



Catalog 221-1

## Air Cooled Split System Condensing Units for Rooftop Systems and Air Handlers

Models RCS 025C through 135C  
25 to 135 Tons  
R-22/R407C Refrigerant



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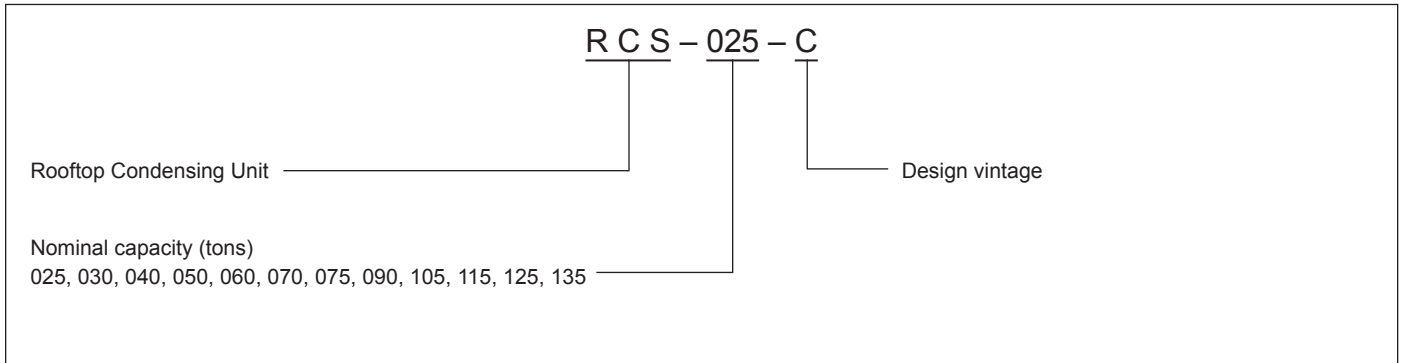
# The Condensing Unit for Applied Rooftop and Air Handler Systems

- The Daikin RCS air cooled, remote condenser offers a wide selection of nominal capacities from 25 to 135 tons.
- Units are designed for quiet and energy efficient operation meeting ASHRAE 90.1 efficiency requirements.
- Dual circuits with scroll compressors from 25 to 105 tons with multiple stages for maximum capacity control.
- Dual circuits with Copeland Discus™ compressors (from 110 to 135 tons) with multiple steps of unloading for maximum capacity control.
- The RCS unit can be matched to a Daikin Vision®, Skyline®, or Destiny® air handling unit. No need for an estimated balance point.
- Using Daikin Tools™ a complete system can be designed and selected. Capacity, electrical information, and dimensional drawings are right at your fingertips.

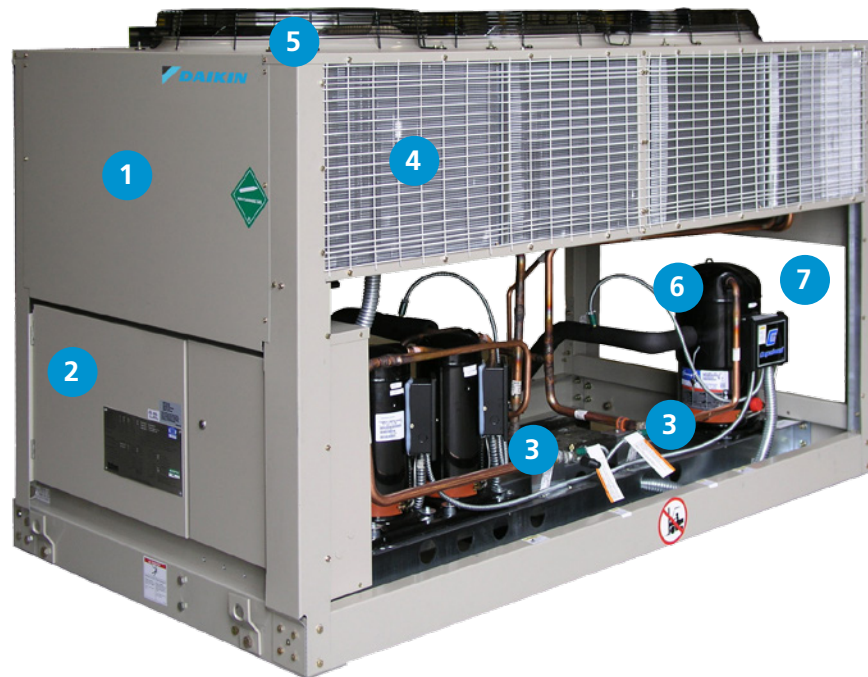
## Agency Listed



## Nomenclature



## Daikin's Unique Features



### 1. Durable Construction

- Pre-painted exterior surfaces that surpass the 750-hour ASTM B 117 Salt Spray Test for durability

### 2. Controls

- Easily accessible control panel
- Single-point power connection
- Control transformer allows 24 volt, field control connections
- Compressor crank case heaters and anti-cycle timers
- High and low refrigerant pressure unit protective devices

### 3. Dual Refrigerant Circuits

- Provide for redundancy and efficient capacity control
- Liquid line manual shutoff valve
- High pressure switch
- Low pressure switch
- Compressor temperature and current sensing overload/short circuit protection

### 4. Condenser Coils

- Large face area with integral subcooling circuits
- High efficiency enhanced copper tubing
- All aluminum fin design

### 5. Condenser Fans

- Vertical air discharge for quiet operation
- Three-phase fan motors eliminate reverse rotation for prolonged performance
- Heavy-gauge vinyl-coated guards

### 6. Copeland® Scroll Compressors

- Provide maximum dependability, efficiency and quiet operation
- Multiple step capacity control with hot gas bypass provides stable discharge temperature and humidity control

### 7. Open Access

- On three sides of unit for easy access to all components

## Optional Components

In addition to the unique features included with the standard RCS Condensing Unit, additional component options are available:

- Copper fin condenser coils for seacoast applications
- Electrofin® baked epoxy coating with a 5000-hour salt spray test per ASTM B117
- Quiet condenser fan option reducing the sound power by an average of 11 dB
- Phase loss protection
- Ground fault protection
- SpeedTrol™ head pressure control allows mechanical cooling to 0°F ambient temperatures
- Non-fused disconnect switch with through-the-door handle
- Hail/vandalism guards

## Accessories

Accessories can also be added to further enhance the unit:

- HGBP kit refrigerant with control valve and solenoid valve
- Liquid line kit with sight glass, moisture indicator, filter/drier, and a solenoid valve

## Unit Placement

RCS units are for outdoor applications and can be mounted either on a roof or ground level. For roof mounted applications, install the unit on a steel channel, or I-beam frame to support the unit above the roof. For ground level applications, install the unit on a substantial base that will not settle. Use a one piece concrete slab with footings that extend below the frost line. Be sure the foundation is level within 1/2" (13mm) over its length and width. The foundation must be strong enough to support the weights listed in the Physical Data Tables.

## Service Clearances

Do not block the flow of air to and from the condenser coil. Restricting airflow or allowing air recirculation will result in a decrease in unit performance and efficiency because the unit discharge pressure is increased. There must be no obstruction above the unit that would deflect discharge air downward where it could be recirculated back to the inlet of the condenser coil. The condenser fans are propeller type and will not operate with ductwork.

Install the unit with enough side clearance (Figure 1 and Figure 2) for air entrance to the coil and for servicing. Provide sufficient service access to the compressors, electrical control panel, and piping components.

Do not allow debris to accumulate near the unit where it could be drawn into the condenser coil. Keep condenser coils and fan discharge free of snow and other obstructions to permit adequate airflow for proper operation.

## Refrigerant Piping

Incorrect line sizing can not only rob the RCS unit of capacity and efficiency, but significantly shorten the operational life of the equipment. Refrigerant piping layout and sizing should take the following into consideration:

1. Installed cost.
2. Refrigerant flow velocities to maintain oil return to compressors, especially in the suction lines.
3. Line pressure drop in horizontal and vertical pipes.

The RCS unit should be piped according to Daikin's [Piping Application Guide \(AG 31-111\)](#) or the [ASHRAE](#) Refrigeration book guidelines.

Figure 1: RCS 025C – 030C Service Clearance

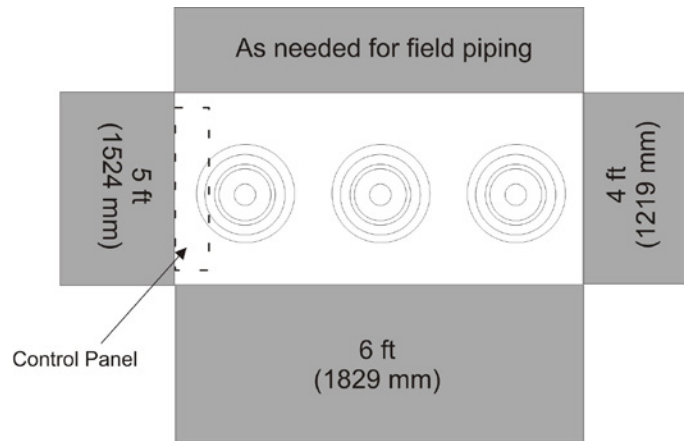
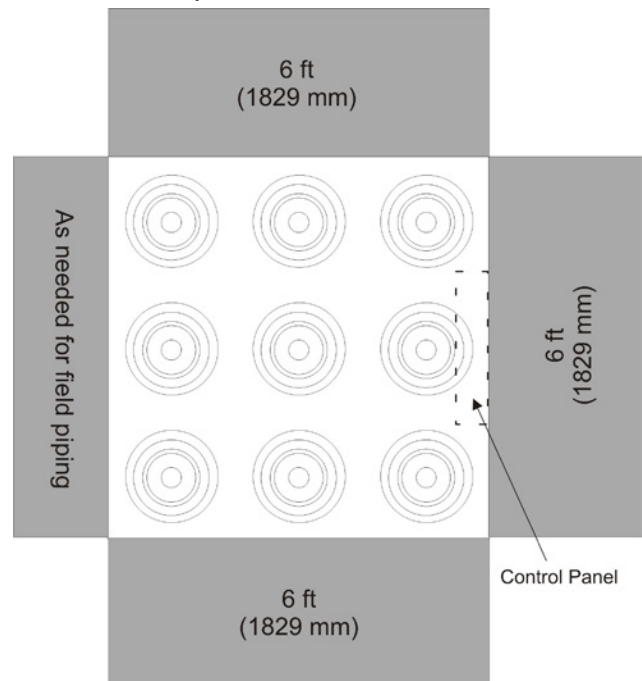


Figure 2: RCS 040C – 135C Service Clearance (RCS 105C shown)



## Physical Data and Unit Capacities

**Table 1: RCS 025C – 050C**

Model	RCS			
	025C	030C	040C	050C
<b>Basic Data</b>				
Number of refrigeration circuits	2	2	2	2
Unit operating charge (lb) <sup>1</sup>	30	29	46	47
Cabinet dimensions (in)	51.5 × 94 × 55.5	51.5 × 94 × 55.5	100 × 94 × 55.5	83 × 99 × 73
Operating weight (lb)	1807	1839	2760	2933
Shipping weight (lb)	1897	1931	2898	3080
<b>Compressors</b>				
Type	Scroll	Scroll	Scroll	Scroll
Nominal horsepower	2 – 6.7, 1 – 13	2 – 6.7, 1 – 15	4 – 10	4 – 13
<b>Capacity Reduction Steps - % of Compressor Displacement</b>				
Staging	100-75-50-25-0	100-75-50-25-0	100-75-50-25-0	100-75-50-25-0
<b>Condensers - High Efficiency Fin and Tube Type with Integral Subcooling</b>				
Coil face area (sq. ft)	36.8	36.8	76.2	78.0
Rows/FPI	3/16	3/16	2/16	2/16
<b>Condenser Fans - Direct Drive Type</b>				
Type	Propeller	Propeller	Propeller	Propeller
Number - diameter	3 – 26"	3 – 26"	4 – 26"	4 – 26"
Number of motors - hp	3 – 1.0	3 – 1.0	4 – 1.0	4 – 1.0
Fan and motor rpm, 60 Hz	1140	1140	1140	1140

1. Unit shipped with dry nitrogen holding charge.

**Table 2: RCS 060C – 090C**

Model	RCS			
	060C	070C	075C	090C
<b>Basic Data</b>				
Number of refrigeration circuits	2	2	2	2
Unit operating charge (lb) <sup>1</sup>	48	55	55	65
Cabinet dimensions (in)	83 × 99 × 73	119 × 99 × 73	119 × 99 × 73	119 × 99 × 97
Operating weight (lb)	3149	3603	3691	4400
Shipping weight (lb)	3306	3783	3876	4620
<b>Compressors</b>				
Type	Scroll	Scroll	Scroll	Scroll
Nominal horsepower	4 – 15	6 – 10	6 – 13	3 – 13, 3 – 15
<b>Capacity Reduction Steps - % of Compressor Displacement</b>				
Staging	100-75-50-25-0	100-83-67-50-3317-0	100-83-67-50-3317-0	100-83-67-50-3317-0
<b>Condensers - High Efficiency Fin and Tube Type with Integral Subcooling</b>				
Coil face area (sq. ft)	78.0	117.0	117.0	135.0
Rows/FPI	2/16	2/16	2/16	2/16
<b>Condenser Fans - Direct Drive Type</b>				
Type	Propeller	Propeller	Propeller	Propeller
Number - diameter	6 – 26"	6 – 26"	8 – 26"	8 – 26"
Number of motors - hp	6 – 1.0	6 – 1.0	8 – 1.0	8 – 1.0
Fan and motor rpm, 60 Hz	1140	1140	1140	1140

1. Unit shipped with dry nitrogen holding charge.

**Table 3: RCS 105C – 135C**

Model	RCS			
	105C	115C	125C	135C
<b>Basic Data</b>				
Number of refrigeration circuits	2	2	2	2
Unit operating charge (lb) <sup>1</sup>	71	84	85	92
Cabinet dimensions (in)	119 × 99 × 97	139 × 99 × 97	139 × 99 × 97	139 × 99 × 97
Operating weight (lb)	4528	5400	5603	5633
Shipping weight (lb)	4754	5670	5883	5915
<b>Compressors</b>				
Type	Scroll	Discus	Discus	Discus
Nominal horsepower	6 – 15	4 – 30	2 – 30, 2 – 35	4 – 35
<b>Capacity Reduction Steps - % of Compressor Displacement</b>				
Staging	0-17-33-50-67-83-100	0-25-50-75-100	0-22-44-72-100	0-25-50-75-100
Optional staging	N/A	0-12-25-38-50-63-75-88-100	0-22-33-32-4461-79-89-100	0-16-33-42-5067-83-92-100
<b>Condensers - High Efficiency Fin and Tube Type with Integral Subcooling</b>				
Coil face area (sq. ft)	135.0	181.3	181.3	181.3
Rows/FPI	2/16	2/16	2/16	2/16
<b>Condenser Fans - Direct Drive Type</b>				
Type	Propeller	Propeller	Propeller	Propeller
Number – diameter	9 – 26"	10 – 26"	12 – 26"	12 – 26"
Number of motors – hp	9 – 1.0	10 – 1.0	12 – 1.0	12 – 1.0
Fan and motor rpm, 60 Hz	1140	1140	1140	1140

