | 15     | CF       | CF   | CF     | 2.8                |
|          | 500 RPM<br>DUAL<br>QUIET       |        |                                 |              |      |        |          |      |        |          |      |        |                    |
|          | RCFD015C                       | 28,127 | 5kA                             | 15.6         | 17   | 20     | 8.1      | 8.8  | 15     | 7.3      | 8    | 15     | 1.6                |
|          | RCFD020C                       | 36,304 | 5kA                             | 15.6         | 17   | 20     | 8.1      | 8.8  | 15     | 7.3      | 8    | 15     | 1.6                |
|          | RCFD031C                       | 39,353 | 5kA                             | 19.8         | 21.2 | 25     | 10.5     | 11.2 | 15     | 8.9      | 9.6  | 15     | 2.3                |
|          | RCFD036C                       | 36,773 | 5kA                             | 19.8         | 21.2 | 25     | 10.5     | 11.2 | 15     | 8.9      | 9.6  | 15     | 2.3                |
|          | RCFD041C                       | 52,471 | 5kA                             | 24           | 25.4 | 30     | 12.9     | 13.6 | 15     | 10.5     | 11.2 | 15     | 3.0                |
|          | RCFD048C                       | 49,030 | 5kA                             | 24           | 25.4 | 30     | 12.9     | 13.6 | 15     | 10.5     | 11.2 | 15     | 3.1                |

\* Standard control panels are rated at 10 kA SCCR when power is supplied with Class J fuses.

