

APPENDIX A

Mechanical Equipment Sheets:

York Chiller
Marley Cooling Towers
Calmac IceBank Storage Tanks
Low Temp Air Cooling Coils



**YCWS
WATER COOLED LIQUID CHILLER**



HFC-407C



**89 TONS THROUGH 209 TONS
313 kW THROUGH 735 kW
60Hz
STYLE A**

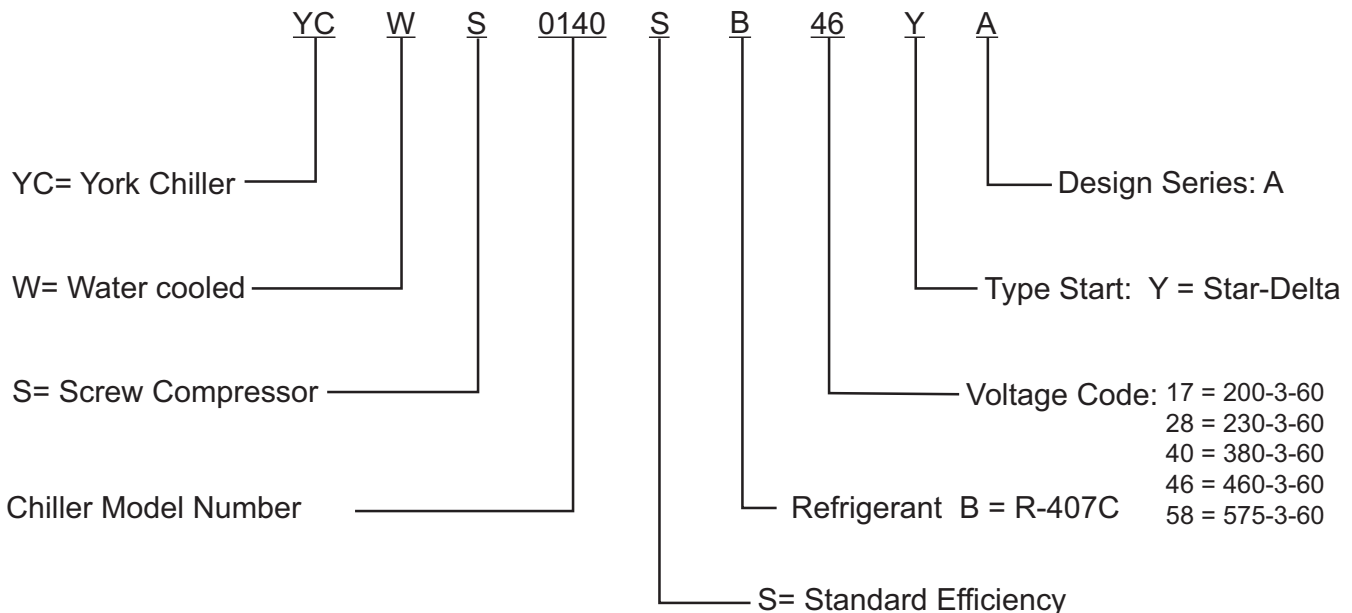


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Nomenclature



Introduction

York YCWS Water Cooled Screw Chillers



*YORK YCWS Water-Cooled models provide chilled water for all **HFC** air conditioning applications that use central station air handling or terminal units. They are completely self-contained and are designed for indoor (new or retrofit) installation. Each unit includes accessible semi-hermetic screw compressors, a liquid cooler, water cooled condenser, and a user-friendly, diagnostic Microcomputer Control Center all mounted on a rugged steel base. The units are produced at an ISO 9001 registered facility. The YCWS chillers have certified ratings in accordance with ARI Standard 550/590.*

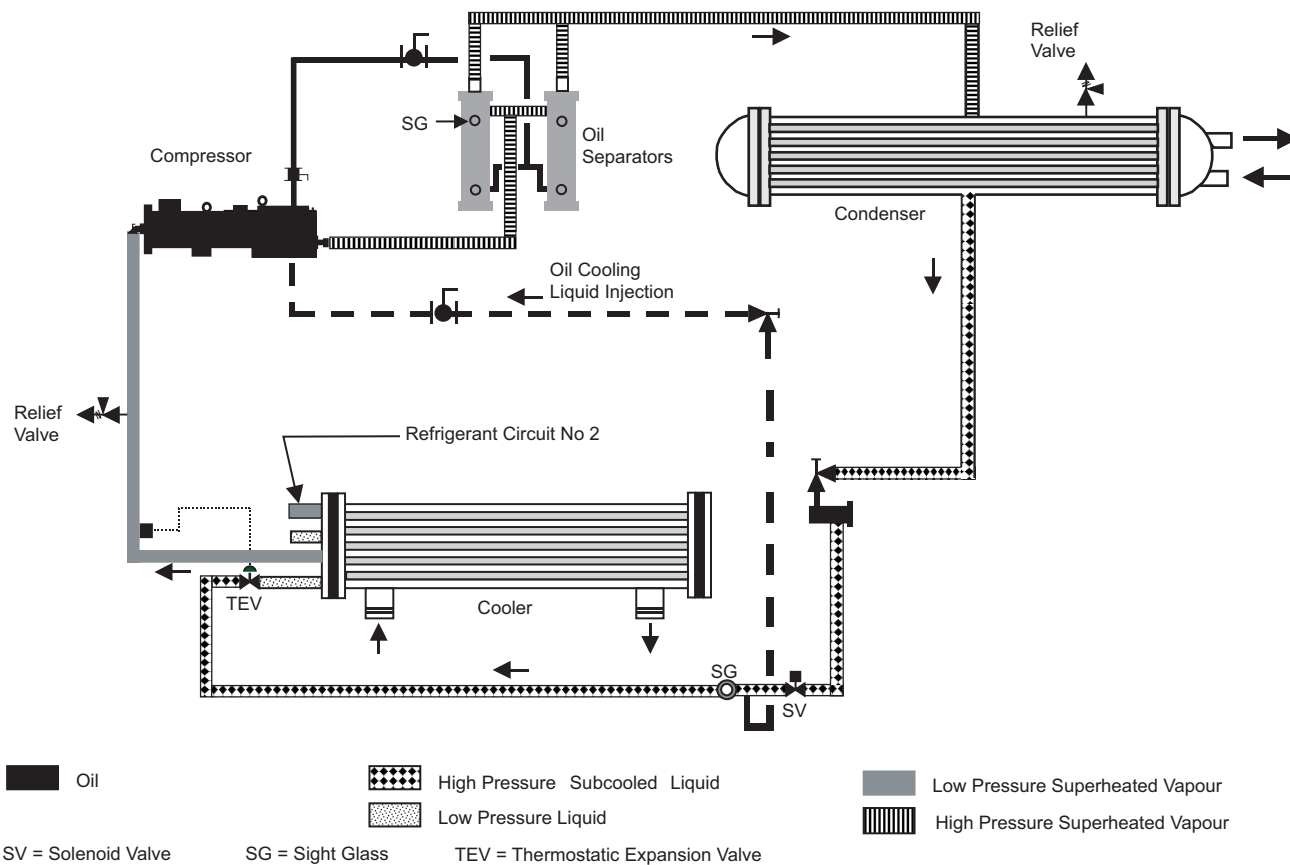
Design Parameters

English

| YCWS | 0100SB | 0120SB | 0140SB | 0180SB | 0200SB | 0220SB | 0240SB |
|---------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Min. Cooler Water Flow - GPM | 200 | 200 | 200 | 260 | 260 | 300 | 300 |
| Max. Cooler Water Flow - GPM | 506 | 506 | 506 | 695 | 695 | 830 | 830 |
| Min. Cond. Water Flow - GPM | 193 | 193 | 193 | 330 | 330 | 330 | 330 |
| Max. Cond. Water Flow - GPM | 645 | 645 | 645 | 1050 | 1050 | 1050 | 1050 |
| Min. Lvg. Liquid Temp. - °F | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Max. Lvg. Liquid Temp. - °F | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Min. Ent. Cond. Water Temp - °F | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Max. Ent. Cond. Water Temp - °F | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Min. Equipment Room Temp. - °F | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Max. Equipment Room Temp. - °F | 115 | 115 | 115 | 115 | 115 | 115 | 115 |