1. Unit shipped with dry nitrogen holding charge.



**Table 4: RCS 025C – 135C R-22 Unit Capacities**

Unit Size	Saturated Suction Temp (°F)	Fan Power (kW)	80°F			85°F			95°F			105°F			115°F		
			MBH	kW	EER	MBH	kW	EER	MBH	kW	EER	MBH	kW	EER	MBH	kW	EER
025C	35	3.03	293.6	21.3	12.1	286.4	22.4	11.2	271.2	24.9	9.7	255.0	27.8	8.3	237.9	31.0	7.0
	40	3.03	320.8	21.9	12.9	313.0	23.0	12.0	296.6	25.5	10.4	279.1	28.4	8.9	260.9	31.6	7.5
	45	3.03	349.6	22.4	13.7	341.1	23.6	12.8	323.3	26.1	11.1	304.6	29.0	9.5	285.0	32.2	8.1
	50	3.03	380.0	23.1	14.5	370.8	24.2	13.6	351.4	26.8	11.8	331.2	29.7	10.1	310.3	32.9	8.6
030C	35	3.03	322.8	23.9	12.0	314.7	25.2	11.1	297.9	28.1	9.6	280.4	31.4	8.1	262.5	35.0	6.9
	40	3.03	352.3	24.5	12.8	343.6	25.9	11.9	325.4	28.8	10.2	306.4	32.2	8.7	286.9	35.8	7.4
	45	3.03	383.2	25.3	13.5	373.9	26.6	12.6	354.3	29.6	10.9	333.8	33.0	9.3	312.8	36.7	7.9
	50	3.03	415.8	26.1	14.3	405.7	27.5	13.3	384.5	30.5	11.5	362.5	33.8	9.8	339.8	37.6	8.4
040C	35	4.04	455.1	33.8	12.0	443.7	35.7	11.2	419.9	39.8	9.6	395.1	44.4	8.2	369.5	49.4	6.9
	40	4.04	497.4	34.5	12.9	485.0	36.4	12.0	459.4	40.5	10.3	432.6	45.2	8.8	404.9	50.3	7.4
	45	4.04	542.2	35.2	13.8	528.6	37.1	12.8	500.9	41.3	11.0	471.9	46.0	9.4	442.0	51.3	8.0
	50	4.04	589.1	36.0	14.7	574.7	37.9	13.7	544.6	42.2	11.8	513.5	46.9	10.1	481.0	52.2	8.5
050C	35	4.04	544.6	44.9	11.1	530.4	47.2	10.4	500.0	52.2	8.9	466.7	57.9	7.5	430.2	64.2	6.3
	40	4.04	594.4	45.9	11.9	579.0	48.2	11.1	546.4	53.3	9.5	510.9	59.1	8.1	472.5	65.6	6.8
	45	4.04	646.8	46.9	12.7	630.1	49.3	11.8	594.7	54.5	10.2	556.8	60.4	8.6	516.2	67.0	7.3
	50	4.04	701.5	48.1	13.5	683.3	50.4	12.5	645.2	55.7	10.8	604.9	61.7	9.2	561.7	68.4	7.8
060C	35	6.06	668.8	53.9	11.1	651.6	57.0	10.3	616.2	63.5	8.9	579.1	70.8	7.5	540.7	78.6	6.4
	40	6.06	729.3	55.4	11.9	710.8	58.4	11.0	672.3	65.1	9.4	632.1	72.5	8.1	590.1	80.5	6.8
	45	6.06	792.9	56.9	12.6	772.9	60.0	11.7	731.2	66.8	10.0	687.5	74.3	8.6	641.9	82.5	7.2
	50	6.06	858.9	58.6	13.3	837.4	61.7	12.4	792.5	68.6	10.6	745.6	76.2	9.1	696.2	84.6	7.7
070C	35	6.06	689.5	51.6	12.0	671.7	54.5	11.1	634.9	60.9	9.5	596.6	67.9	8.1	557.3	75.6	6.8
	40	6.06	753.6	52.6	12.8	734.3	55.6	11.9	694.6	62.0	10.2	653.2	69.1	8.7	610.9	77.0	7.4
	45	6.06	821.5	53.7	13.8	800.2	56.7	12.7	757.1	63.2	10.9	712.7	70.4	9.3	667.0	78.4	7.9
	50	6.06	892.5	54.9	14.6	870.0	57.9	13.6	823.4	64.4	11.7	775.4	71.7	10.0	725.8	79.9	8.4
075C	35	8.08	837.8	65.6	11.4	817.5	68.9	10.6	774.0	76.1	9.2	725.5	84.1	7.9	671.5	92.8	6.7
	40	8.08	915.6	67.1	12.2	893.1	70.5	11.4	846.1	77.8	9.9	794.2	85.9	8.4	736.9	94.9	7.2
	45	8.08	997.3	68.8	13.0	973.4	72.1	12.1	922.5	79.5	10.5	866.7	87.7	9.0	805.4	96.9	7.7
	50	8.08	1083.7	70.6	13.8	1057.5	73.9	12.9	1002.1	81.3	11.2	942.5	89.7	9.6	877.6	98.9	8.2
090C	35	8.08	934.7	73.1	11.5	911.6	76.9	10.7	863.0	85.4	9.2	810.7	94.8	7.9	755.1	105.2	6.7
	40	8.08	1020.1	74.8	12.3	995.1	78.7	11.5	942.5	87.3	9.9	886.4	96.8	8.4	826.8	107.4	7.2
	45	8.08	1109.8	76.7	13.1	1082.6	80.7	12.2	1026.0	89.3	10.5	965.5	99.0	9.0	901.4	109.8	7.6
	50	8.08	1203.6	78.8	13.9	1174.5	82.7	12.9	1113.4	91.5	11.2	1048.3	101.3	9.6	979.4	112.3	8.1
105C	35	9.09	1025.7	80.4	11.5	1000.3	84.8	10.6	947.5	94.4	9.2	892.0	105.0	7.8	834.5	116.6	6.6
	40	9.09	1118.7	82.5	12.2	1091.3	87.0	11.4	1033.9	96.8	9.8	973.9	107.6	8.3	911.1	119.4	7.1
	45	9.09	1215.8	84.9	12.9	1186.3	89.4	12.0	1125.0	99.2	10.4	1059.8	110.2	8.9	991.8	122.3	7.6
	50	9.09	1317.1	87.4	13.6	1285.6	92.0	12.7	1219.4	101.9	11.0	1149.3	113.1	9.4	1075.9	125.3	8.0
115C	35	10.1	1189.0	98.3	11.0	1154.8	101.5	10.3	1084.5	107.6	9.2	1012.1	113.0	8.2	937.3	117.8	7.3
	40	10.1	1298.6	102.6	11.5	1262.1	106.0	10.9	1186.1	112.6	9.7	1108.0	118.6	8.6	1027.0	123.9	7.7
	45	10.1	1413.7	107.0	12.1	1374.5	110.7	11.4	1293.6	117.7	10.1	1209.4	124.1	9.0	1121.3	130.0	8.0
	50	10.1	1534.2	111.7	12.6	1492.7	115.5	11.9	1405.6	122.9	10.6	1315.3	129.8	9.4	1221.1	136.2	8.3
125C	35	12.12	1348.2	112.1	10.9	1309.3	115.8	10.2	1232.4	122.4	9.2	1153.9	128.1	8.2	1074.7	132.8	7.4
	40	12.12	1474.9	116.8	11.4	1434.2	120.6	10.8	1350.6	127.6	9.7	1264.6	133.8	8.7	1177.8	139.0	7.8
	45	12.12	1609.1	121.7	12.0	1565.0	125.7	11.4	1474.5	133.1	10.2	1381.8	139.7	9.1	1287.2	145.3	8.2
	50	12.12	1749.4	127.0	12.6	1702.0	131.1	11.9	1605.0	138.8	10.6	1504.2	145.8	9.5	1401.3	151.9	8.5
135C	35	12.12	1486.2	128.0	10.6	1444.9	131.7	10.0	1362.1	138.5	9.0	1279.2	144.1	8.2	1195.9	148.3	7.5
	40	12.12	1626.8	133.3	11.2	1582.4	137.1	10.6	1491.8	144.3	9.5	1400.7	150.2	8.6	1309.1	154.8	7.8
	45	12.12	1775.4	138.9	11.8	1726.9	142.9	11.1	1629.0	150.3	10.0	1528.8	156.6	9.1	1428.3	161.5	8.2
	50	12.12	1930.9	144.9	12.3	1878.6	149.1	11.7	1771.8	156.7	10.5	1663.3	163.3	9.5	1552.3	168.6	8.6

**NOTE:**

Ratings based on HCFC-22 and sea level altitude.

Interpolation is allowed; extrapolation is not permitted. Consult Daikin for performance outside the listed catalog ratings.

Shaded ratings are ARI Standard 365 rating of 95° ambient air temperature and 45° suction with 15° superheat.

Power comprised of compressors and condenser fans.



**Table 5: RCS 025C – 135C R-407C Unit Capacities**

Unit Size	Saturated Suction Temp (°F)	Fan Power (kW)	80°F			85°F			95°F			105°F			115°F		
			MBH	kW	EER	MBH	kW	EER	MBH	kW	EER	MBH	kW	EER	MBH	kW	EER
025C	35	3.03	267.6	21.6	10.9	259.7	22.9	10.0	243.3	25.8	8.4	226.6	29.1	7.1	218.1	30.9	6.4
	40	3.03	295.8	22.3	11.7	287.2	23.6	10.8	269.6	26.5	9.1	251.7	29.8	7.7	242.6	31.6	7.0
	45	3.03	325.9	23.0	12.5	316.5	24.3	11.6	297.6	27.2	9.8	278.2	30.6	8.3	268.4	32.5	7.6
	50	3.03	357.9	23.8	13.4	347.8	25.1	12.4	327.3	28.1	10.5	306.4	31.5	8.9	295.9	33.3	8.1
030C	35	3.03	295.1	25.1	10.5	286.5	26.6	9.7	268.7	29.9	8.2	250.1	33.6	6.8	240.5	35.7	6.2
	40	3.03	325.9	25.8	11.3	316.5	27.3	10.4	297.1	30.6	8.8	277.0	34.4	7.4	266.6	36.5	6.7
	45	3.03	358.5	26.5	12.1	348.3	28.0	11.2	327.3	31.4	9.5	305.3	35.3	8.0	293.9	37.4	7.3
040C	35	4.04	393.0	27.3	12.9	381.9	28.9	12.0	359.1	32.3	10.2	335.2	36.2	8.5	322.8	38.4	7.8
	40	4.04	426.2	35.5	10.8	413.1	37.6	9.9	387.3	42.1	8.4	362.4	47.1	7.1	350.6	49.7	6.5
	45	4.04	469.8	36.2	11.7	455.6	38.3	10.8	427.7	42.9	9.1	400.7	48.0	7.7	387.8	50.7	7.1
	50	4.04	516.3	37.0	12.6	501.1	39.2	11.6	471.0	43.8	9.8	442.0	48.9	8.3	427.9	51.7	7.7
050C	35	4.04	566.2	37.9	13.5	549.9	40.0	12.5	517.6	44.7	10.6	486.1	50.0	9.0	470.8	52.8	8.3
	40	4.04	603.8	46.0	10.1	487.5	48.6	9.3	454.7	54.1	7.8	422.6	59.9	6.6	406.9	62.9	6.1
	45	4.04	553.6	47.3	10.8	535.9	50.0	9.9	500.9	55.6	8.4	466.6	61.6	7.1	449.9	64.8	6.5
	50	4.04	606.9	48.8	11.5	588.0	51.5	10.6	550.5	57.2	9.0	513.9	63.5	7.6	496.1	66.7	7.0
060C	35	4.04	663.8	50.4	12.2	643.6	53.1	11.3	603.6	59.0	9.6	564.5	65.4	8.1	N/A	N/A	N/A
	40	6.06	623.9	58.4	9.7	604.5	61.7	8.9	564.9	68.9	7.5	524.2	76.6	6.3	503.3	80.7	5.8
	45	6.06	686.3	59.6	10.4	665.2	63.0	9.6	621.8	70.4	8.1	577.0	78.3	6.8	554.0	82.6	6.2
	50	6.06	752.3	61.0	11.2	729.3	64.5	10.3	682.0	72.0	8.7	632.9	80.2	7.3	607.7	84.5	6.7
070C	35	6.06	821.7	62.6	12.0	796.6	66.1	11.0	745.4	73.7	9.3	691.8	82.1	7.8	N/A	N/A	N/A
	40	6.06	640.7	54.1	10.7	620.8	57.2	9.8	582.2	64.0	8.3	546.0	71.4	7.0	529.1	75.4	6.5
	45	6.06	706.4	55.1	11.5	684.9	58.4	10.6	643.1	65.3	9.0	603.8	72.8	7.7	585.4	76.8	7.1
	50	6.06	776.7	56.3	12.5	753.6	59.6	11.5	708.8	66.6	9.8	666.2	74.3	8.3	646.1	78.3	7.7
075C	35	6.06	852.2	57.6	13.4	827.4	60.9	12.4	779.1	68.0	10.5	733.1	75.8	9.0	711.2	80.0	8.3
	40	8.08	777.5	67.1	10.3	752.7	70.9	9.5	703.7	79.0	8.1	656.7	87.5	6.9	634.3	92.0	6.3
	45	8.08	855.2	69.0	11.1	828.9	72.8	10.2	776.3	81.0	8.7	725.8	89.9	7.4	701.8	94.5	6.8
	50	8.08	938.8	71.0	11.9	910.3	74.9	11.0	854.1	83.3	9.3	800.1	92.4	8.0	774.2	97.1	7.4
090C	35	8.08	1028.5	73.3	12.6	998.0	77.2	11.7	937.8	85.7	10.0	879.9	95.0	8.5	852.1	99.9	7.9
	40	8.08	866.7	77.2	10.2	840.0	81.5	9.4	785.4	90.8	7.9	730.3	100.8	6.7	702.6	106.1	6.2
	45	8.08	953.3	79.0	10.9	924.3	83.4	10.1	865.3	92.9	8.6	805.6	103.3	7.2	775.6	108.7	6.6
	50	8.08	1045.1	81.1	11.7	1014.1	85.5	10.8	950.3	95.2	9.2	885.7	105.8	7.8	853.1	111.4	7.1
105C	35	8.08	1142.8	83.3	12.5	1108.9	87.9	11.6	1040.2	97.8	9.8	970.6	108.6	8.3	N/A	N/A	N/A
	40	9.09	953.8	87.1	9.9	925.0	91.9	9.2	865.8	102.4	7.8	804.8	113.8	6.5	773.8	119.9	6.0
	45	9.09	1049.0	88.9	10.7	1017.6	93.9	9.9	953.2	104.6	8.4	886.5	116.4	7.1	852.2	122.6	6.5
	50	9.09	1149.6	91.0	11.5	1115.8	96.0	10.6	1045.6	107.0	9.0	972.6	119.0	7.6	935.0	125.5	6.9
115C	35	9.09	1255.9	93.3	12.3	1218.9	98.5	11.3	1142.6	109.6	9.6	1063.3	121.9	8.1	N/A	N/A	N/A
	40	10.1	1048.6	93.0	10.2	1013.6	95.8	9.6	944.1	101.3	8.5	874.7	106.4	7.5	840.0	108.7	7.1
	45	10.1	1157.9	97.7	10.7	1120.1	100.9	10.1	1044.9	106.9	8.9	970.3	112.5	7.9	932.7	115.2	7.4
	50	10.1	1271.6	102.6	11.3	1231.1	106.0	10.6	1150.8	112.5	9.4	1070.0	118.7	8.3	1029.7	121.7	7.8
125C	35	10.1	1390.3	107.4	11.8	1347.0	111.1	11.1	1260.5	118.3	9.8	1174.1	125.0	8.7	N/A	N/A	N/A
	40	12.12	1163.8	103.6	10.1	1125.2	107.1	9.4	1047.8	113.8	8.3	968.8	120.1	7.3	928.8	123.1	6.9
	45	12.12	1279.6	108.5	10.6	1238.3	112.2	10.0	1153.9	119.4	8.8	1068.6	126.3	7.7	1025.8	129.6	7.2
	50	12.12	1401.9	113.4	11.2	1356.9	117.4	10.5	1266.4	125.2	9.2	1174.1	132.6	8.1	N/A	N/A	N/A
135C	35	12.12	1530.4	118.4	11.7	1482.0	122.7	11.0	1384.0	131.1	9.7	1284.7	139.1	8.5	N/A	N/A	N/A
	40	12.12	1261.3	116.1	9.8	1219.9	120.1	9.2	1134.3	127.9	8.1	1046.8	135.3	7.1	1002.7	138.8	6.6
	45	12.12	1381.1	121.2	10.4	1335.6	125.5	9.7	1243.3	133.7	8.5	1148.1	141.7	7.5	N/A	N/A	N/A
	50	12.12	1507.9	126.5	10.9	1458.6	131.0	10.2	1358.0	139.9	8.9	1255.1	148.3	7.8	N/A	N/A	N/A
	50	12.12	1641.3	132.1	11.4	1588.7	136.8	10.7	1480.0	146.2	9.3	1368.8	155.2	8.2	N/A	N/A	N/A