\*\* MOPD - Maximum Overcurrent Protection Device

CF = Consult Factory

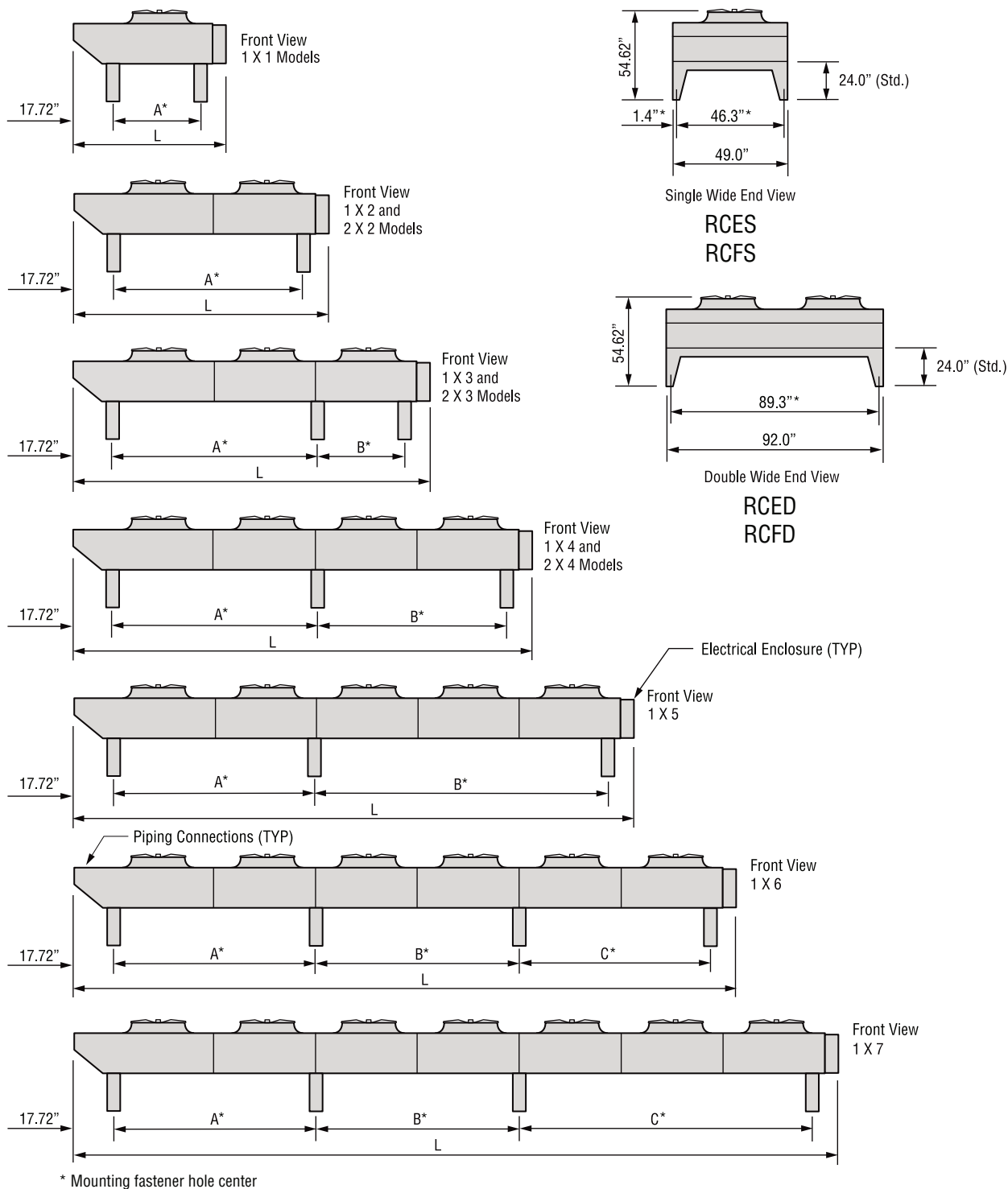
# **P**ERFORMANCE, SPECIFICATIONS AND DIMENSIONS TABLE

|          | MODEL                          | STANDARD<br>CAPACITY<br>MBH/1°F | DUAL CIRC. CONN (IN)* |                | FAN<br>LAYOUT | OVERALL<br>LENGTH | MOUNTING DIMENSIONS (IN) |       |       | APPROX.<br>NET WT.<br>(LBS)** | DBA*** |
|----------|--------------------------------|---------------------------------|-----------------------|----------------|---------------|-------------------|--------------------------|-------|-------|-------------------------------|--------|
|          |                                |                                 | DISCH.<br>LINE        | LIQUID<br>LINE |               |                   | A                        | B     | C     |                               |        |
| STANDARD | 1100 RPM<br>SINGLE<br>STANDARD |                                 |                       |                |               |                   |                          |       |       |                               |        |
|          | RCES018C                       | 18.00                           | 1 3/8                 | 7/8            | 1 x 2         | 138.9             | 106.2                    | -     | -     | 869                           | 65.5   |
|          | RCES022C                       | 24.73                           | 1 5/8                 | 1 1/8          | 1 x 3         | 196.9             | 111.1                    | 53.1  | -     | 1,186                         | 67.3   |
|          | RCES026C                       | 28.16                           | 1 5/8                 | 1 1/8          | 1 x 3         | 196.9             | 111.1                    | 53.1  | -     | 1,246                         | 67.3   |
|          | RCES030C                       | 33.49                           | 1 5/8                 | 1 1/8          | 1 x 4         | 254.9             | 111.1                    | 111.1 | -     | 1,497                         | 68.5   |
|          | RCES035C                       | 37.72                           | 1 5/8                 | 1 1/8          | 1 x 4         | 254.9             | 111.1                    | 111.1 | -     | 1,574                         | 69.5   |
|          | RCES040C                       | 43.57                           | 1 5/8                 | 1 1/8          | 1 x 5         | 312.9             | 111.1                    | 169.1 | -     | 1,658                         | 69.5   |
|          | RCES046C                       | 47.76                           | 1 5/8                 | 1 3/8          | 1 x 5         | 312.9             | 111.1                    | 169.1 | -     | 1,746                         | 69.5   |
|          | 1100 RPM<br>DUAL<br>STANDARD   |                                 |                       |                |               |                   |                          |       |       |                               |        |
|          | RCED022C                       | 23.17                           | 1 5/8                 | 1 1/8          | 2 x 2         | 138.9             | 106.2                    | -     | -     | 1,301                         | 68.5   |
|          | RCED029C                       | 30.18                           | 1 5/8                 | 1 1/8          | 2 x 2         | 138.9             | 106.2                    | -     | -     | 1,537                         | 68.5   |
|          | RCED035C                       | 34.84                           | 1 5/8                 | 1 1/8          | 2 x 2         | 138.9             | 106.2                    | -     | -     | 1,614                         | 68.5   |
|          | RCED044C                       | 47.81                           | 1 5/8                 | 1 3/8          | 2 x 3         | 196.9             | 111.1                    | 53.1  | -     | 2,086                         | 70.3   |
|          | RCED052C                       | 54.12                           | 1 5/8                 | 1 3/8          | 2 x 3         | 196.9             | 111.1                    | 53.1  | -     | 2,196                         | 70.3   |