SI

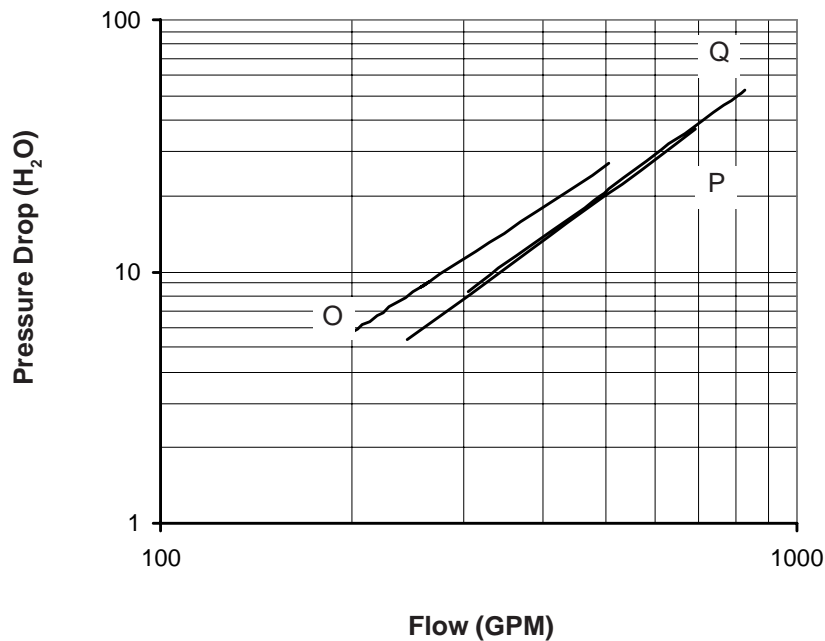
| YCWS | 0100SB | 0120SB | 0140SB | 0180SB | 0200SB | 0220SB | 0240SB |
|---------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Min. Cooler Water Flow - l/sec | 12.6 | 12.6 | 12.6 | 16.4 | 16.4 | 18.9 | 18.9 |
| Max. Cooler Water Flow - l/sec | 31.9 | 31.9 | 31.9 | 43.8 | 43.8 | 52.4 | 52.4 |
| Min. Cond. Water Flow - l/sec | 12.2 | 12.2 | 12.2 | 20.8 | 20.8 | 20.8 | 20.8 |
| Max. Cond. Water Flow - l/sec | 40.7 | 40.7 | 40.7 | 66.2 | 66.2 | 66.2 | 66.2 |
| Min. Lvg. Liquid Temp. - °C | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 |
| Max. Lvg. Liquid Temp. - °C | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Min. Ent. Cond. Water Temp - °C | 23.8 | 23.8 | 23.8 | 23.8 | 23.8 | 23.8 | 23.8 |
| Max. Ent. Cond. Water Temp - °C | 35.0 | 35.0 | 35.0 | 35.0 | 35.0 | 35.0 | 35.0 |
| Min. Equipment Room Temp. - °C | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 |
| Max. Equipment Room Temp. - °C | 46.1 | 46.1 | 46.1 | 46.1 | 46.1 | 46.1 | 46.1 |



Low-pressure liquid refrigerant enters the cooler tubes and is evaporated and superheated by the heat energy absorbed from the chilled liquid passing through the cooler shell. Low-pressure vapor enters the compressor where pressure and superheat are increased. High-pressure vapor is passed through the oil separator where heat is rejected to the condenser water passing through the tubes. The fully condensed and subcooled liquid leaves the condenser and enters the expansion valve, where pressure reduction and further cooling take place. The low pressure liquid refrigerant then returns to the cooler. Each refrigerant circuit utilizes liquid injection, maintaining efficient oil temperature operation within the compressor.

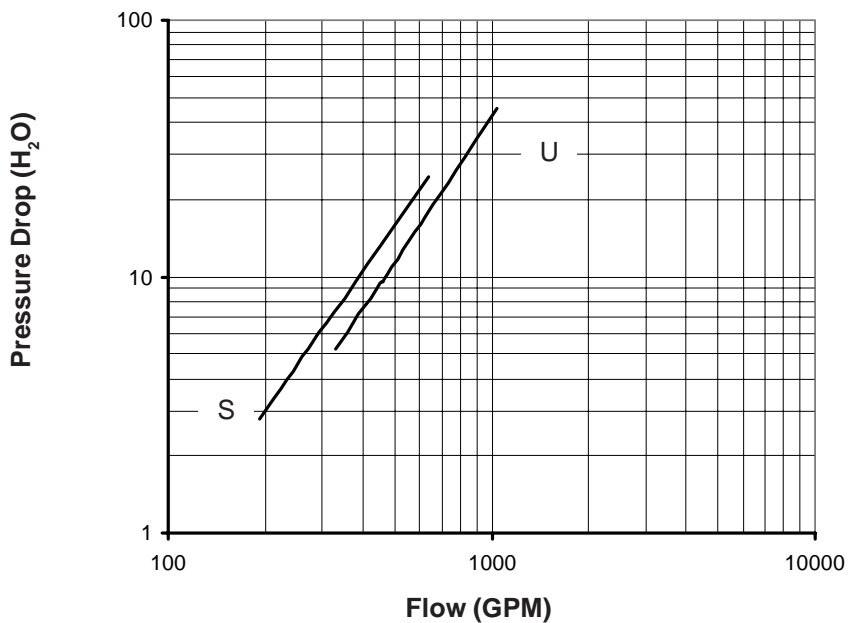
Pressure Drops

FIGURE 1 - COOLER WATER PRESSURE DROP CURVES (ENGLISH)



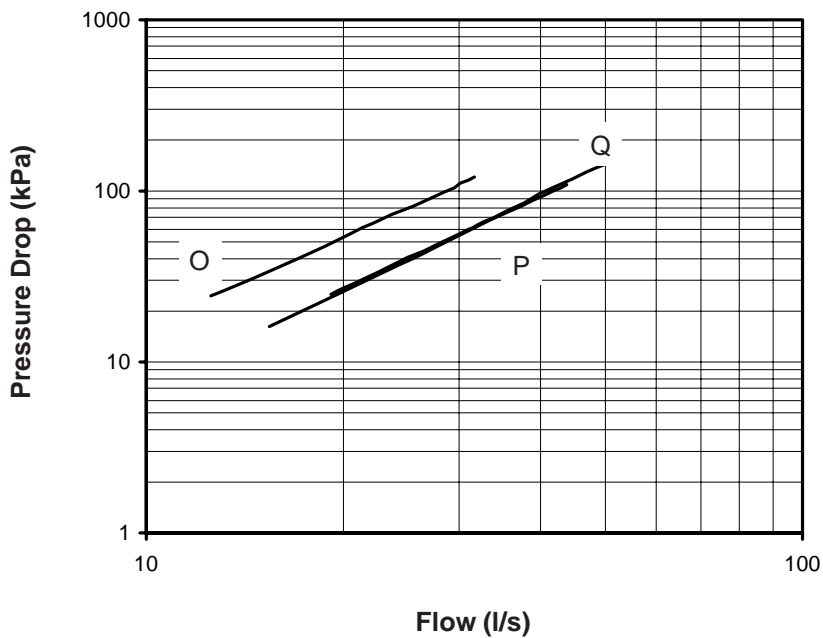
| YCWS Model Number | Cooler |
|------------------------|--------|
| 0100SB, 0120SB, 0140SB | O |
| 0180SB, 0200SB | P |
| 0220SB, 0240SB | Q |

FIGURE 3 - CONDENSER WATER PRESSURE DROP CURVES (ENGLISH)