Figure 3: RCS 025C R-22 Unit Capacities

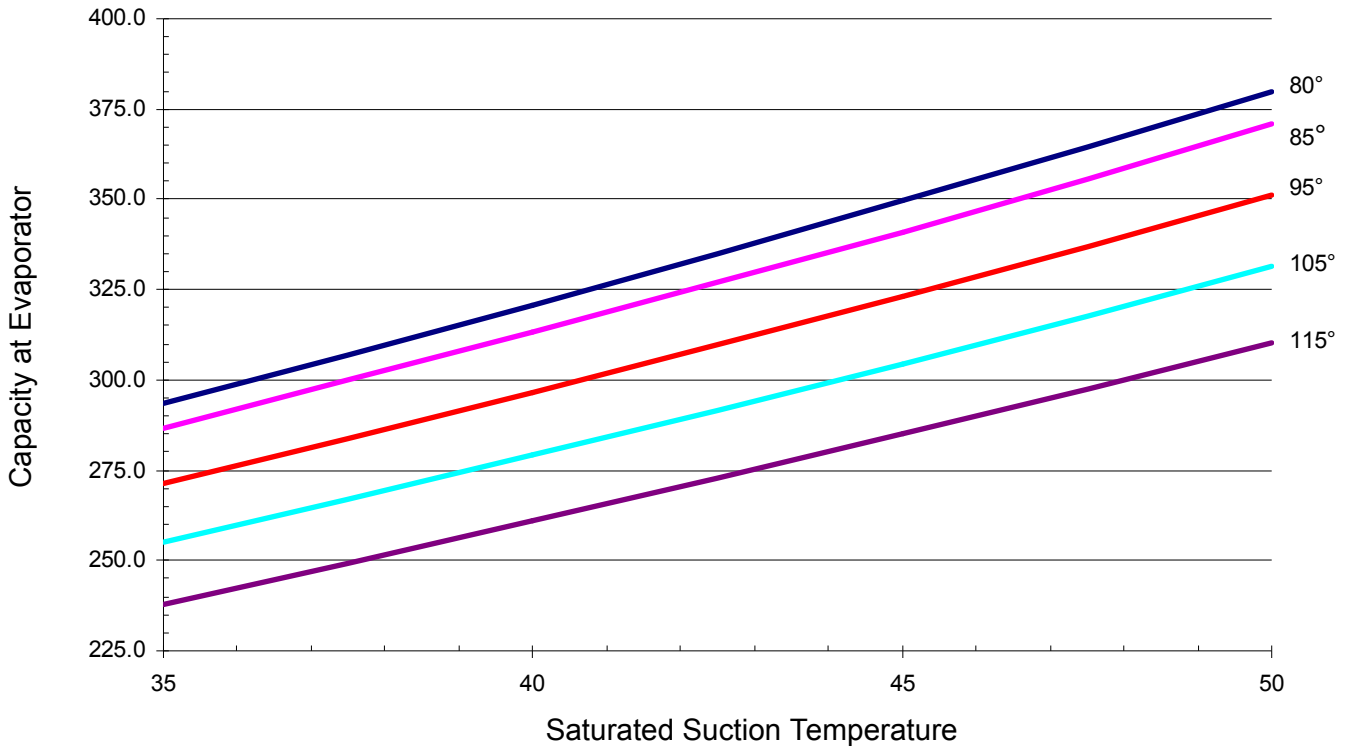


Figure 4: RCS 030C R-22 Unit Capacities

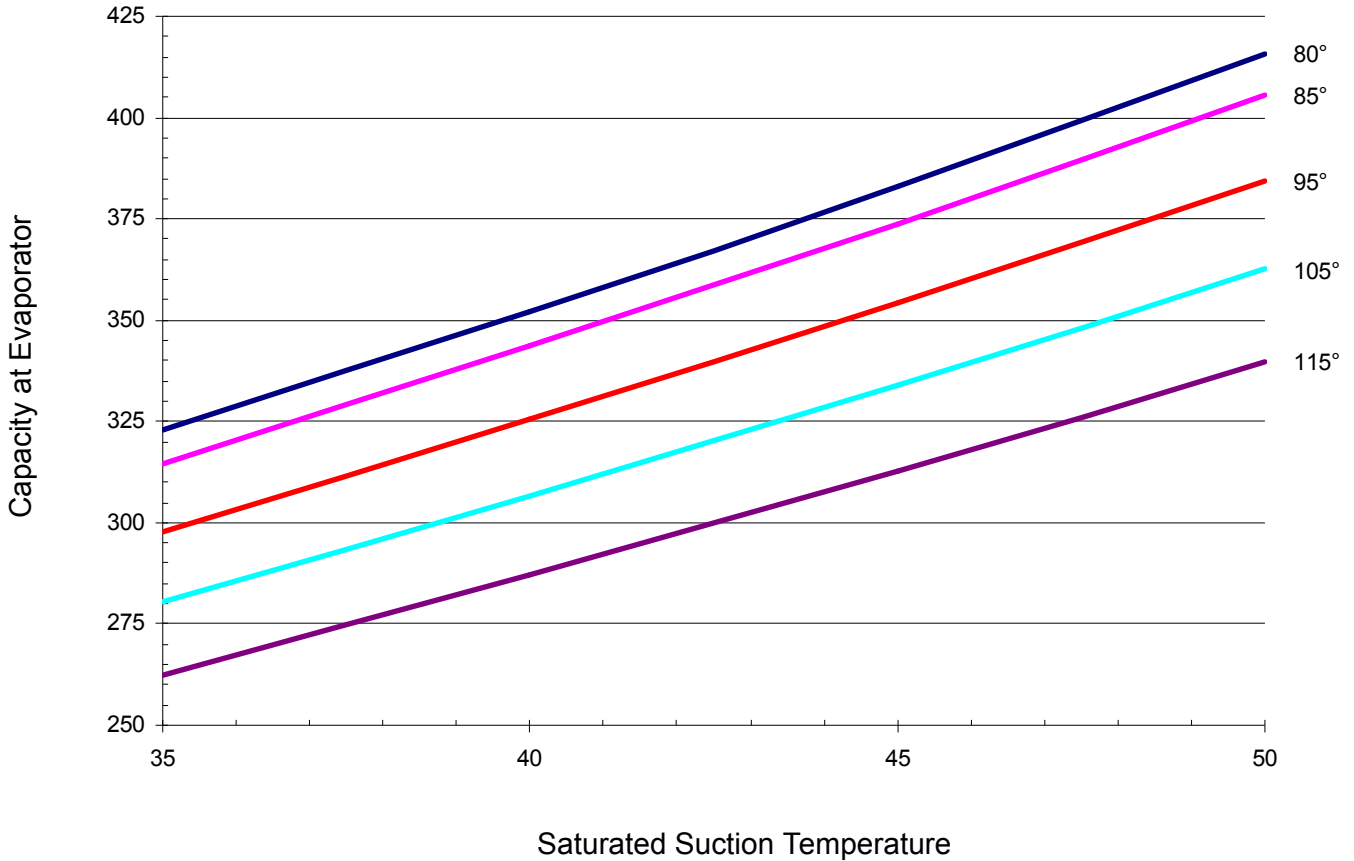


Figure 5: RCS 040C R-22 Unit Capacities

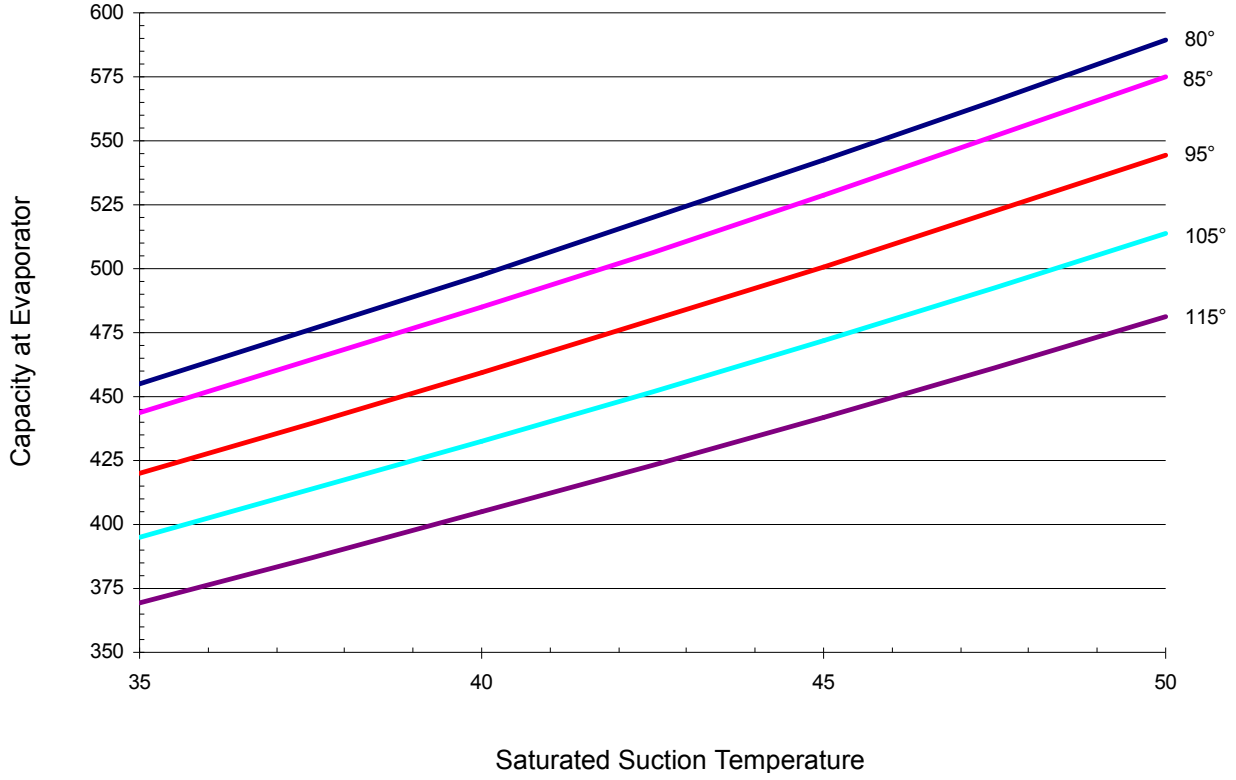


Figure 6: RCS 050C R-22 Unit Capacities

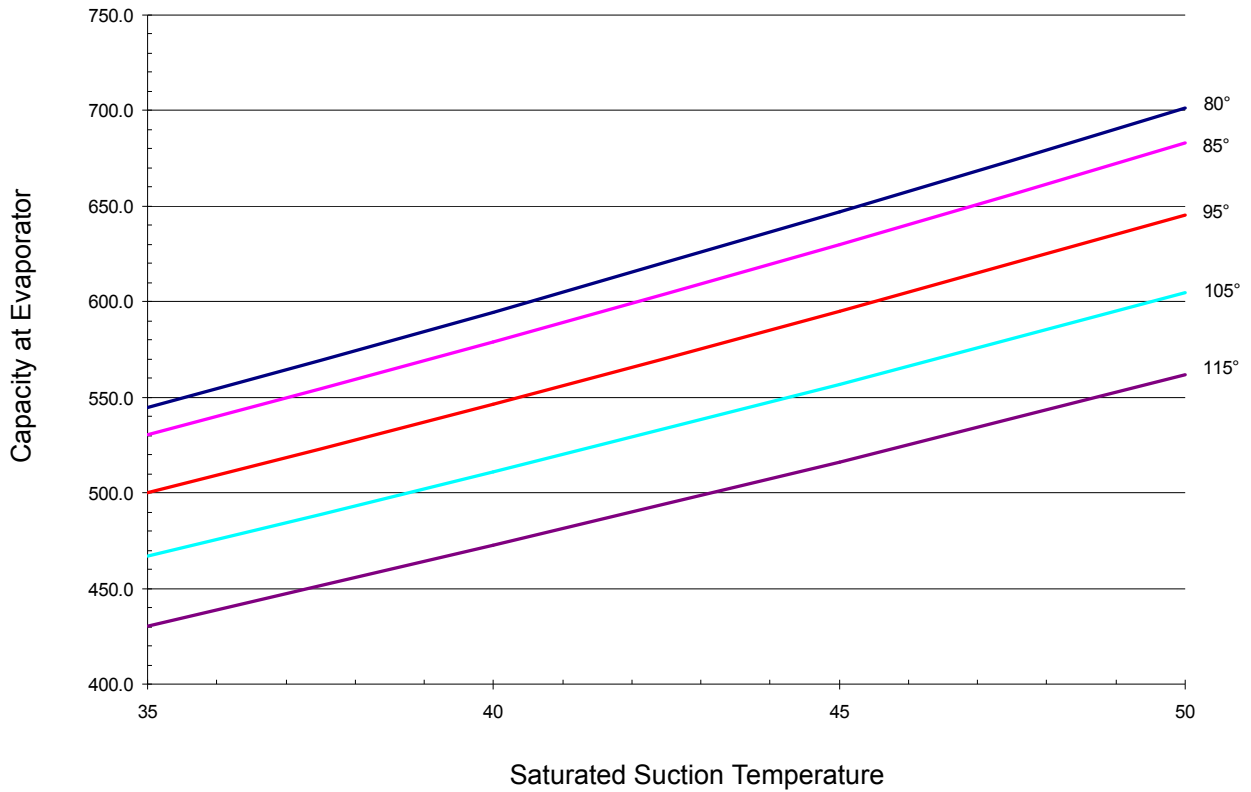