| QUIET    | 500 RPM<br>SINGLE<br>QUIET     |                                 |                       |                |               |                   |                          |       |       |                               |        |
|          | RCFS016C                       | 16.90                           | 1 3/8                 | 7/8            | 1 x 3         | 196.9             | 111.1                    | 53.1  | -     | 1,186                         | 48.3   |
|          | RCFS018C                       | 17.97                           | 1 3/8                 | 7/8            | 1 x 3         | 196.9             | 111.1                    | 53.1  | -     | 1,246                         | 48.3   |
|          | RCFS021C                       | 22.92                           | 1 5/8                 | 1 1/8          | 1 x 4         | 254.9             | 111.1                    | 111.1 | -     | 1,497                         | 49.5   |
|          | RCFS023C                       | 24.10                           | 1 5/8                 | 1 1/8          | 1 x 4         | 254.9             | 111.1                    | 111.1 | -     | 1,574                         | 49.5   |
|          | RCFS027C                       | 28.10                           | 1 5/8                 | 1 1/8          | 1 x 5         | 312.9             | 111.1                    | 169.1 | -     | 1,658                         | 50.5   |
|          | RCFS030C                       | 28.67                           | 1 5/8                 | 1 1/8          | 1 x 5         | 312.9             | 111.1                    | 169.1 | -     | 1,746                         | 50.5   |
|          | RCFS036C                       | 34.66                           | 1 5/8                 | 1 1/8          | 1 x 6         | 370.9             | 111.1                    | 116   | 111.1 | 2,068                         | 51.3   |
|          | RCFS042C                       | 40.71                           | 1 5/8                 | 1 1/8          | 1 x 7         | 428.9             | 111.1                    | 116   | 169.1 | 2,368                         | 52     |
|          | 500 RPM<br>DUAL<br>QUIET       |                                 |                       |                |               |                   |                          |       |       |                               |        |
|          | RCFD015C                       | 16.88                           | 1 3/8                 | 7/8            | 2 x 2         | 138.9             | 106.2                    | -     | -     | 1,301                         | 49.5   |
|          | RCFD020C                       | 20.60                           | 1 5/8                 | 7/8            | 2 x 2         | 138.9             | 106.2                    | -     | -     | 1,537                         | 49.5   |
|          | RCFD031C                       | 32.73                           | 1 5/8                 | 1 1/8          | 2 x 3         | 196.9             | 111.1                    | 53.1  | -     | 2,086                         | 51.3   |
|          | RCFD036C                       | 34.70                           | 1 5/8                 | 1 1/8          | 2 x 3         | 196.9             | 111.1                    | 53.1  | -     | 2,196                         | 51.3   |
|          | RCFD041C                       | 44.94                           | 1 5/8                 | 1 1/8          | 2 x 4         | 254.9             | 111.1                    | 111.1 | -     | 2,845                         | 52.5   |
|          | RCFD048C                       | 47.26                           | 1 5/8                 | 1 3/8          | 2 x 4         | 254.9             | 111.1                    | 111.1 | -     | 2,999                         | 52.5   |

\* Actual line sizes at 35°F DT. Line connections may vary with different application ratings, so consult the I/O manual or factory.

\*\*Add 200 LBS for 575V \*\*\* Listed DBA values are sound ratings for the maximum number of fans in operation per RC at 3m in accordance with AHRI standard 370-2001.

## DIMENSIONAL DATA RCE AND RCF SERIES



**OPTIMIZING SOLUTIONS THROUGH SUPERIOR DEHUMIDIFICATION TECHNOLOGY**

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