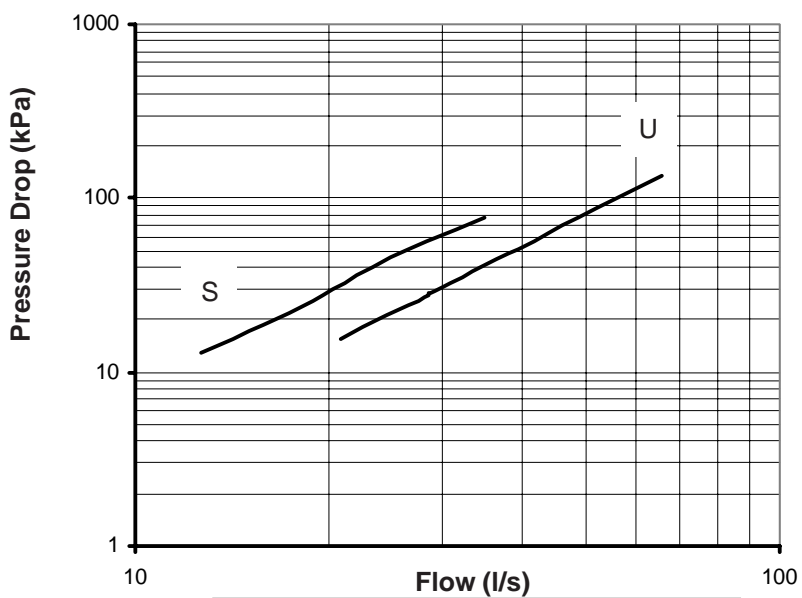
| YCWS Model Number | Cooler |
|----------------------------------|--------|
| 0100SB, 0120SB, 0140SB | S |
| 0180SB, 0200SB 0220SB, 0240SB | U |

FIGURE 2 - COOLER WATER PRESSURE DROP CURVES (SI)



| YCWS Model Number | Cooler |
|------------------------|--------|
| 0100SB, 0120SB, 0140SB | O |
| 0180SB, 0200SB | P |
| 0220SB, 0240SB | Q |

FIGURE 4 - CONDENSER WATER PRESSURE DROP CURVES (SI)



| | |
|------------------------|---|
| 0100SB, 0120SB, 0140SB | S |
| 0180SB, 0200SB | U |
| 0220SB, 0240SB | U |

Selection Data

GUIDE TO SELECTION

Complete water chilling capacity ratings for YORK YCWS chillers are shown on the following pages to cover the majority of job requirements. For any application beyond the scope of this Engineering Guide, consult your nearest YORK Office.

SELECTION RULES

- RATINGS - YCWS 200, 230 380, 460 & 575-3-60** ratings are certified in accordance with ARI standard 550/590, at the ARI standard condition. Rating not at standard ARI conditions are rated in accordance with ARI rating procedures. These ratings may be interpolated but should not be extrapolated.
- COOLING WATER QUANTITY** - Ratings are based on 10°F chilled water range. Use the chilled water correction factors (below) for other ranges except as limited by water pressure drop, minimum or maximum water flows for the cooler.
- CONDENSER WATER QUANTITY** – Rating are applicable from 2 to 4 gpm/ton as limited by water pressure drop or minimum or maximum water flows for the condenser. Using the tabulated MBH, the Cond. GPM is calculated as follows:

$$\text{Cond. GPM} = \frac{\text{MBH} \times 2}{\text{Cond. Water Range (°F)}}$$

- FOULING FACTORS** – Rating are based on 0.0001 evaporator and 0.00025 condenser fouling factor. For other fouling factors, consult the table below or contact your YORK representative.

EVAP FOULING FACTORS

| Temp Split | 0.0001 | | x | 0.00025 | |
|------------|--------|----------|---|---------|----------|
| | Tons | Compr kW | | Tons | Compr kW |
| 6 | 0.9692 | 1.0015 | | 0.9972 | 1.0001 |
| 8 | 0.9849 | 1.0008 | | 0.9980 | 1.0001 |
| 10 | 1.0000 | 1.0000 | | 0.9982 | 1.0001 |
| 12 | 1.0133 | 0.9993 | | 0.9978 | 1.0001 |
| 14 | 1.0248 | 0.9986 | | 0.9979 | 1.0001 |

Note: Temperature split factors @ 44°F Leaving Chilled Liquid Temp (LCLT)

COND FOULING FACTORS

| Temp Split | 0.00025 | | x | 0.0005 | |
|------------|---------|----------|---|--------|----------|
| | Tons | Compr kW | | Tons | Compr kW |
| 8 | 0.9998 | 1.0004 | | 0.9957 | 1.0072 |
| 10 | 1.0000 | 1.0000 | | 0.9959 | 1.0068 |
| 12 | 1.0001 | 0.9998 | | 0.9961 | 1.0065 |
| 14 | 1.0001 | 0.9998 | | 0.9965 | 1.0060 |

Note: Temperature split factors @ 95°F Leaving Condenser Water Temp (LCWT).

METHOD OF SELECTION

If the duty requires a 10°F range on both the cooler and condenser, see “Ratings”. For water ranges other than 10°F, use the following procedure.

- Determine capacity required from the following formula

$$\text{Capacity (tons)} = \frac{\text{GPM} \times \text{Chilled Water Range (°F)}}{24}$$

- After applying any fouling factor corrections, the actual condenser heat rejection may be determined as follows:

$$\text{Heat Rejection (Btuh)} = (\text{Tons} \times 12,000) + (\text{kW} \times 3415)$$

$$\text{Heat Rejection (MBH)} = \frac{\text{Heat Rejection (Btuh)}}{1000}$$

$$= (\text{Tons} \times 12) + (\text{kW} \times 3.415)$$

- Determine condensing water requirements for water cooled models as follows:

$$\text{Condenser Tons} = \frac{\text{Heat Rejection (MBH)} \times 1000}{15,000}$$

$$\text{Cond. Water GPM} = \frac{\text{Condenser Tons} \times 30}{\text{Condenser Water Range (°F)}}$$

Or combine the two formulas:

$$\text{Cond. Water GPM} = \frac{\text{MBH} \times 2}{\text{Condenser Water Range (°F)}}$$

SAMPLE SELECTION

Water Cooled Condenser (YCWS)

GIVEN – Chill 200 GPM of water from 56°F to 44°F and 0.0001 evaporator fouling factor with 85°F to 95°F condensing water available. Fouling factor of 0.0005 special field for the condenser.

FIND – The required unit size capacity, kW, EER, and water pressure drop.

SOLUTION:

1. Chilled water range = 56°F - 44°F = 12°F and correction factors are 1.0133 for Tons and 0.9993 for kW for the cooler.

$$2. \text{ Capacity (tons)} = \frac{\text{GPM} \times \text{Chilled Water Range}}{24}$$

$$= \frac{200 \times 12}{24} = 100\text{TR}$$

2. From the rating, a model YCWS0120SB has a capacity range required. For the cooler leaving water temperature of 44°F and a condenser leaving water temperature of 95°F, the unit capacity rating table indicates:

$$\begin{aligned} \text{Tons} &= 106.2 \\ \text{KW} &= 96.7 \\ \text{EER} &= 13.2 \end{aligned}$$

Correcting for the 12°F chilled water range and the 0.0005 condenser-fouling factor:

$$\begin{aligned} \text{Tons} &= 106.2 \times 1.0133 \times 0.9961 = 107.2\text{TR} \\ \text{KW} &= 96.7 \times 0.9993 \times 1.0065 = 97.3 \end{aligned}$$

The unit is suitable.

3. Determine the average full load kW and EER at 95.0 Tons

$$\frac{95.0}{107.2} \times (97.3) = 86.2\text{KW}$$

$$\text{EER} = \frac{\text{Tons} \times 12}{\text{Kw}} = \frac{95.0 \times 12}{86.2} = 13.2$$

4. Determine the cond. Heat rejection as follows:

$$\begin{aligned} \text{Heat Rejection (MBH)} &= (\text{Tons} \times 12) + (\text{kW} \times 3.415) \\ &= (95.0 \times 12) + (86.2 \times 3.415) \\ &= 1140 + 294 \\ &= 1434 \end{aligned}$$

5. Determine GPM condensing water as follows:

$$\text{GPM Condenser Water} = \frac{\text{MBH} \times 2}{\text{Cond Water Range}}$$

6. From curves on pages 10 and 11, the pressure drops with 200GPM through the cooler and 288 through the condenser of the Model YCWS120SB

$$\begin{aligned} \text{Cooler Pressure Drop at 200 GPM} &= 2.9\text{ft} \\ \text{Condenser Pressure Drop at 288 GPM} &= 5.5\text{ft} \end{aligned}$$

Ratings (HFC-407C English)

| LCWT (°F) | LEAVING CONDENSER WATER TEMPERATURE (°F) | | | | | | | | | | | | | | | |
|--------------|--|----|-----|-----|------|----|-----|-----|-------|----|-----|-----|-------|----|-----|-----|
| | 85.0 | | | | 95.0 | | | | 100.0 | | | | 105.0 | | | |
| | TONS | KW | MBH | EER | TONS | KW | MBH | EER | TONS | KW | MBH | EER | TONS | KW | MBH | EER |