Figure 7: RCS 060C R-22 Unit Capacities

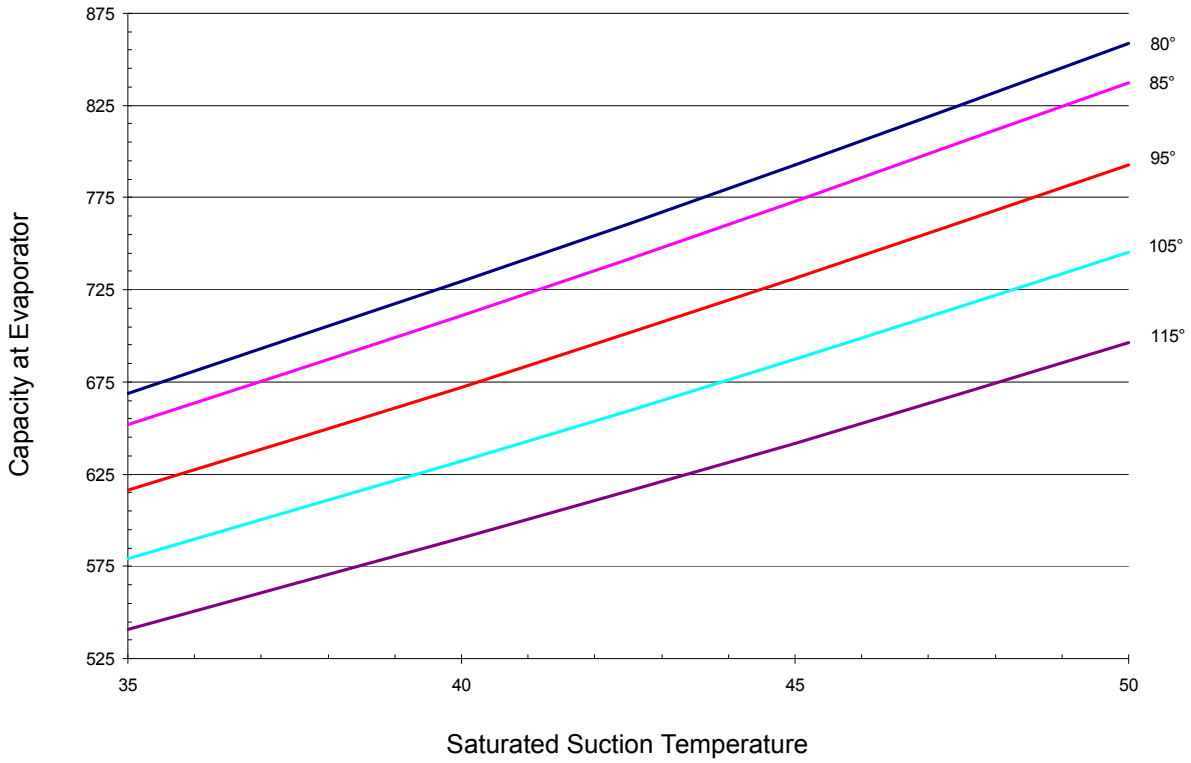


Figure 8: RCS 070C R-22 Unit Capacities

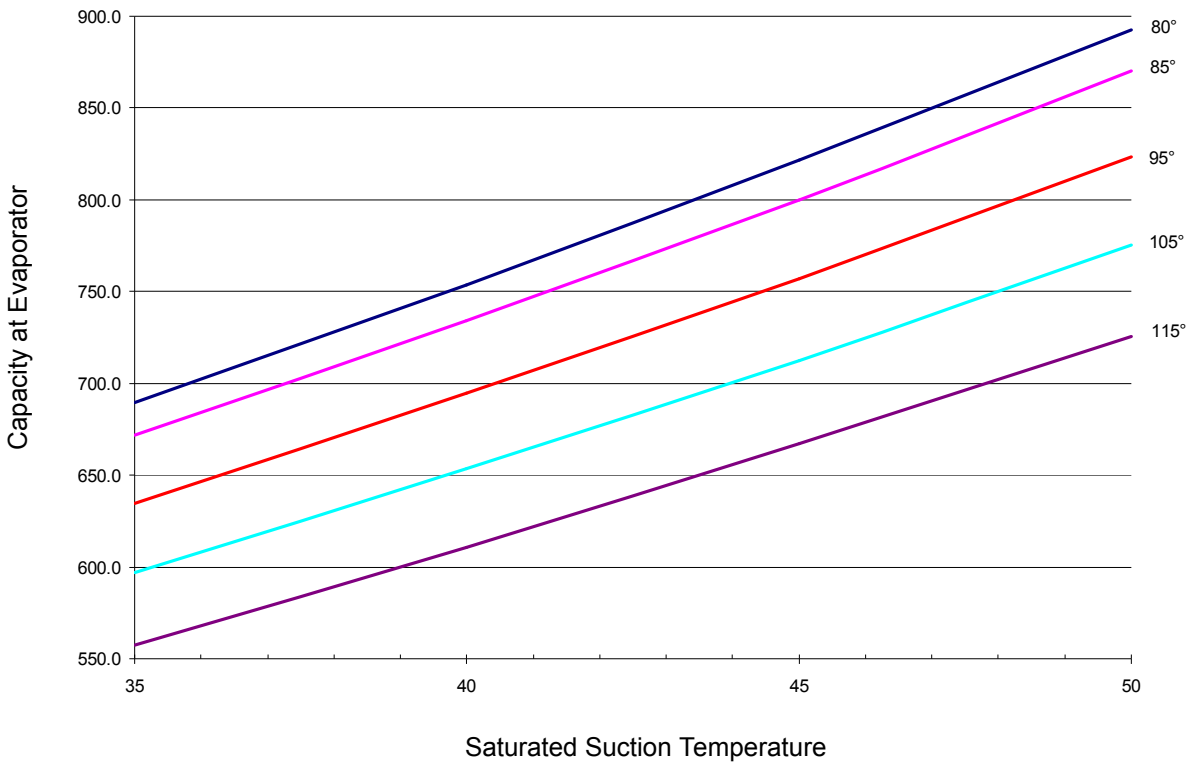


Figure 9: RCS 075C R-22 Unit Capacities

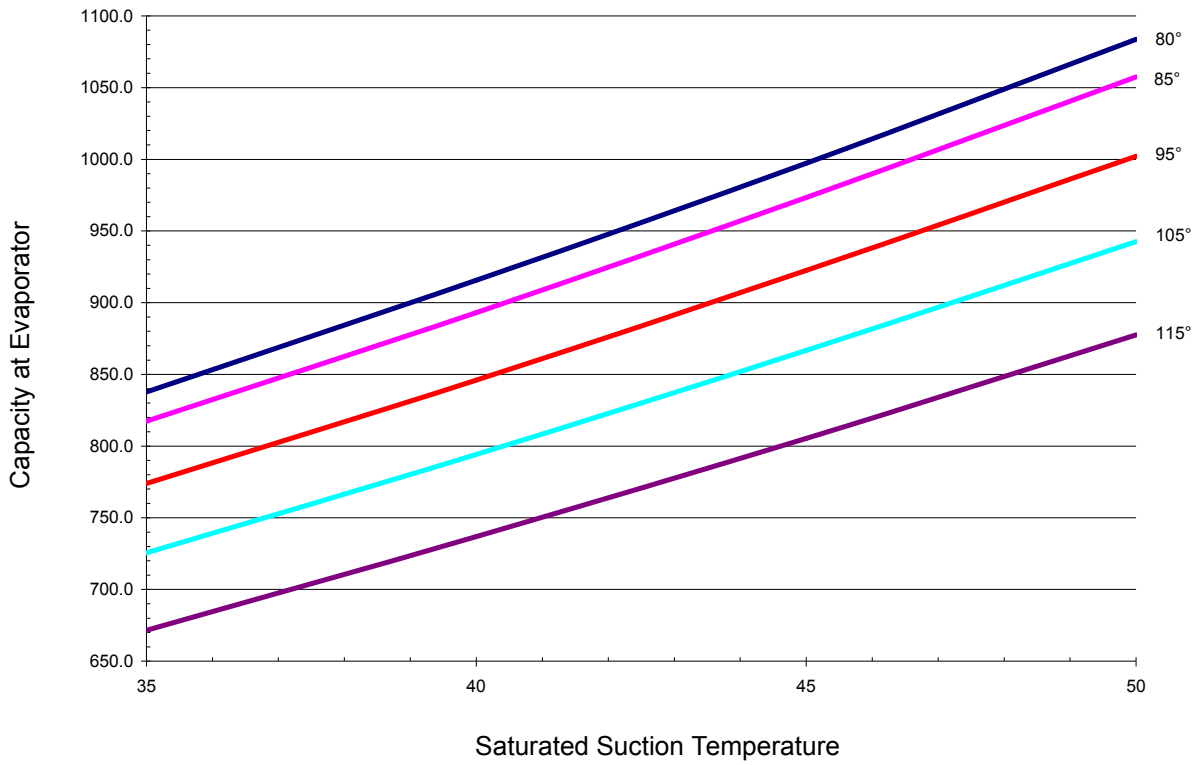


Figure 10: RCS 090C R-22 Unit Capacities