YCWS0100SB

IPLV = 16.4

| | | | | | | | | | | | | | | | | |
|------|-------|------|--------|------|-------|------|--------|------|------|------|--------|------|------|------|--------|------|
| 40.0 | 89.4 | 70.7 | 1314.0 | 15.2 | 81.2 | 80.4 | 1248.0 | 12.1 | 77.4 | 86.0 | 1222.0 | 10.8 | 73.7 | 92.2 | 1199.0 | 9.6 |
| 42.0 | 93.3 | 70.1 | 1359.0 | 16.0 | 84.8 | 79.7 | 1289.0 | 12.8 | 80.9 | 85.3 | 1261.0 | 11.4 | 77.1 | 91.4 | 1237.0 | 10.1 |
| 44.0 | 97.3 | 69.5 | 1405.0 | 16.8 | 88.5 | 79.0 | 1331.0 | 13.4 | 84.4 | 84.6 | 1301.0 | 12.0 | 80.5 | 90.6 | 1275.0 | 10.7 |
| 45.0 | 99.4 | 69.2 | 1428.0 | 17.2 | 90.4 | 78.7 | 1353.0 | 13.8 | 86.2 | 84.2 | 1321.0 | 12.3 | 82.2 | 90.2 | 1294.0 | 10.9 |
| 46.0 | 101.4 | 68.8 | 1451.0 | 17.7 | 92.3 | 78.3 | 1374.0 | 14.1 | 88.0 | 83.8 | 1342.0 | 12.6 | 84.0 | 89.7 | 1314.0 | 11.2 |
| 48.0 | 105.6 | 68.1 | 1499.0 | 18.6 | 96.1 | 77.6 | 1418.0 | 14.9 | 91.7 | 83.0 | 1384.0 | 13.3 | 87.6 | 88.9 | 1354.0 | 11.8 |
| 50.0 | 109.8 | 67.3 | 1547.0 | 19.6 | 100.1 | 76.8 | 1463.0 | 15.6 | 95.5 | 82.2 | 1427.0 | 13.9 | 91.2 | 88.1 | 1395.0 | 12.4 |

YCWS0120SB

IPLV = 15.7

| | | | | | | | | | | | | | | | | |
|------|-------|------|--------|------|-------|------|--------|------|-------|-------|--------|------|-------|-------|--------|------|
| 40.0 | 107.3 | 85.4 | 1578.0 | 15.1 | 97.6 | 97.4 | 1503.0 | 12.0 | 93.1 | 104.3 | 1472.0 | 10.7 | 88.8 | 111.7 | 1446.0 | 9.5 |
| 42.0 | 111.9 | 85.1 | 1633.0 | 15.8 | 101.9 | 97.1 | 1553.0 | 12.6 | 97.2 | 103.9 | 1520.0 | 11.2 | 92.7 | 111.3 | 1492.0 | 10.0 |
| 44.0 | 116.7 | 84.8 | 1689.0 | 16.5 | 106.2 | 96.7 | 1605.0 | 13.2 | 101.4 | 103.5 | 1570.0 | 11.8 | 96.8 | 110.8 | 1539.0 | 10.5 |
| 45.0 | 119.1 | 84.6 | 1717.0 | 16.9 | 108.5 | 96.5 | 1631.0 | 13.5 | 103.5 | 103.3 | 1595.0 | 12.0 | 98.8 | 110.6 | 1563.0 | 10.7 |
| 46.0 | 121.5 | 84.4 | 1746.0 | 17.3 | 110.7 | 96.3 | 1657.0 | 13.8 | 105.7 | 103.0 | 1620.0 | 12.3 | 100.9 | 110.3 | 1588.0 | 11.0 |
| 48.0 | 126.4 | 84.0 | 1803.0 | 18.1 | 115.3 | 95.8 | 1710.0 | 14.4 | 110.1 | 102.5 | 1671.0 | 12.9 | 105.2 | 109.8 | 1637.0 | 11.5 |
| 50.0 | 131.4 | 83.4 | 1862.0 | 18.9 | 119.9 | 95.3 | 1764.0 | 15.1 | 114.6 | 102.0 | 1723.0 | 13.5 | 109.5 | 109.2 | 1687.0 | 12.0 |

YCWS0140SB

IPLV = 16.6

| | | | | | | | | | | | | | | | | |
|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|
| 40.0 | 126.8 | 100.0 | 1863.0 | 15.2 | 115.4 | 114.4 | 1775.0 | 12.1 | 110.2 | 122.5 | 1740.0 | 10.8 | 105.1 | 131.3 | 1709.0 | 9.6 |
| 42.0 | 132.2 | 100.1 | 1928.0 | 15.8 | 120.5 | 114.4 | 1836.0 | 12.6 | 115.0 | 122.5 | 1798.0 | 11.3 | 109.8 | 131.3 | 1765.0 | 10.0 |
| 44.0 | 137.8 | 100.1 | 1994.0 | 16.5 | 125.6 | 114.4 | 1897.0 | 13.2 | 119.9 | 122.4 | 1857.0 | 11.8 | 114.5 | 131.1 | 1822.0 | 10.5 |
| 45.0 | 140.6 | 100.0 | 2028.0 | 16.9 | 128.2 | 114.3 | 1928.0 | 13.5 | 122.4 | 122.4 | 1887.0 | 12.0 | 117.0 | 131.0 | 1851.0 | 10.7 |
| 46.0 | 143.4 | 100.0 | 2062.0 | 17.2 | 130.9 | 114.2 | 1960.0 | 13.7 | 125.0 | 122.3 | 1917.0 | 12.3 | 119.4 | 130.9 | 1880.0 | 10.9 |
| 48.0 | 149.2 | 99.7 | 2130.0 | 17.9 | 136.2 | 114.0 | 2023.0 | 14.3 | 130.2 | 122.0 | 1978.0 | 12.8 | 124.4 | 130.6 | 1938.0 | 11.4 |
| 50.0 | 155.0 | 99.4 | 2199.0 | 18.7 | 141.7 | 113.7 | 2088.0 | 15.0 | 135.4 | 121.7 | 2040.0 | 13.4 | 129.5 | 130.3 | 1998.0 | 11.9 |

YCWS0180SB

IPLV = 17.8

| | | | | | | | | | | | | | | | | |
|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|
| 40.0 | 156.7 | 110.2 | 2257.0 | 17.1 | 142.2 | 126.1 | 2137.0 | 13.5 | 134.8 | 135.1 | 2079.0 | 12.0 | 129.1 | 144.9 | 2044.0 | 10.7 |
| 42.0 | 163.7 | 110.1 | 2339.0 | 17.8 | 148.5 | 126.0 | 2212.0 | 14.2 | 141.6 | 135.0 | 2159.0 | 12.6 | 134.4 | 144.7 | 2107.0 | 11.2 |
| 44.0 | 170.7 | 109.9 | 2423.0 | 18.6 | 155.1 | 125.7 | 2290.0 | 14.8 | 147.8 | 134.7 | 2233.0 | 13.2 | 141.0 | 144.4 | 2184.0 | 11.7 |
| 45.0 | 174.2 | 109.7 | 2465.0 | 19.1 | 158.4 | 125.5 | 2329.0 | 15.1 | 151.0 | 134.5 | 2271.0 | 13.5 | 144.0 | 144.2 | 2220.0 | 12.0 |
| 46.0 | 177.9 | 109.5 | 2509.0 | 19.5 | 161.7 | 125.4 | 2368.0 | 15.5 | 154.2 | 134.3 | 2309.0 | 13.8 | 147.1 | 143.9 | 2256.0 | 12.3 |
| 48.0 | 185.3 | 109.0 | 2595.0 | 20.4 | 168.5 | 124.9 | 2448.0 | 16.2 | 160.8 | 133.8 | 2386.0 | 14.4 | 153.4 | 143.4 | 2330.0 | 12.8 |
| 50.0 | 192.8 | 108.4 | 2684.0 | 21.4 | 175.5 | 124.3 | 2530.0 | 16.9 | 167.4 | 133.2 | 2464.0 | 15.1 | 159.8 | 142.9 | 2405.0 | 13.4 |

NOTES:

1. Tons = Unit Cooling Capacity Output
2. kW = Compressor Input Power
3. MBH = Condenser heat rejection
4. EER = Chiller Energy Efficiency Ratio (Capacity [Tons x 12] ÷ kW)
5. LCWT = Leaving Chilled Water Temperature
6. Ratings based on 2.4 GPM cooler water per ton
7. Ratings certified in accordance with ARI Standard 550/590-98 up to 200 tons.

| LCWT (°F) | LEAVING CONDENSER WATER TEMPERATURE (°F) | | | | | | | | | | | | | | | |
|--------------|--|----|-----|-----|------|----|-----|-----|-------|----|-----|-----|-------|----|-----|-----|
| | 85.0 | | | | 95.0 | | | | 100.0 | | | | 105.0 | | | |
| | TONS | KW | MBH | EER | TONS | KW | MBH | EER | TONS | KW | MBH | EER | TONS | KW | MBH | EER |

YCWS0200SB**IPLV = 18.5**

| | | | | | | | | | | | | | | | | |
|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|
| 40.0 | 177.4 | 124.7 | 2554.0 | 17.1 | 161.0 | 142.7 | 2419.0 | 13.5 | 153.4 | 152.9 | 2363.0 | 12.0 | 146.2 | 163.9 | 2313.0 | 10.7 |
| 42.0 | 185.2 | 124.6 | 2648.0 | 17.8 | 168.2 | 142.6 | 2505.0 | 14.2 | 160.3 | 152.7 | 2445.0 | 12.6 | 152.8 | 163.7 | 2392.0 | 11.2 |
| 44.0 | 193.2 | 124.4 | 2743.0 | 18.6 | 175.6 | 142.3 | 2593.0 | 14.8 | 167.4 | 152.5 | 2529.0 | 13.2 | 159.6 | 163.4 | 2473.0 | 11.7 |
| 45.0 | 197.3 | 124.2 | 2791.0 | 19.1 | 179.3 | 142.2 | 2637.0 | 15.1 | 171.0 | 152.3 | 2572.0 | 13.5 | 163.1 | 163.2 | 2514.0 | 12.0 |
| 46.0 | 201.4 | 124.0 | 2839.0 | 19.5 | 183.1 | 142.0 | 2682.0 | 15.5 | 174.6 | 152.1 | 2615.0 | 13.8 | 166.6 | 163.0 | 2555.0 | 12.3 |
| 48.0 | 209.7 | 123.5 | 2937.0 | 20.4 | 190.8 | 141.5 | 2772.0 | 16.2 | 182.0 | 151.6 | 2702.0 | 14.4 | 173.7 | 162.4 | 2639.0 | 12.8 |
| 50.0 | 218.1 | 122.8 | 3037.0 | 21.3 | 198.7 | 140.8 | 2865.0 | 16.9 | 189.6 | 150.9 | 2790.0 | 15.1 | 181.0 | 161.8 | 2724.0 | 13.4 |

YCWS0220SB**IPLV = 17.6**

| | | | | | | | | | | | | | | | | |
|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|
| 40.0 | 193.0 | 138.0 | 2787.0 | 16.8 | 175.3 | 157.9 | 2642.0 | 13.3 | 167.1 | 169.1 | 2582.0 | 11.9 | 159.2 | 181.3 | 2529.0 | 10.5 |
| 42.0 | 201.5 | 138.0 | 2889.0 | 17.5 | 183.0 | 157.8 | 2735.0 | 13.9 | 174.5 | 169.0 | 2671.0 | 12.4 | 166.4 | 181.1 | 2615.0 | 11.0 |
| 44.0 | 210.1 | 137.7 | 2992.0 | 18.3 | 191.0 | 157.5 | 2830.0 | 14.6 | 182.1 | 168.7 | 2761.0 | 13.0 | 173.8 | 180.8 | 2702.0 | 11.5 |
| 45.0 | 214.5 | 137.6 | 3044.0 | 18.7 | 195.1 | 157.4 | 2878.0 | 14.9 | 186.1 | 168.5 | 2808.0 | 13.2 | 177.5 | 180.6 | 2746.0 | 11.8 |
| 46.0 | 219.0 | 137.4 | 3096.0 | 19.1 | 199.2 | 157.2 | 2927.0 | 15.2 | 190.0 | 168.3 | 2855.0 | 13.5 | 181.2 | 180.4 | 2790.0 | 12.1 |
| 48.0 | 228.0 | 136.8 | 3202.0 | 20.0 | 207.6 | 156.6 | 3025.0 | 15.9 | 198.1 | 167.8 | 2949.0 | 14.2 | 189.0 | 179.8 | 2882.0 | 12.6 |
| 50.0 | 237.2 | 136.1 | 3311.0 | 20.9 | 216.1 | 156.0 | 3125.0 | 16.6 | 206.3 | 167.2 | 3046.0 | 14.8 | 196.9 | 179.2 | 2974.0 | 13.2 |

YCWS0240SB**IPLV = 18.1**

| | | | | | | | | | | | | | | | | |
|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|
| 40.0 | 210.9 | 151.5 | 3048.0 | 16.7 | 191.6 | 173.3 | 2891.0 | 13.3 | 182.6 | 185.6 | 2825.0 | 11.8 | 174.1 | 199.0 | 2768.0 | 10.5 |
| 42.0 | 220.2 | 151.5 | 3159.0 | 17.4 | 200.1 | 173.2 | 2992.0 | 13.9 | 190.8 | 185.5 | 2923.0 | 12.3 | 182.0 | 198.8 | 2862.0 | 11.0 |
| 44.0 | 229.6 | 151.3 | 3271.0 | 18.2 | 208.8 | 173.0 | 3096.0 | 14.5 | 199.2 | 185.2 | 3022.0 | 12.9 | 190.0 | 198.5 | 2957.0 | 11.5 |
| 45.0 | 234.3 | 151.1 | 3327.0 | 18.6 | 213.3 | 172.8 | 3149.0 | 14.8 | 203.4 | 185.1 | 3073.0 | 13.2 | 194.1 | 198.3 | 3006.0 | 11.7 |
| 46.0 | 239.1 | 150.9 | 3384.0 | 19.0 | 217.7 | 172.6 | 3202.0 | 15.1 | 207.7 | 184.8 | 3124.0 | 13.5 | 198.2 | 198.0 | 3055.0 | 12.0 |
| 48.0 | 248.9 | 150.3 | 3500.0 | 19.9 | 226.8 | 172.1 | 3309.0 | 15.8 | 216.5 | 184.3 | 3227.0 | 14.1 | 206.7 | 197.5 | 3154.0 | 12.6 |
| 50.0 | 258.9 | 149.6 | 3618.0 | 20.8 | 236.1 | 171.4 | 3418.0 | 16.5 | 225.5 | 183.7 | 3332.0 | 14.7 | 215.3 | 196.8 | 3255.0 | 13.1 |

NOTES:

1. Tons = Unit Cooling Capacity Output
2. kW = Compressor Input Power
3. MBH = Condenser heat rejection
4. EER = Chiller Energy Efficiency Ratio (Capacity [Tons x 12] ÷ kW)
5. LCWT = Leaving Chilled Water Temperature
6. Ratings based on 2.4 GPM cooler water per ton
7. Ratings certified in accordance with ARI Standard 550/590-98 up to 200 tons.