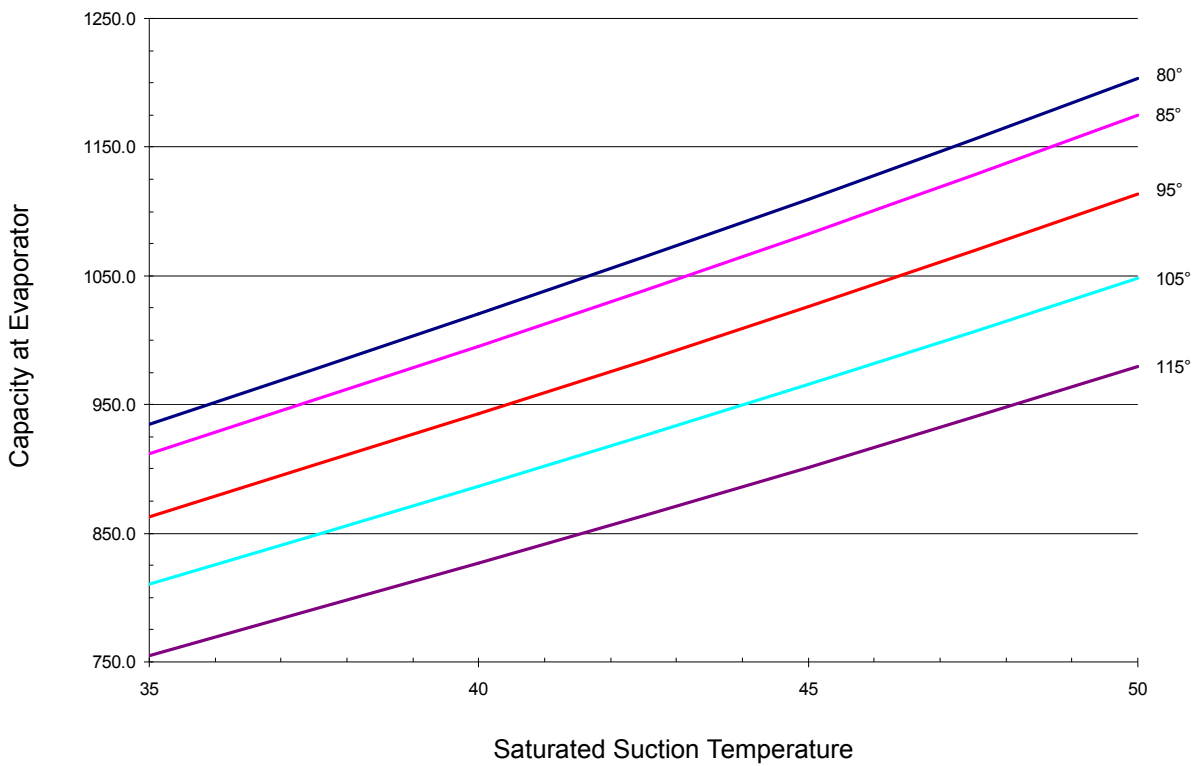


Figure 11: RCS 105C R-22 Unit Capacities

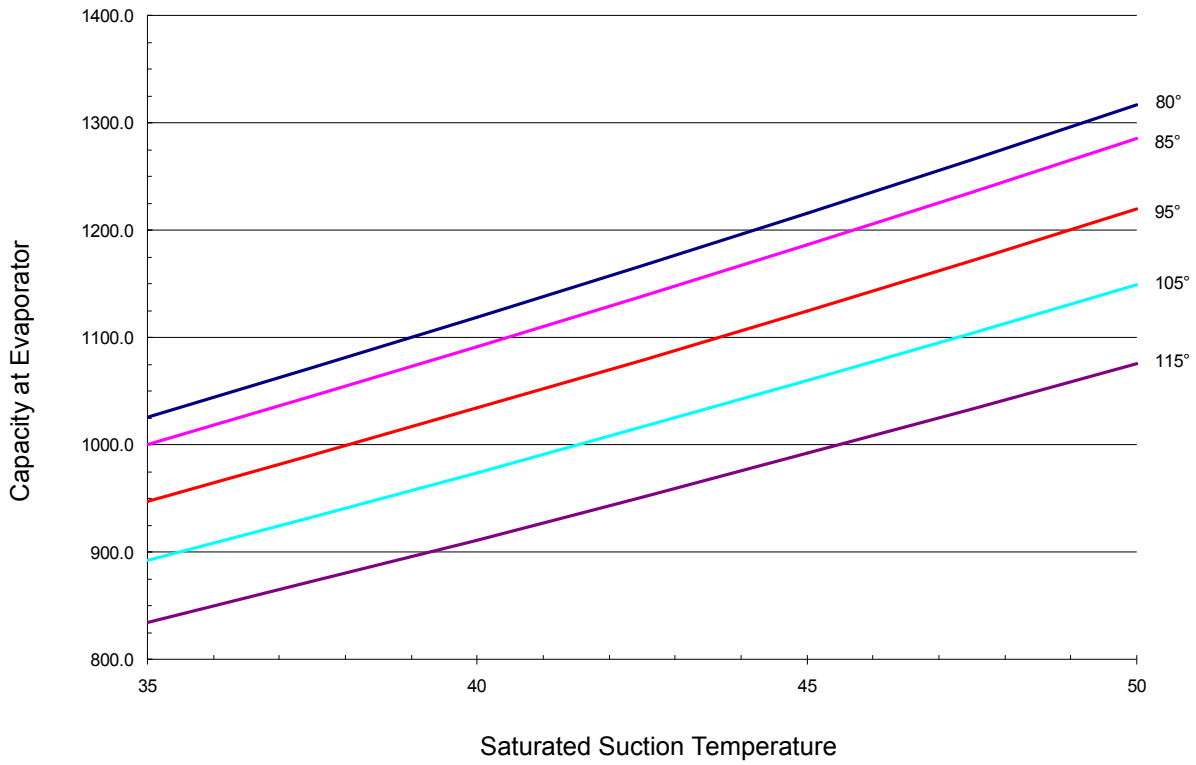


Figure 12: RCS 115C R-22 Unit Capacities

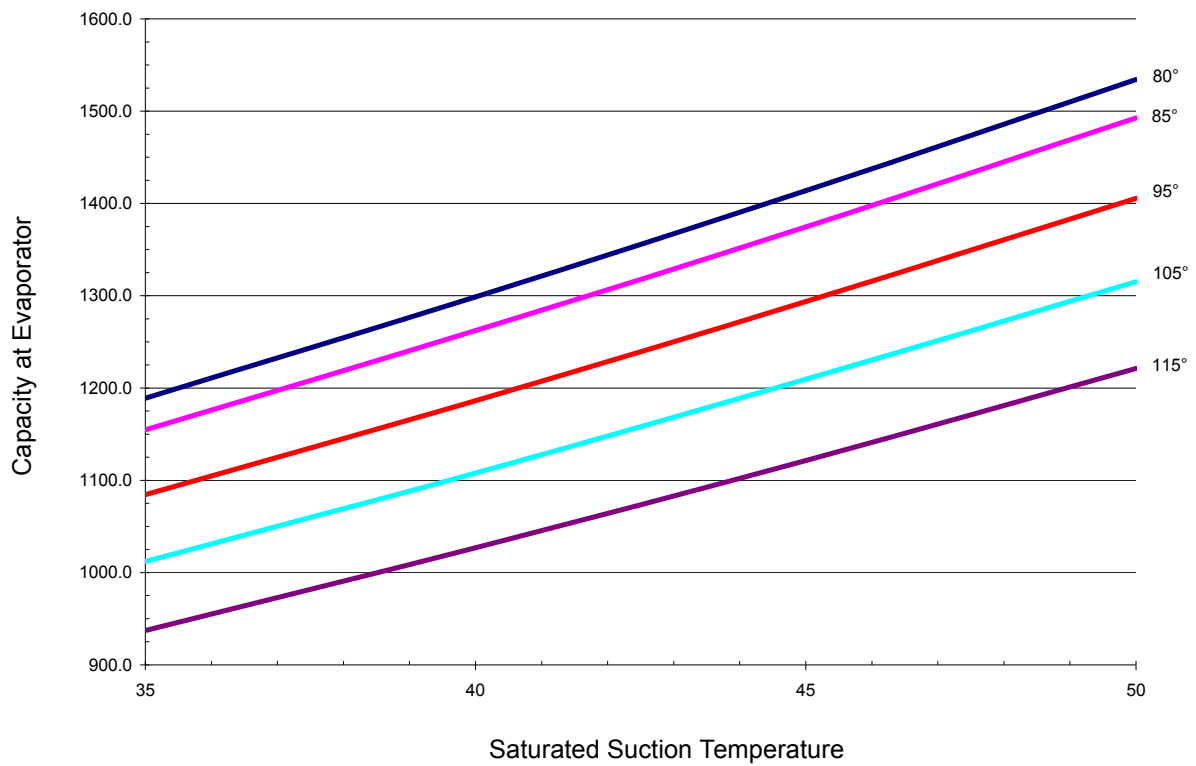


Figure 13: RCS 125C R-22 Unit Capacities

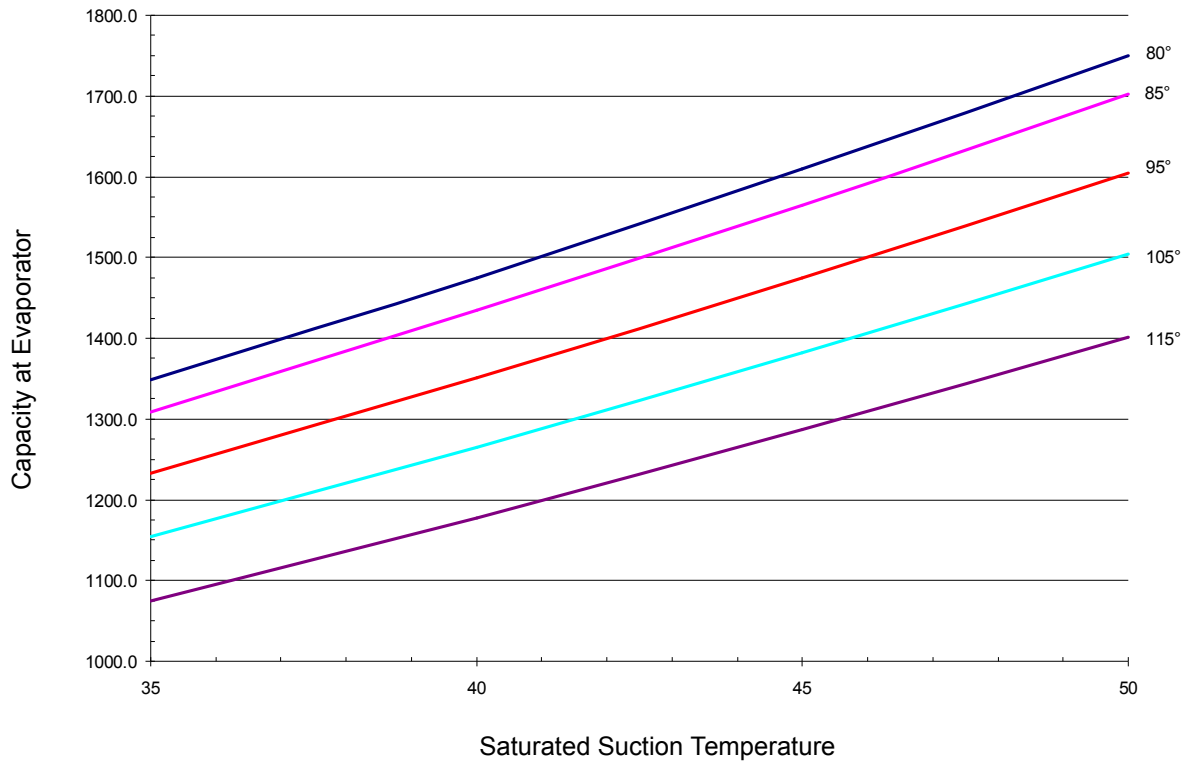
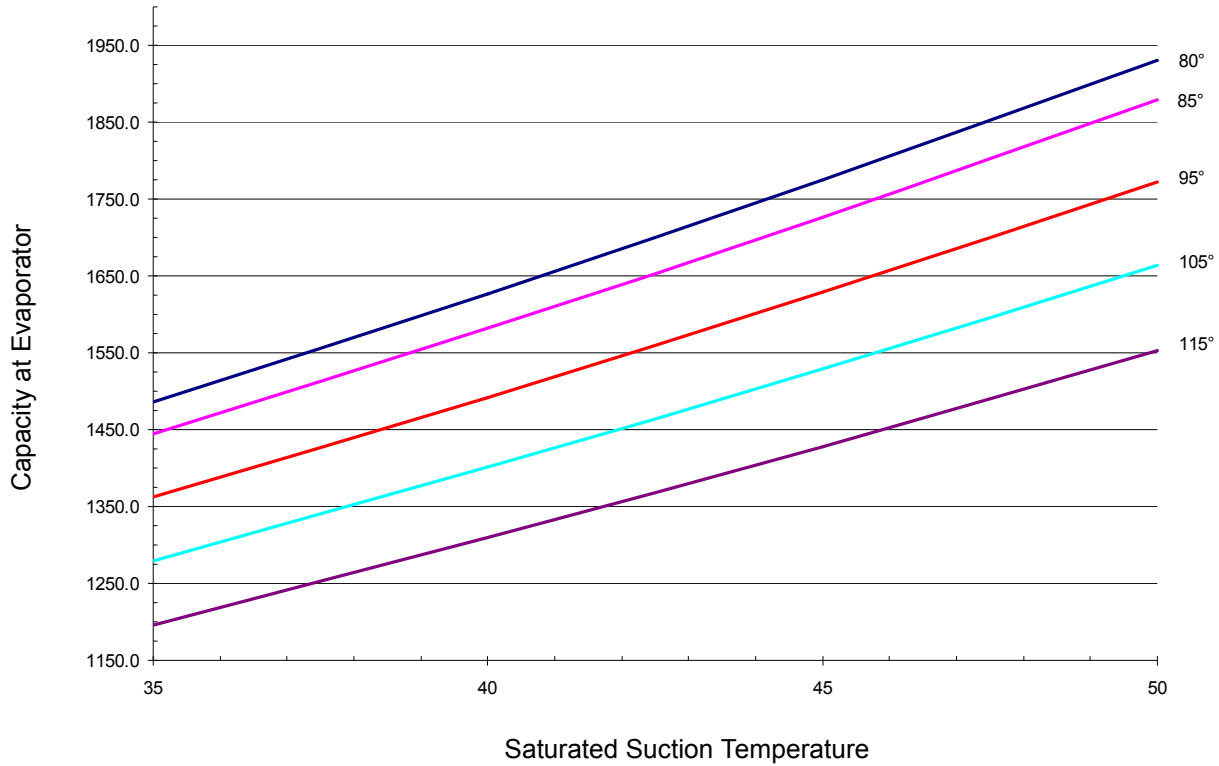


Figure 14: RCS 135C R-22 Unit Capacities





# Unit Dimensions

Figure 15: RCS 025C – 030C

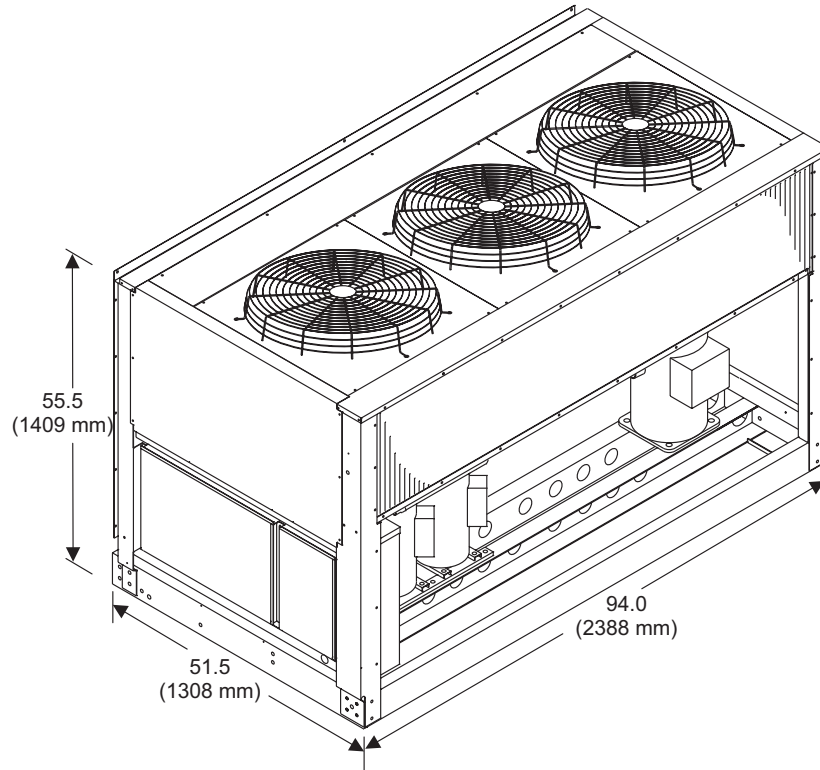


Figure 16: RCS 040C

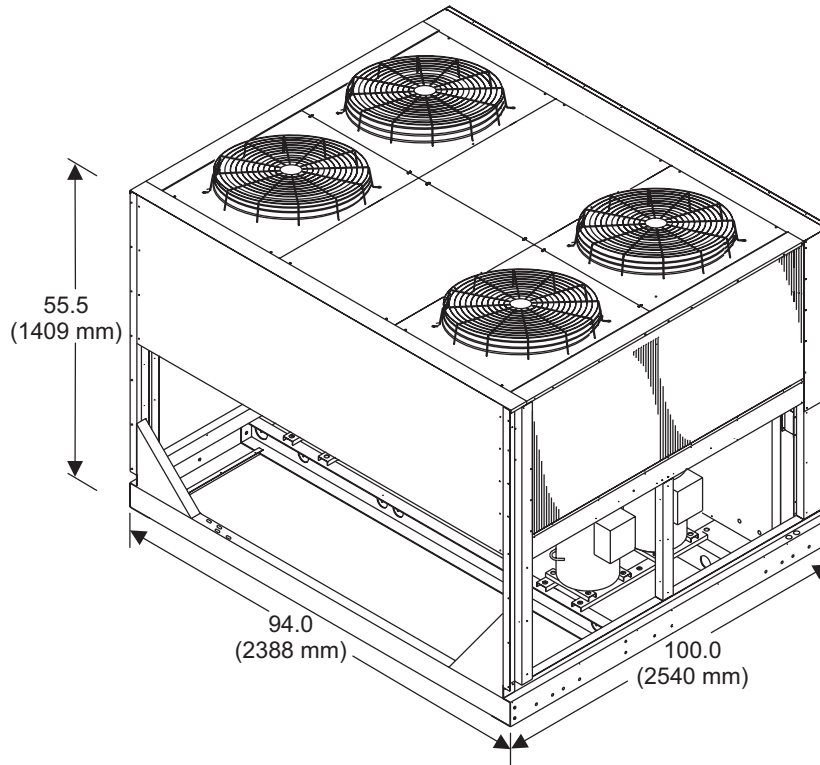


Figure 17: RCS 050C

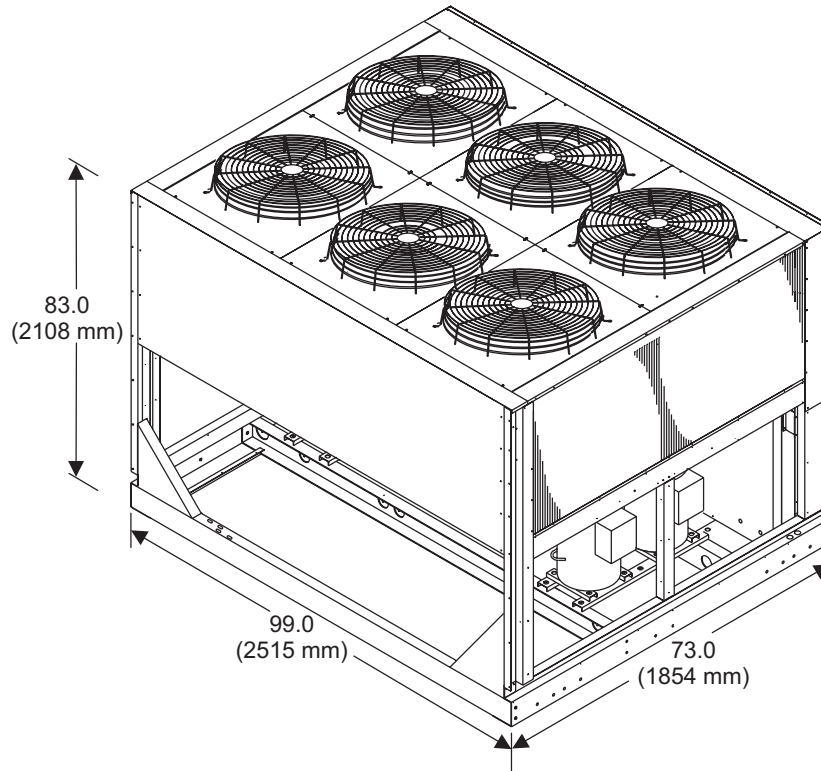


Figure 18: RCS 060C

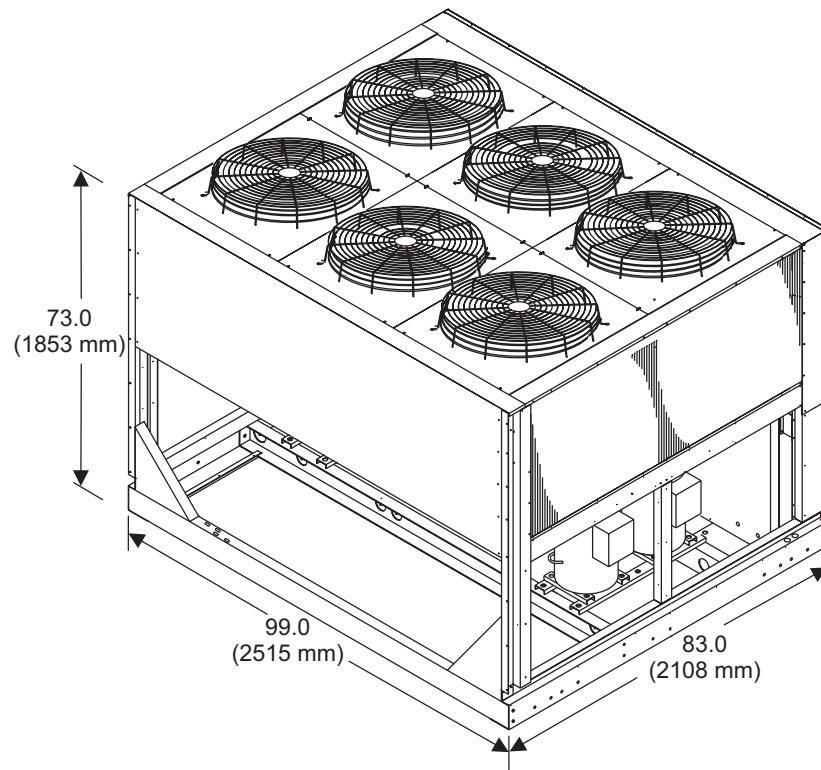


Figure 19: RCS 070C

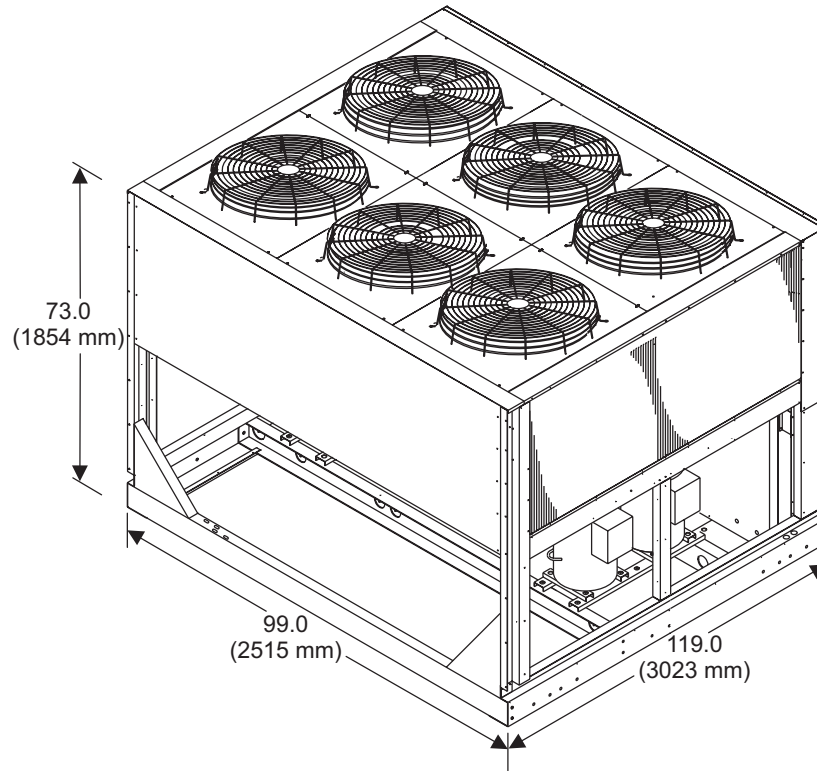


Figure 20: RCS 075C

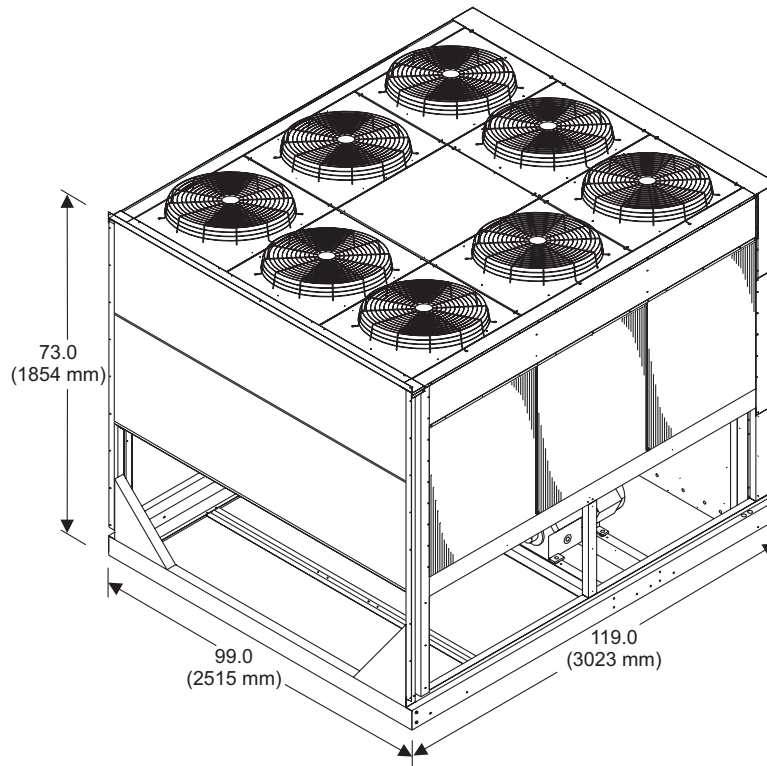


Figure 21: RCS 080C – 090C

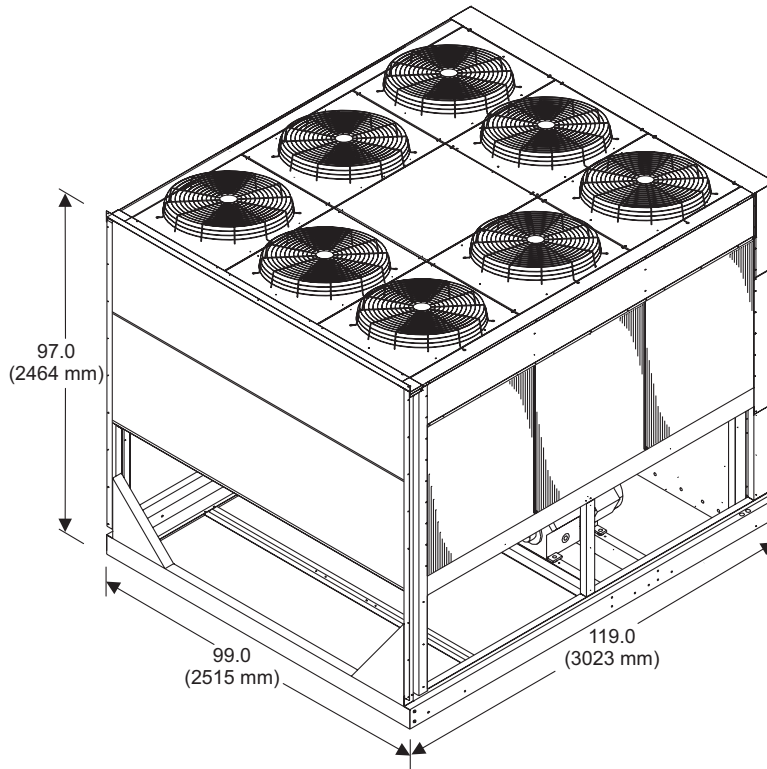


Figure 22: RCS 105C

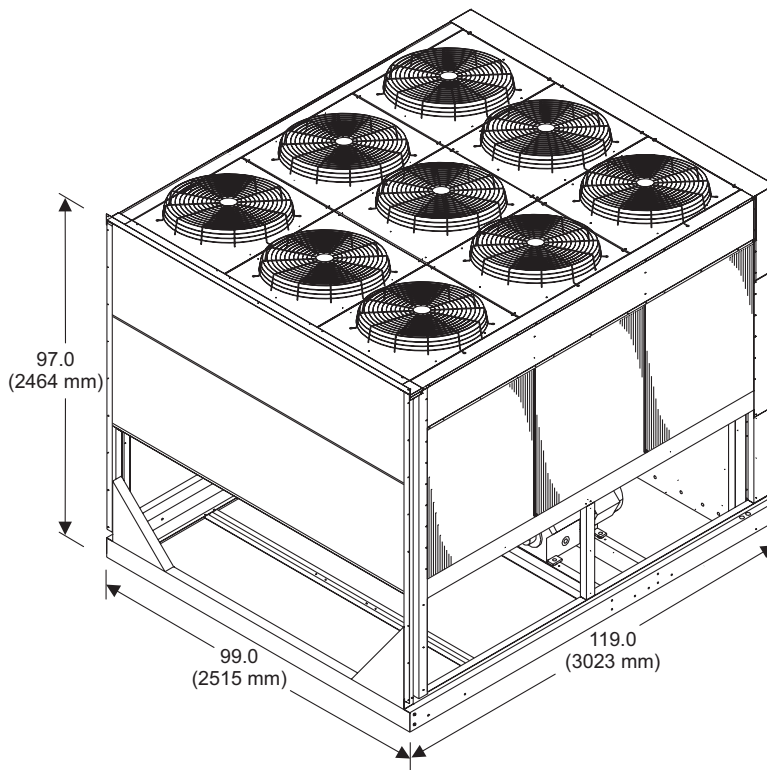


Figure 23: RCS 115C

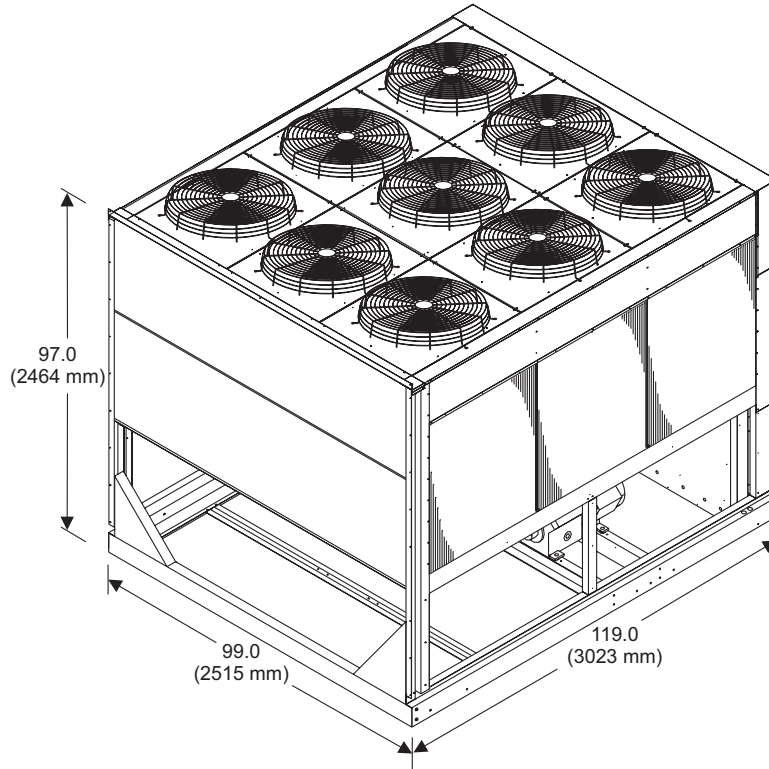
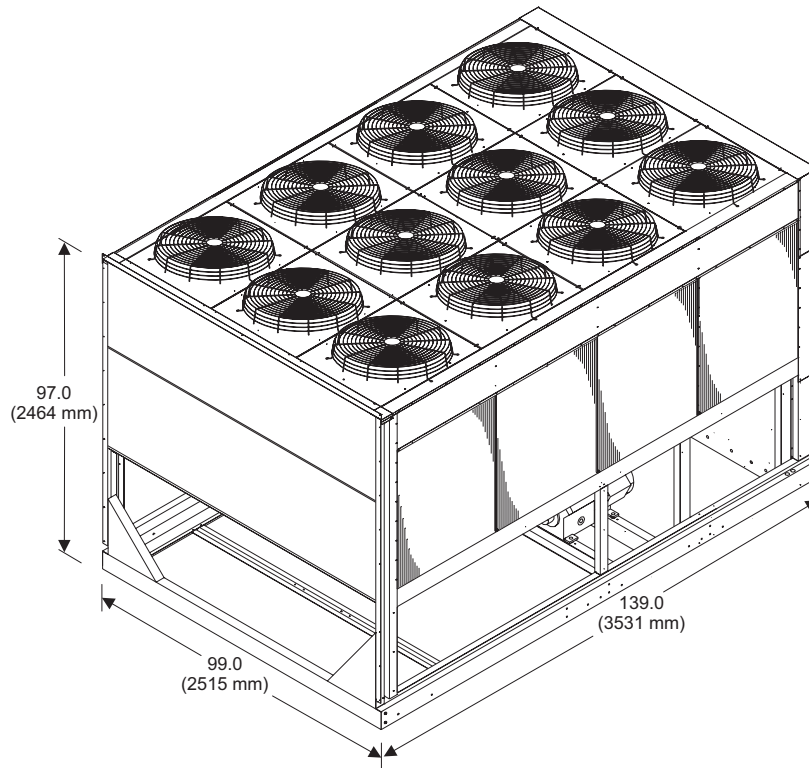