Ratings (HFC-407C SI)

| LCWT (°C) | LEAVING CONDENSER WATER TEMPERATURE (°C) | | | | | | | | | | | | | | | |
|--------------|--|-----------------|----|-----|-----------------|-----------------|----|-----|-----------------|-----------------|----|-----|------|----|-----|-----|
| | 30.0 | | | | 35.0 | | | | 40.0 | | | | 45.0 | | | |
| | KW _o | KW _i | KW | COP | KW _o | KW _i | KW | COP | KW _o | KW _i | KW | COP | TONS | KW | MBH | EER |

YCWS0100SB

IPLV= 4.8 COP

| | | | | | | | | | | | | | | | | |
|------|-------|------|-------|-----|-------|------|-------|-----|-------|------|-------|-----|-------|-------|-------|-----|
| 5.0 | 314.9 | 71.5 | 386.0 | 4.4 | 288.7 | 80.3 | 369.0 | 3.6 | 264.7 | 90.9 | 355.0 | 2.9 | 242.8 | 103.1 | 346.0 | 2.4 |
| 6.0 | 327.3 | 70.9 | 398.0 | 4.6 | 300.2 | 79.7 | 380.0 | 3.8 | 275.4 | 90.1 | 365.0 | 3.1 | 252.8 | 102.2 | 355.0 | 2.5 |
| 7.0 | 340.0 | 70.4 | 410.0 | 4.8 | 312.0 | 79.1 | 391.0 | 4.0 | 286.4 | 89.4 | 375.0 | 3.2 | 263.1 | 101.3 | 364.0 | 2.6 |
| 8.0 | 352.8 | 69.8 | 422.0 | 5.1 | 324.0 | 78.4 | 402.0 | 4.1 | 297.6 | 88.7 | 386.0 | 3.4 | 273.5 | 100.5 | 374.0 | 2.7 |
| 9.0 | 365.9 | 69.1 | 435.0 | 5.3 | 336.2 | 77.8 | 414.0 | 4.3 | 309.0 | 87.9 | 396.0 | 3.5 | 284.2 | 99.6 | 383.0 | 2.9 |
| 10.0 | 379.3 | 68.4 | 447.0 | 5.5 | 348.6 | 77.1 | 425.0 | 4.5 | 320.6 | 87.2 | 407.0 | 3.7 | 295.0 | 98.8 | 393.0 | 3.0 |

YCWS0120SB

IPLV= 4.6 COP

| | | | | | | | | | | | | | | | | |
|------|-------|------|-------|-----|-------|------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| 5.0 | 378.1 | 86.5 | 464.0 | 4.4 | 347.1 | 97.4 | 444.0 | 3.6 | 318.6 | 110.3 | 428.0 | 2.9 | 292.6 | 125.0 | 417.0 | 2.3 |
| 6.0 | 392.7 | 86.3 | 479.0 | 4.6 | 360.8 | 97.2 | 458.0 | 3.7 | 331.4 | 109.9 | 441.0 | 3.0 | 304.6 | 124.5 | 429.0 | 2.5 |
| 7.0 | 407.7 | 86.0 | 493.0 | 4.7 | 374.7 | 96.8 | 471.0 | 3.9 | 344.5 | 109.5 | 454.0 | 3.2 | 316.8 | 124.0 | 440.0 | 2.6 |
| 8.0 | 422.9 | 85.6 | 508.0 | 4.9 | 388.9 | 96.4 | 485.0 | 4.0 | 357.7 | 109.0 | 466.0 | 3.3 | 329.3 | 123.4 | 452.0 | 2.7 |
| 9.0 | 438.5 | 85.2 | 523.0 | 5.2 | 403.4 | 96.0 | 499.0 | 4.2 | 371.2 | 108.5 | 479.0 | 3.4 | 341.9 | 122.8 | 464.0 | 2.8 |
| 10.0 | 454.2 | 84.7 | 539.0 | 5.4 | 418.2 | 95.5 | 513.0 | 4.4 | 385.0 | 108.0 | 493.0 | 3.6 | 354.8 | 122.2 | 477.0 | 2.9 |

YCWS0140SB

IPLV= 4.9 COP

| | | | | | | | | | | | | | | | | |
|------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| 5.0 | 447.1 | 101.5 | 548.0 | 4.4 | 410.8 | 114.6 | 525.0 | 3.6 | 377.5 | 129.7 | 507.0 | 2.9 | 347.0 | 147.0 | 494.0 | 2.4 |
| 6.0 | 464.2 | 101.6 | 565.0 | 4.6 | 426.8 | 114.6 | 541.0 | 3.7 | 392.5 | 129.6 | 522.0 | 3.0 | 361.1 | 146.8 | 508.0 | 2.5 |
| 7.0 | 481.7 | 101.5 | 583.0 | 4.7 | 443.2 | 114.5 | 557.0 | 3.9 | 407.8 | 129.5 | 537.0 | 3.2 | 375.4 | 146.6 | 522.0 | 2.6 |
| 8.0 | 499.5 | 101.4 | 601.0 | 4.9 | 459.8 | 114.4 | 574.0 | 4.0 | 423.4 | 129.3 | 552.0 | 3.3 | 390.0 | 146.3 | 536.0 | 2.7 |
| 9.0 | 517.7 | 101.2 | 618.0 | 5.1 | 476.7 | 114.2 | 590.0 | 4.2 | 439.2 | 129.1 | 568.0 | 3.4 | 404.9 | 146.0 | 551.0 | 2.8 |
| 10.0 | 536.2 | 100.9 | 637.0 | 5.3 | 494.1 | 113.9 | 608.0 | 4.3 | 455.4 | 128.8 | 584.0 | 3.5 | 420.1 | 145.7 | 565.0 | 2.9 |

YCWS0180SB

IPLV= 5.2 COP

| | | | | | | | | | | | | | | | | |
|------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| 5.0 | 551.0 | 111.9 | 662.0 | 4.9 | 504.8 | 126.3 | 631.0 | 4.0 | 462.6 | 143.1 | 605.0 | 3.2 | 424.4 | 162.4 | 586.0 | 2.6 |
| 6.0 | 572.8 | 111.8 | 684.0 | 5.1 | 525.0 | 126.2 | 651.0 | 4.2 | 481.3 | 142.9 | 624.0 | 3.4 | 441.9 | 162.1 | 604.0 | 2.7 |
| 7.0 | 595.0 | 111.5 | 706.0 | 5.3 | 545.6 | 126.0 | 671.0 | 4.3 | 500.5 | 142.7 | 643.0 | 3.5 | 459.6 | 161.7 | 621.0 | 2.8 |
| 8.0 | 617.7 | 111.2 | 728.0 | 5.6 | 566.7 | 125.6 | 692.0 | 4.5 | 520.2 | 142.3 | 662.0 | 3.7 | 477.8 | 161.3 | 639.0 | 3.0 |
| 9.0 | 640.6 | 110.8 | 751.0 | 5.8 | 588.2 | 125.2 | 713.0 | 4.7 | 540.1 | 141.9 | 682.0 | 3.8 | 496.5 | 160.8 | 657.0 | 3.1 |
| 10.0 | 664.3 | 110.2 | 774.0 | 6.0 | 610.1 | 124.7 | 734.0 | 4.9 | 560.3 | 141.4 | 701.0 | 4.0 | 515.6 | 160.2 | 675.0 | 3.2 |

NOTES:

1. KW_o = Unit kW Cooling Capacity Output
2. KW_i = Compressor kW Input
3. COP = Coefficient of Performance
4. LCWT= Leaving Chilled Water Temperature
5. Ratings based on 0.047 l/s cooler water per kW.

| LCWT (°C) | LEAVING CONDENSER WATER TEMPERATURE (°C) | | | | | | | | | | | | | | | |
|--------------|--|-----|----|-----|------|-----|----|-----|------|-----|----|-----|------|----|-----|-----|
| | 30.0 | | | | 35.0 | | | | 40.0 | | | | 45.0 | | | |
| | KWo | KWi | KW | COP | KWo | KWi | KW | COP | KWo | KWi | KW | COP | TONS | KW | MBH | EER |

YCWS0200SB**IPLV= 5.4 COP**

| | | | | | | | | | | | | | | | | |
|-------------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| 5.0 | 623.8 | 126.6 | 750.0 | 4.9 | 571.6 | 142.9 | 714.0 | 4.0 | 524.3 | 161.9 | 686.0 | 3.2 | 481.2 | 183.7 | 664.0 | 2.6 |
| 6.0 | 648.4 | 126.5 | 775.0 | 5.1 | 594.5 | 142.8 | 737.0 | 4.2 | 545.2 | 161.7 | 707.0 | 3.4 | 500.9 | 183.3 | 684.0 | 2.7 |
| 7.0 | 673.5 | 126.3 | 799.0 | 5.3 | 617.9 | 142.6 | 760.0 | 4.3 | 567.0 | 161.5 | 728.0 | 3.5 | 520.9 | 183.0 | 703.0 | 2.9 |
| 8.0 | 699.1 | 125.9 | 825.0 | 5.6 | 641.6 | 142.3 | 783.0 | 4.5 | 589.2 | 161.1 | 750.0 | 3.7 | 541.4 | 182.5 | 724.0 | 3.0 |
| 9.0 | 725.2 | 125.5 | 850.0 | 5.8 | 666.0 | 141.8 | 807.0 | 4.7 | 611.8 | 160.6 | 772.0 | 3.8 | 562.5 | 182.0 | 744.0 | 3.1 |
| 10.0 | 751.9 | 124.9 | 876.0 | 6.0 | 690.7 | 141.3 | 832.0 | 4.9 | 634.9 | 160.1 | 795.0 | 4.0 | 584.1 | 181.4 | 765.0 | 3.2 |