Figure 24: RCS 125C – 135C



# Piping Connections

Figure 25: 025C to 030C Refrigerant Piping Connections

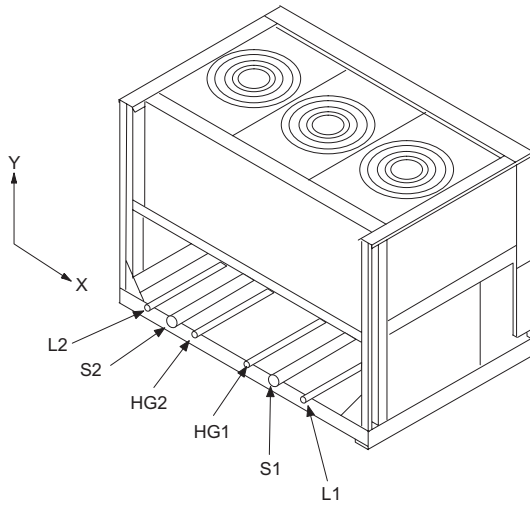


Figure 27: 045C to 135C Refrigerant Piping Connections

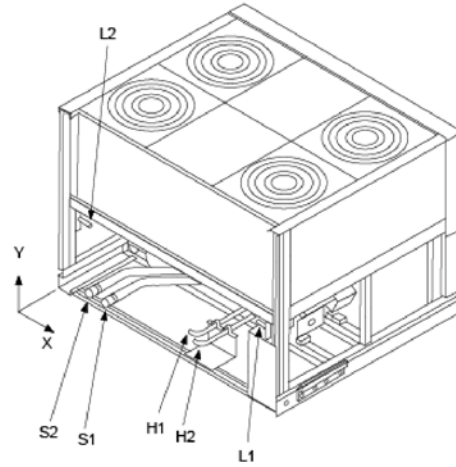


Figure 26: 040C Refrigerant Piping Connections

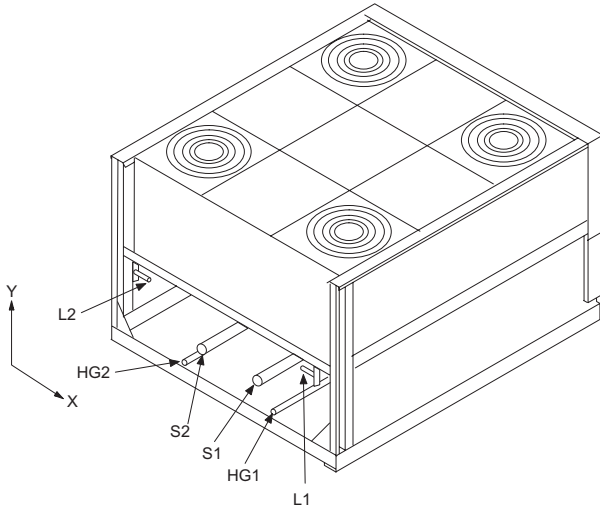


Table 6: Connection Sizes and Locations for Figures 13, 14, and 15

Component Circuit			Connection Sizes					Connection Locations							
			025C	030C to 040C	050C to 075C	090C	105C to 135C	RCS 025 to 030		RCS 040		RCS 045 to 075C		RCS 080 to 135C	
							X (in.)	Y (in.)	X (in.)	Y (in.)	X (in.)	Y (in.)	X (in.)	Y (in.)	
S1	Suction line	Ckt. 1	1-5/8	1-5/8	2-1/8	2-1/8	2-5/8	67.60	6.25	59.50	19.30	21.	7.0	5.7	11.7
S2	Suction line	Ckt. 2	1-3/8	1-5/8	2-1/8	2-1/8	2-5/8	28.00	6.25	34.60	19.30	16.5	7.0	5.7	7.5
L1	Liquid line	Ckt. 1	7/8	7/8	7/8	1-1/8	1-1/8	75.00	6.25	70.50	25.00	81.5	29.1	29.1	81.4
L2	Liquid line	Ckt. 2	7/8	7/8	7/8	1-1/8	1-1/8	21.00	6.25	23.50	25.00	10.3	29.1	29.1	10.4
HG1	HGBP line	Ckt. 1	7/8	7/8	7/8	7/8	7/8	60.80	6.25	64.60	6.60	52.1	10.4	10.4	52.1
HG2	HGBP line	Ckt. 2	7/8	7/8	7/8	7/8	7/8	35.50	6.25	29.50	6.00	40.9	4.7	4.7	40.9

# Power Wiring

**Table 7: R-22 Condenser Electrical Data**

Unit Size	Voltage	Minimum Circuit Ampacity (MCA)	Power Supply Field Wire		Field Fuse Size or HACR Breaker Size	
			Quantity	Wire Gauge 75C	Minimum	Maximum
025C	208	118.2	3	2	125	150
	230	108.1	3	2	110	125
	460	55.1	3	6	60	70
	575	41.5	3	8	45	50
030C	208	128.1	3	2	150	175
	230	116.9	3	2	125	150
	460	57.4	3	6	60	80
	575	46.4	3	8	50	60
040C	208	174.1	3	1/0	175	200
	230	158.8	3	1/0	175	175
	460	78.1	3	4	80	90
	575	65.0	3	6	70	70
050C	208	208.5	3	3/0	225	250
	230	190.3	3	2/0	200	225
	460	100.7	3	2	110	110
	575	80.3	3	4	90	90
060C	208	250.1	3	4/0	300	300
	230	228.4	3	3/0	250	250
	460	112.7	3	2	125	125
	575	100.3	3	2	125	125
070C	208	256.5	3	250	300	300
	230	234.0	3	4/0	250	250
	460	115.1	3	2	125	125
	575	95.8	3	2	100	100
075C	208	315.1	3	350	350	350
	230	288.3	3	300	300	300
	460	152.3	3	1/0	175	175
	575	121.7	3	2	125	125
090C	208	332.9	3	350	350	350
	230	311.3	3	350	350	350
	460	158.4	3	1/0	175	175
	575	134.4	3	1	150	150
105C	208	368.5	3	400	400	400
	230	336.6	3	400	350	350
	460	166.1	3	1/0	175	175
	575	147.8	3	1	150	150
115C	208	490.5	3	4/0	500	500
	230	490.5	3	4/0	500	500
	460	245.3	3	4/0	250	250
	575	170.0	3	1/0	175	200
125C	208	512.0	3	250	600	600
	230	512.0	3	250	600	600
	460	256.0	3	250	300	300
	575	193.7	3	2/0	200	225
135C	208	524.0	3	250	600	600
	230	524.0	3	250	600	600
	460	262.0	3	250	300	300
	575	211.7	3	3/0	225	250



**Table 8: R-407C Condenser Electrical Data**

Unit Size	Voltage	Minimum Circuit Ampacity (MCA)	Power Supply Field Wire		Field Fuse Size or HACR Breaker Size	
			Quantity	Wire Gauge 75C	Minimum	Maximum
025C	208	122.2	3	2	125	150
	230	111.7	3	2	125	150
	460	58.4	3	6	60	80
	575	41.5	3	8	45	50
030C	208	129.9	3	2	150	175
	230	118.6	3	2	125	150
	460	63.8	3	6	70	90
	575	48.8	3	8	50	70
040C	208	189.4	3	2/0	200	225
	230	172.8	3	1/0	175	200
	460	92.6	3	3	100	110
	575	76.5	3	4	80	90
050C	208	222.1	3	3/0	225	250
	230	202.6	3	3/0	225	225
	460	111.7	3	2	125	125
	575	80.3	3	4	90	90
060C	208	256.1	3	250	300	300
	230	234.0	3	4/0	250	250
	460	134.4	3	1	150	150
	575	108.4	3	2	110	125
070C	208	279.0	3	250	300	300
	230	254.6	3	4/0	300	300
	460	136.4	3	1	150	150
	575	112.7	3	2	125	125
075C	208	335.1	3	400	350	350
	230	306.4	3	300	350	350
	460	169.4	3	1/0	175	175
	575	121.7	3	2	125	125
090C	208	315.1	3	350	350	350
	230	324.3	3	350	350	350
	460	184.3	3	2/0	200	200
	575	140.6	3	1	150	150
105C	208	377.3	3	400	400	400
	230	344.8	3	400	350	350
	460	198.0	3	2/0	200	225
	575	159.7	3	1/0	175	175
115C	208	401.3	3	3/0	450	450
	230	401.3	3	3/0	450	450
	460	194.3	3	2/0	200	225
	575	170.0	3	1/0	175	200
125C	208	470.0	3	4/0	500	500
	230	436.3	3	3/0	450	500
	460	218.5	3	3/0	225	250
	575	180.2	3	2/0	200	200
135C	208	524.0	3	250	600	600
	230	460.3	3	4/0	500	500
	460	236.5	3	4/0	250	250
	575	186.2	3	2/0	200	225

## Wiring Locations

Figure 28: RCS 025C – 030C Power Wiring Locations

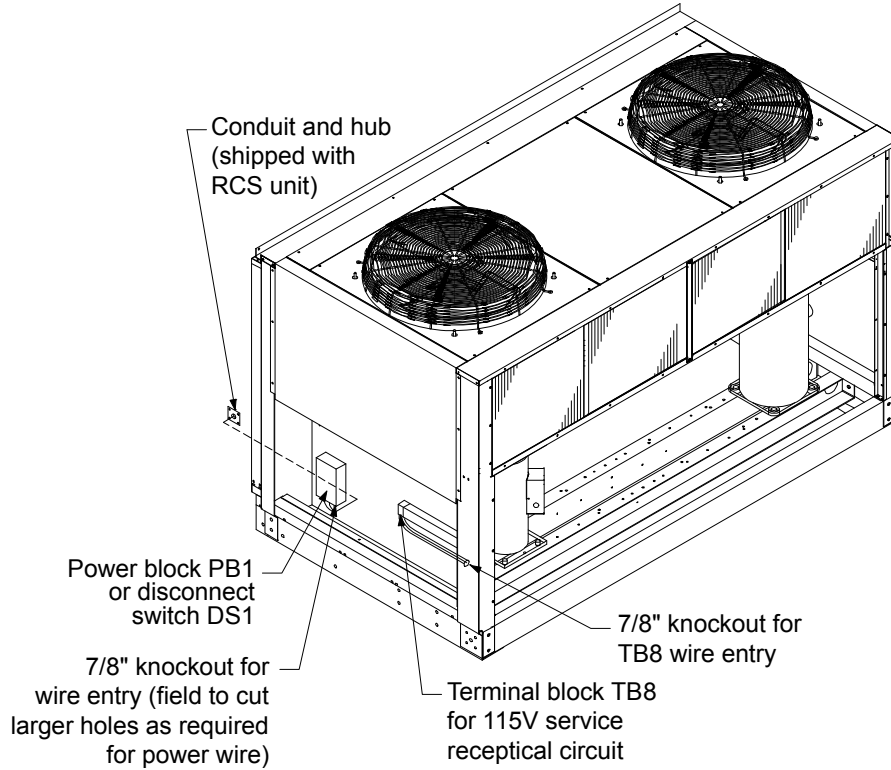
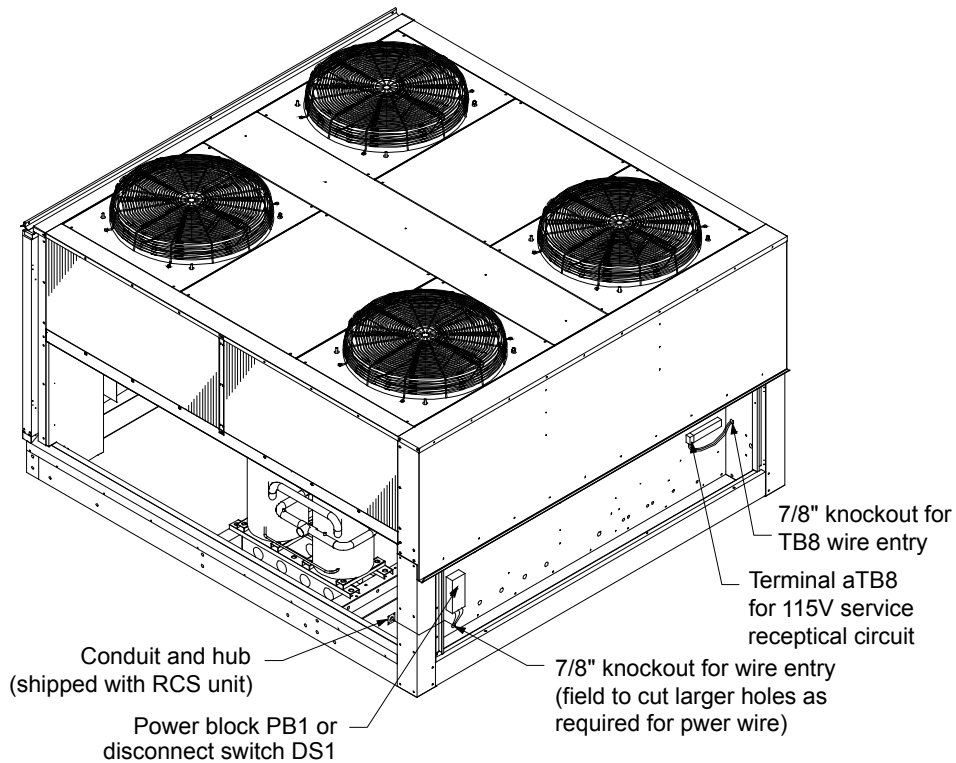


Figure 29: RCS 040C – 135C Power Wiring Locations



# Wiring Diagrams

Figure 30: Typical RCS 025C Wiring Diagram—Controls

### General Notes

1. Field wiring
2. Factory wiring
3. Shielded wire/cable
4. Main control box terminals
5. Auxiliary box terminals
6. Field terminals
7. Plug connector
8. Wire/harness number
9. Wire nut/ID

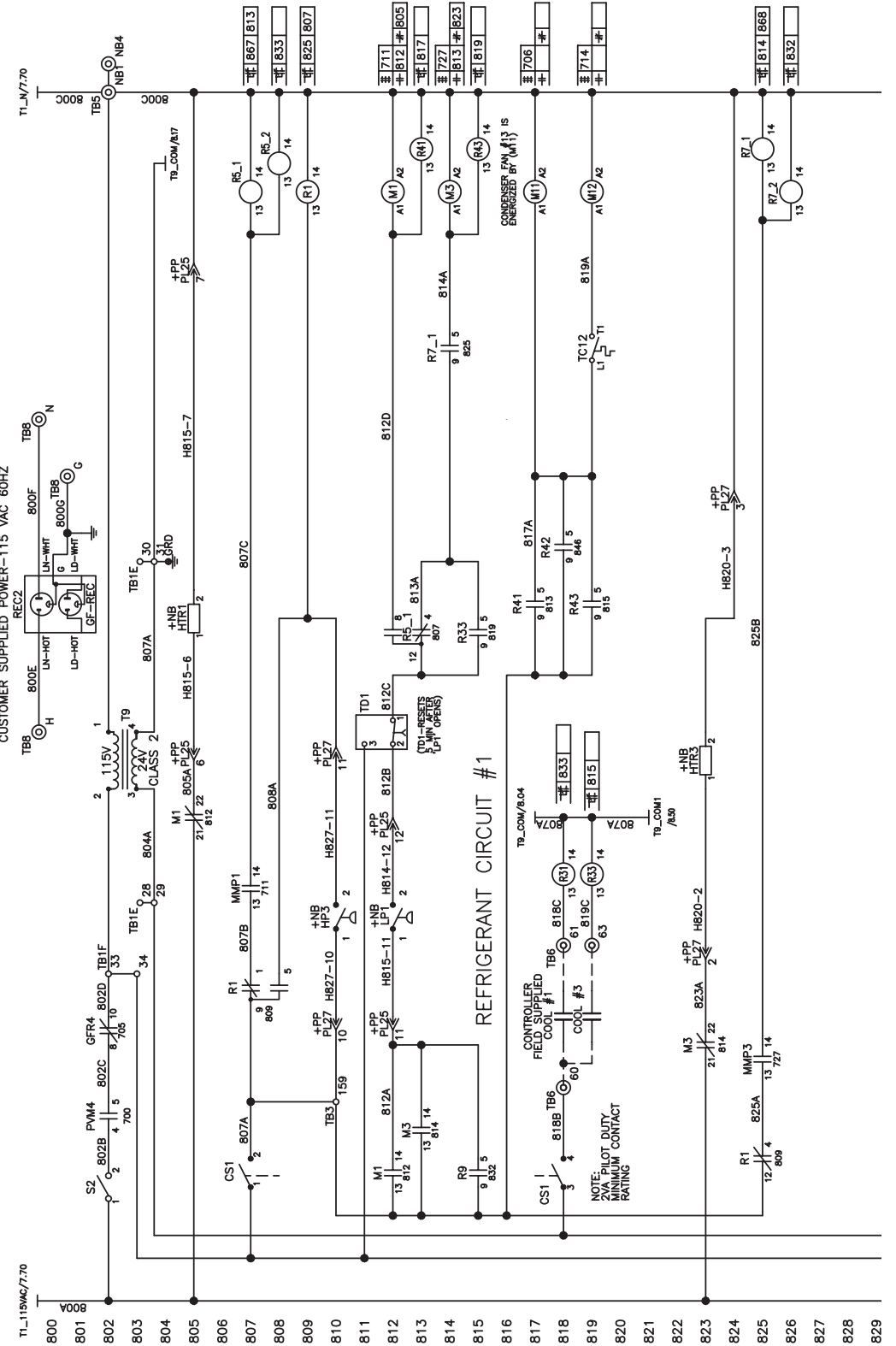


Figure 30 continued: Typical RCS 025C Wiring Diagram—Controls

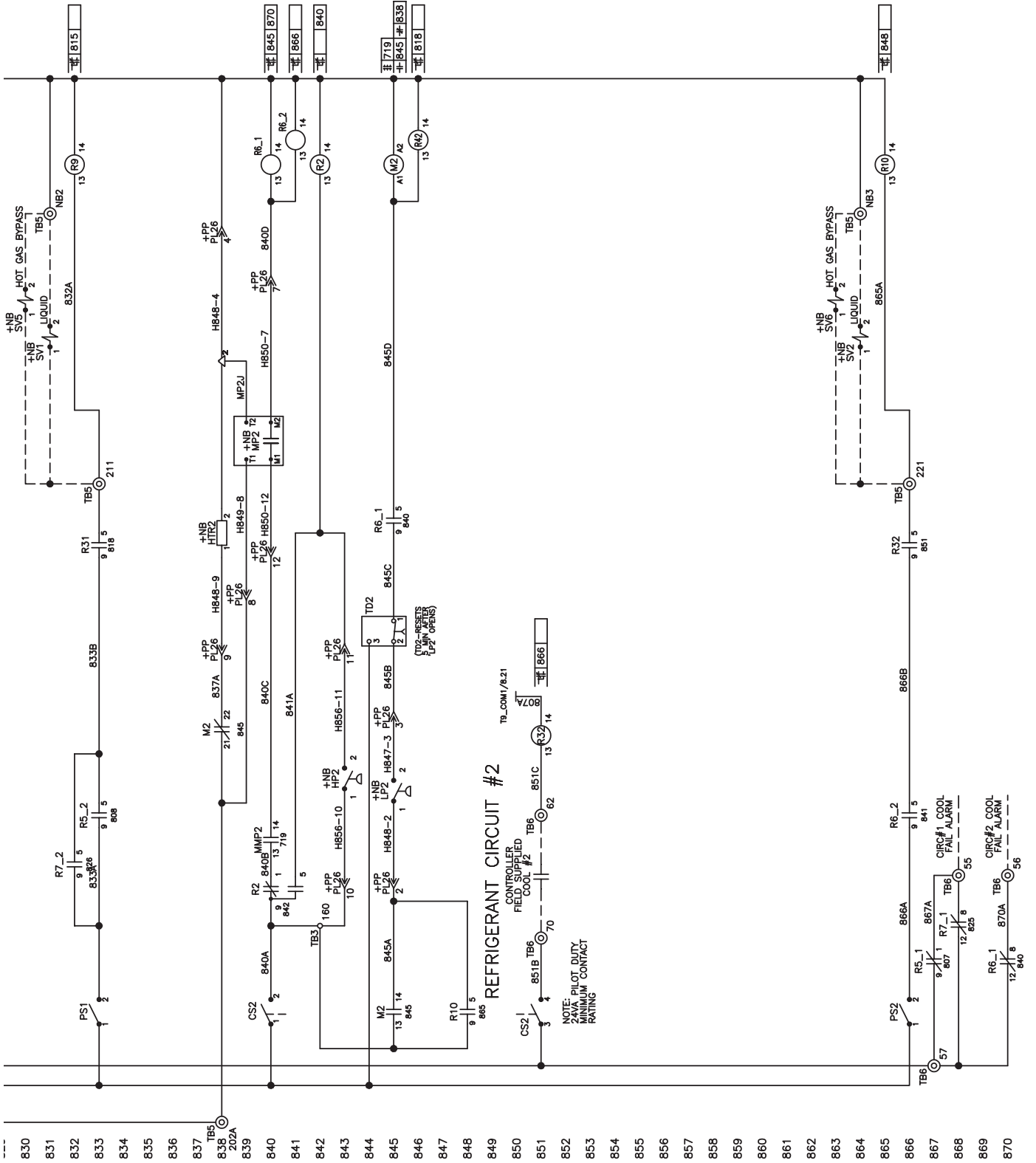
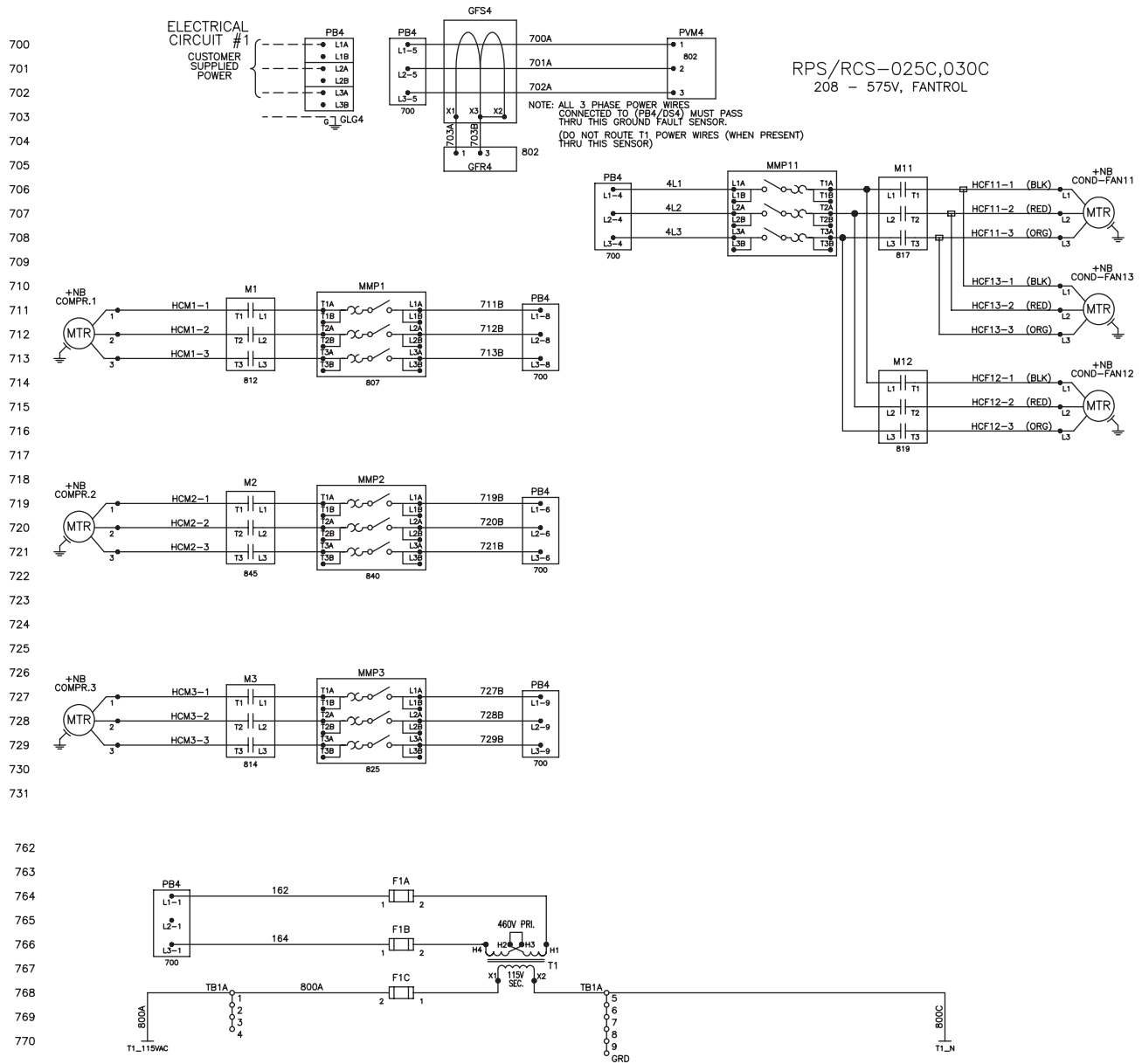


Figure 31: Typical RCS 025C Wiring Diagram—High Voltage



## Part 1: General

### 1.01 Summary

A Section includes design, performance criteria, refrigerants, and installation requirements for air cooled split condensing units

### 1.02 References

- A. ARI-365 Commercial and Industrial Unitary Air Cooled Condensing Units
- B. ANSI/ASHRAE 15 Safety Standard for Refrigerated Systems

### 1.03 Submittals

- A. Submit Shop drawings and product data in accordance with the specifications.
- B. Submittals shall include the following:
  - 1. Dimensioned plan and elevation view drawings, required clearances, and location of all field connections.
  - 2. Summary of all auxiliary utility requirements, such as electricity, water, compressed air, etc. Summary shall indicate quality and quantity of each required utility.
  - 3. Single-line schematic drawing of the power field hookup requirements, indicating all items that are furnished.
  - 4. Schematic diagram of control system indicating points for field interface/connection.
  - 5. Diagram shall fully delineate field and factory wiring.
  - 6. Installation manuals.

### 1.04 Qualifications

- A. Qualifications: Equipment manufacturer must specialize in the manufacture of the type of products specified and have five years experience with similar equipment and refrigerant offered.
- B. Regulatory Requirements: Comply with the codes and standards specified.
- C. Manufacturer's plant must be ISO Registered.

### 1.05 Delivery and Handling

- A. Condensing units shall be delivered to the job site assembled and charged with a holding charge of refrigerant and full oil charge by the manufacturer.
- B. Comply with the manufacturer's instructions for rigging and handling equipment.

### 1.06 Warranty

- A. The refrigeration equipment manufacturer's guarantee shall be for a period of one year from date of equipment start-up but not more than 18 months from shipment. The guarantee shall provide for repair or replacement due to failure by material and workmanship that prove defective within the above period, excluding refrigerant.

### 1.07 Maintenance

- A. Include instructions for installation, maintenance and service.
- B. Maintenance of the units shall be the responsibility of the owner and performed in accordance with the manufacturer's instructions.

## Part 2: Products

### 2.01 Acceptable Manufacturers

- A. Basis of design: Daikin Applied
- B. (Approved Equal)

### 2.02 Unit Description

- A. Scroll Option: Provide and install, as shown on the plans, a factory-assembled, air-cooled scroll compressor condensing units in the size and quantity specified. Each unit shall consist of hermetic tandem or triple scroll compressor sets, air-cooled condenser section.
- B. Discus Option (Models RCS 115–135): Provide and install, as shown on the plans, a factory-assembled, air-cooled Discus compressor condensing units in the size and quantity specified.

### 2.03 Design Requirements

- A. **General:** Provide a complete condensing unit as specified herein and as shown on the drawings. The unit shall be in accordance with the standards referenced in section 1.02 and any local codes in effect.
- B. **Performance:** Refer to the schedule of performance on the drawings. Performance shall be in accordance with ARI Standard 365-94.

## 2.04 Condensing Section

### A. Air Cooled Condenser

1. The condensing section shall be open on the sides and bottom to provide access and to allow airflow through the coils. Condenser coils shall be multi-row and fabricated from 3/8" high efficiency rifled copper tubing mechanically bonded to high efficiency aluminum fins. Each condenser coil shall be factory leak tested with high-pressure air under water. Each refrigerant circuit shall include a subcooling circuit to provide 15 degrees of liquid subcooling.
2. Condenser fans shall be direct drive, propeller type designed for low tip speed, vertical air discharge, and include service guards. Fan blades shall be constructed of steel and riveted to a steel center hub. Condenser fan motors shall be heavy-duty, inherently protected, three-phase, non-reversing type with permanently lubricated ball bearing and integral rain shield.
3. Units shall have at least one condenser fan controlled to maintain positive head pressure. An ambient thermostat shall prevent the refrigeration system from operating below 45°F ambient.

### B. Scroll Compressors

1. Unit shall have multiple, heavy-duty Copeland scroll compressors.
2. Each compressor shall be complete with gauge ports, crank case heater, anti-slug protection, motor overload protection, and a time delay to prevent short cycling and simultaneous starting of compressors following a power failure.
3. Compressors shall be isolated with resilient rubber isolators to decrease noise transmission.
4. The unit shall have two independent refrigeration circuits.
5. Refrigeration capacity control shall be accomplished by staging of the unit's multiple compressors.

### C. Discus Compressors (Models RCS115–135)

1. Each unit shall have multiple, heavy-duty Copeland Discus compressors.
2. Each compressor shall include reversible, positive displacement oil pump, suction and discharge line service valves, crankcase heater, high efficiency blocked suction unloading, and three-leg inherent motor overload protection.
3. Compressors shall be isolated with spring isolators with vibration eliminators in the suction and discharge lines to decrease noise transmission.
4. The unit shall have two independent refrigeration circuits.
5. Refrigeration capacity control shall be accomplished with a combination of compressor cycling and high efficiency blocked suction unloading.

- D. **Refrigerant Circuit:** Capped connections shall be provided for field connection of refrigerant piping. Refrigerant specialties shall be field supplied and installed.

## 2.05 Controls

- A. Unit shall be equipped with a 120 V terminal strip for field supplied and installed controls.
- B. 24 V Control Option: Unit shall be equipped with a 24 V terminal strip for field supplied and installed controls.
  1. Unit manufacturer shall provide necessary relays for cooling stages as stated on equipment schedule.

## 2.06 Options and Accessories

**NOTE:** The following options are to be included:

- A. Hot gas bypass to allow unit operation to 10 percent of full load
- B. SpeedTrol™ condenser fan speed control shall be added to the first fan off on each refrigeration circuit to provide cooling operation to ambient temperatures down to 0° F. Fan speed control shall be field adjustable.
- C. Non-fused disconnect switch with through-the-door handle
- D. Aluminum fins pre-coated with a phenolic epoxy coating with 1000 hour salt spray rating (ASTM B117-90)
- E. Copper fin condenser coils
- F. ElectroFin baked epoxy coating providing 5000+ hour salt spray resistance (ASTM B117-90) and is applied to both the coil and the coil frames.
- G. Spring vibration isolators for field installation
- H. Neoprene-in-shear vibration isolators for field installation
  - I. Hail and wind guards
  - J. High short circuit current protection
  - K. Field powered 115 V convenience outlet



## **Part 3: Execution**

### **3.01 Installation**

- A. Install in strict accordance with manufacturer's requirements, shop drawings, and contract documents.
- B. Adjust and level unit in alignment on supports.
- C. Coordinate electrical installation with electrical contractor.
- D. Coordinate controls with control contractor.

### **3.02 Start-Up**

- A. Install proper charge of refrigerant and oil.
- B. Provide testing and starting of machine, and instruct the Owner in its proper operation and maintenance.





### ***Daikin Applied Training and Development***

Now that you have made an investment in modern, efficient Daikin equipment, its care should be a high priority. For training information on all Daikin HVAC products, please visit us at [www.DaikinApplied.com](http://www.DaikinApplied.com) and click on Training, or call 540-248-9646 and ask for the Training Department.

### ***Warranty***

All Daikin equipment is sold pursuant to its standard terms and conditions of sale, including Limited Product Warranty. Consult your local Daikin Applied representative for warranty details. To find your local Daikin Applied representative, go to [www.DaikinApplied.com](http://www.DaikinApplied.com).

### ***Aftermarket Services***

To find your local parts office, visit [www.DaikinApplied.com](http://www.DaikinApplied.com) or call 800-37PARTS (800-377-2787). To find your local service office, visit [www.DaikinApplied.com](http://www.DaikinApplied.com) or call 800-432-1342.

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Products manufactured in an ISO Certified Facility.