YCWS0220SB**IPLV= 5.1 COP**

| | | | | | | | | | | | | | | | | |
|-------------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| 5.0 | 678.5 | 140.1 | 818.0 | 4.8 | 622.2 | 158.2 | 780.0 | 3.9 | 570.1 | 179.2 | 749.0 | 3.2 | 523.8 | 203.2 | 727.0 | 2.6 |
| 6.0 | 705.3 | 140.1 | 845.0 | 5.0 | 647.0 | 158.1 | 805.0 | 4.1 | 593.6 | 179.0 | 772.0 | 3.3 | 545.2 | 202.8 | 748.0 | 2.7 |
| 7.0 | 732.5 | 139.8 | 872.0 | 5.2 | 672.0 | 157.9 | 829.0 | 4.3 | 617.2 | 178.7 | 796.0 | 3.5 | 566.8 | 202.4 | 769.0 | 2.8 |
| 8.0 | 760.3 | 139.5 | 899.0 | 5.5 | 697.9 | 157.5 | 855.0 | 4.4 | 641.2 | 178.3 | 819.0 | 3.6 | 589.5 | 201.9 | 791.0 | 2.9 |
| 9.0 | 788.6 | 139.0 | 927.0 | 5.7 | 724.4 | 157.1 | 881.0 | 4.6 | 665.5 | 177.8 | 843.0 | 3.7 | 612.4 | 201.4 | 813.0 | 3.0 |
| 10.0 | 817.4 | 138.4 | 955.0 | 5.9 | 751.3 | 156.5 | 907.0 | 4.8 | 690.7 | 177.3 | 868.0 | 3.9 | 635.8 | 200.8 | 836.0 | 3.2 |

YCWS0240SB**IPLV= 5.3 COP**

| | | | | | | | | | | | | | | | | |
|-------------|-------|-------|--------|-----|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| 5.0 | 741.7 | 153.8 | 895.0 | 4.8 | 680.3 | 173.6 | 854.0 | 3.9 | 623.8 | 196.6 | 820.0 | 3.2 | 573.1 | 222.9 | 796.0 | 2.6 |
| 6.0 | 770.8 | 153.8 | 924.0 | 5.0 | 707.3 | 173.5 | 880.0 | 4.1 | 649.2 | 196.5 | 845.0 | 3.3 | 596.3 | 222.6 | 819.0 | 2.7 |
| 7.0 | 800.4 | 153.6 | 954.0 | 5.2 | 734.9 | 173.3 | 908.0 | 4.2 | 674.9 | 196.2 | 871.0 | 3.4 | 620.0 | 222.2 | 842.0 | 2.8 |
| 8.0 | 830.7 | 153.2 | 984.0 | 5.4 | 763.0 | 173.0 | 936.0 | 4.4 | 701.2 | 195.8 | 897.0 | 3.6 | 644.8 | 221.7 | 866.0 | 2.9 |
| 9.0 | 861.5 | 152.7 | 1014.0 | 5.6 | 791.8 | 172.5 | 964.0 | 4.6 | 727.9 | 195.3 | 923.0 | 3.7 | 669.8 | 221.1 | 891.0 | 3.0 |
| 10.0 | 892.7 | 152.1 | 1044.0 | 5.9 | 821.1 | 172.0 | 993.0 | 4.8 | 755.2 | 194.7 | 950.0 | 3.9 | 695.4 | 220.4 | 915.0 | 3.2 |

NOTES:

1. KWo = Unit kW Cooling Capacity Output
2. KWi= Compressor kW Input
3. COP = Coefficient of Performance
4. LCWT= Leaving Chilled Water Temperature
5. Ratings based on 0.047 l/s cooler water per kW.

Ratings- Brine (30 % Ethylene Glycol) (R-22 English)

| LCWT (°F) | LEAVING CONDENSER WATER TEMPERATURE (°F) | | | | | | | | | | | |
|--------------|--|----|-----|-----|------|----|-----|-----|-------|----|-----|-----|
| | 85.0 | | | | 95.0 | | | | 105.0 | | | |
| | TONS | KW | MBH | EER | TONS | KW | MBH | EER | TONS | KW | MBH | EER |

YCWS0100SC

| | | | | | | | | | | | | |
|------|------|------|--------|------|------|------|--------|------|------|------|--------|-----|
| 16.0 | 43.1 | 69.0 | 753.0 | 7.5 | 38.9 | 82.2 | 746.0 | 5.7 | 34.9 | 98.4 | 755.0 | 4.3 |
| 20.0 | 48.7 | 70.6 | 825.0 | 8.3 | 43.9 | 82.8 | 809.0 | 6.4 | 39.5 | 98.0 | 808.0 | 4.8 |
| 24.0 | 55.0 | 71.5 | 904.0 | 9.2 | 49.7 | 83.1 | 880.0 | 7.2 | 44.9 | 97.3 | 870.0 | 5.5 |
| 28.0 | 62.5 | 72.0 | 995.0 | 10.4 | 56.5 | 82.9 | 961.0 | 8.2 | 51.1 | 96.4 | 942.0 | 6.4 |
| 32.0 | 71.3 | 72.0 | 1101.0 | 11.9 | 64.6 | 82.4 | 1056.0 | 9.4 | 58.5 | 95.2 | 1026.0 | 7.4 |
| 36.0 | 81.0 | 71.6 | 1216.0 | 13.6 | 73.5 | 81.6 | 1161.0 | 10.8 | 66.7 | 93.9 | 1121.0 | 8.5 |
| 40.0 | 88.5 | 70.8 | 1303.0 | 15.0 | 80.5 | 80.5 | 1240.0 | 12.0 | 73.1 | 92.4 | 1193.0 | 9.5 |

YCWS0120SC

| | | | | | | | | | | | | |
|------|-------|------|--------|------|------|------|--------|------|------|-------|--------|-----|
| 16.0 | 52.0 | 77.9 | 890.0 | 8.0 | 47.0 | 92.6 | 879.0 | 6.1 | 42.3 | 110.4 | 884.0 | 4.6 |
| 20.0 | 58.7 | 80.6 | 979.0 | 8.7 | 53.0 | 94.6 | 958.0 | 6.7 | 47.8 | 111.6 | 954.0 | 5.1 |
| 24.0 | 66.3 | 82.6 | 1077.0 | 9.6 | 60.0 | 96.0 | 1047.0 | 7.5 | 54.2 | 112.3 | 1033.0 | 5.8 |
| 28.0 | 75.1 | 84.0 | 1188.0 | 10.7 | 68.0 | 96.9 | 1147.0 | 8.4 | 61.6 | 112.6 | 1123.0 | 6.6 |
| 32.0 | 85.5 | 85.0 | 1316.0 | 12.1 | 77.7 | 97.5 | 1264.0 | 9.6 | 70.4 | 112.7 | 1229.0 | 7.5 |
| 36.0 | 97.1 | 85.5 | 1456.0 | 13.6 | 88.3 | 97.7 | 1392.0 | 10.8 | 80.2 | 112.5 | 1346.0 | 8.6 |
| 40.0 | 106.0 | 85.4 | 1563.0 | 14.9 | 96.5 | 97.4 | 1490.0 | 11.9 | 87.8 | 111.8 | 1435.0 | 9.4 |

YCWS0140SC

| | | | | | | | | | | | | |
|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|-----|
| 16.0 | 61.8 | 87.0 | 1038.0 | 8.5 | 55.8 | 103.3 | 1021.0 | 6.5 | 50.2 | 122.8 | 1021.0 | 4.9 |
| 20.0 | 69.6 | 90.7 | 1144.0 | 9.2 | 62.7 | 106.4 | 1116.0 | 7.1 | 56.8 | 125.4 | 1109.0 | 5.4 |
| 24.0 | 78.5 | 93.7 | 1262.0 | 10.1 | 71.1 | 109.1 | 1225.0 | 7.8 | 64.3 | 127.4 | 1206.0 | 6.1 |
| 28.0 | 88.9 | 96.1 | 1395.0 | 11.1 | 80.6 | 111.1 | 1346.0 | 8.7 | 73.0 | 129.0 | 1317.0 | 6.8 |
| 32.0 | 101.2 | 98.0 | 1548.0 | 12.4 | 91.9 | 112.7 | 1487.0 | 9.8 | 83.4 | 130.2 | 1445.0 | 7.7 |
| 36.0 | 114.7 | 99.3 | 1715.0 | 13.9 | 104.4 | 113.8 | 1641.0 | 11.0 | 94.9 | 131.1 | 1586.0 | 8.7 |
| 40.0 | 125.1 | 100.0 | 1842.0 | 15.0 | 114.0 | 114.3 | 1758.0 | 12.0 | 103.9 | 131.3 | 1694.0 | 9.5 |

YCWS0180SC

| | | | | | | | | | | | | |
|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|
| 16.0 | 75.7 | 97.6 | 1241.0 | 9.3 | 70.5 | 116.5 | 1243.0 | 7.3 | 61.4 | 137.0 | 1205.0 | 5.4 |
| 20.0 | 85.5 | 101.5 | 1372.0 | 10.1 | 77.1 | 118.9 | 1331.0 | 7.8 | 69.5 | 139.7 | 1311.0 | 6.0 |
| 24.0 | 96.0 | 104.5 | 1508.0 | 11.0 | 87.3 | 121.5 | 1462.0 | 8.6 | 78.8 | 141.8 | 1429.0 | 6.7 |
| 28.0 | 109.8 | 107.1 | 1683.0 | 12.3 | 100.0 | 123.7 | 1622.0 | 9.7 | 89.4 | 143.3 | 1562.0 | 7.5 |
| 32.0 | 125.3 | 108.8 | 1874.0 | 13.8 | 113.5 | 125.0 | 1788.0 | 10.9 | 102.7 | 144.4 | 1725.0 | 8.5 |
| 36.0 | 142.6 | 109.9 | 2086.0 | 15.6 | 129.2 | 125.9 | 1980.0 | 12.3 | 117.2 | 145.0 | 1901.0 | 9.7 |
| 40.0 | 155.9 | 110.2 | 2246.0 | 17.0 | 141.5 | 126.1 | 2128.0 | 13.5 | 128.4 | 144.9 | 2036.0 | 10.6 |

NOTES:

1. Tons = Unit Cooling Capacity Output
2. kW = Compressor Input Power
3. MBH = Condenser heat rejection
4. EER = Chiller Energy Efficiency Ratio (Capacity [Tons x 12] ÷ kW)
5. LCWT = Leaving Chilled Water Temperature
6. Ratings based on 2.4 GPM cooler water per ton.
7. Rated in accordance with ARI Standard 550/590-98 up to 200 tons.
8. For ratings other than 30% glycol, refer to the Design 03 dxchill program.

| LCWT (°F) | LEAVING CONDENSER WATER TEMPERATURE (°F) | | | | | | | | | | | |
|--------------|--|----|-----|-----|------|----|-----|-----|-------|----|-----|-----|
| | 85.0 | | | | 95.0 | | | | 105.0 | | | |
| | TONS | KW | MBH | EER | TONS | KW | MBH | EER | TONS | KW | MBH | EER |

YCWS0200SC

| | | | | | | | | | | | | |
|-------------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|
| 16.0 | 85.8 | 110.1 | 1406.0 | 9.4 | 77.4 | 130.4 | 1374.0 | 7.1 | 69.6 | 154.8 | 1364.0 | 5.4 |
| 20.0 | 96.7 | 114.5 | 1551.0 | 10.1 | 87.4 | 134.2 | 1507.0 | 7.8 | 78.8 | 157.9 | 1484.0 | 6.0 |
| 24.0 | 109.0 | 118.0 | 1710.0 | 11.1 | 98.9 | 137.3 | 1655.0 | 8.6 | 89.3 | 160.3 | 1618.0 | 6.7 |
| 28.0 | 124.4 | 121.0 | 1905.0 | 12.3 | 112.6 | 139.7 | 1827.0 | 9.7 | 101.5 | 162.0 | 1770.0 | 7.5 |
| 32.0 | 142.0 | 123.0 | 2123.0 | 13.8 | 128.5 | 141.3 | 2025.0 | 10.9 | 115.9 | 163.2 | 1948.0 | 8.5 |
| 36.0 | 161.4 | 124.3 | 2361.0 | 15.6 | 146.4 | 142.4 | 2243.0 | 12.3 | 132.8 | 164.0 | 2153.0 | 9.7 |
| 40.0 | 176.4 | 124.7 | 2542.0 | 17.0 | 160.2 | 142.7 | 2410.0 | 13.5 | 145.5 | 163.9 | 2306.0 | 10.7 |

YCWS0220SC

| | | | | | | | | | | | | |
|-------------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|
| 16.0 | 93.6 | 121.6 | 1538.0 | 9.2 | 84.4 | 144.0 | 1504.0 | 7.0 | 75.9 | 170.9 | 1494.0 | 5.3 |
| 20.0 | 105.7 | 126.7 | 1701.0 | 10.0 | 95.3 | 148.3 | 1649.0 | 7.7 | 85.9 | 174.3 | 1625.0 | 5.9 |
| 24.0 | 119.4 | 130.6 | 1878.0 | 11.0 | 107.8 | 151.7 | 1811.0 | 8.5 | 97.3 | 177.0 | 1772.0 | 6.6 |
| 28.0 | 135.4 | 133.7 | 2081.0 | 12.2 | 121.9 | 154.2 | 1989.0 | 9.5 | 110.6 | 179.0 | 1938.0 | 7.4 |
| 32.0 | 154.6 | 136.0 | 2319.0 | 13.6 | 139.9 | 156.3 | 2212.0 | 10.7 | 126.8 | 180.5 | 2137.0 | 8.4 |
| 36.0 | 175.7 | 137.5 | 2577.0 | 15.3 | 159.4 | 157.5 | 2450.0 | 12.1 | 144.6 | 181.3 | 2353.0 | 9.6 |
| 40.0 | 192.0 | 138.0 | 2774.0 | 16.7 | 174.4 | 157.9 | 2631.0 | 13.3 | 157.8 | 181.3 | 2513.0 | 10.4 |

YCWS0240SC

| | | | | | | | | | | | | |
|-------------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|
| 16.0 | 102.4 | 133.2 | 1683.0 | 9.2 | 92.3 | 157.7 | 1646.0 | 7.0 | 83.1 | 187.3 | 1636.0 | 5.3 |
| 20.0 | 114.9 | 138.4 | 1851.0 | 10.0 | 104.3 | 162.5 | 1806.0 | 7.7 | 94.0 | 191.0 | 1780.0 | 5.9 |
| 24.0 | 130.6 | 143.1 | 2055.0 | 10.9 | 117.8 | 166.2 | 1980.0 | 8.5 | 106.5 | 194.0 | 1940.0 | 6.6 |
| 28.0 | 148.1 | 146.6 | 2278.0 | 12.1 | 134.0 | 169.2 | 2185.0 | 9.5 | 121.1 | 196.3 | 2123.0 | 7.4 |
| 32.0 | 169.0 | 149.1 | 2536.0 | 13.6 | 153.1 | 171.4 | 2422.0 | 10.7 | 138.7 | 197.9 | 2340.0 | 8.4 |
| 36.0 | 191.9 | 150.8 | 2818.0 | 15.3 | 174.3 | 172.8 | 2681.0 | 12.1 | 158.1 | 198.9 | 2576.0 | 9.5 |
| 40.0 | 209.6 | 151.5 | 3032.0 | 16.6 | 190.6 | 173.3 | 2878.0 | 13.2 | 173.3 | 199.0 | 2758.0 | 10.4 |

NOTES:

1. Tons = Unit Cooling Capacity Output
2. kW = Compressor Input Power
3. MBH = Condenser heat rejection
4. EER = Chiller Energy Efficiency Ratio (Capacity [Tons x 12] ÷ kW)
5. LCWT = Leaving Chilled Water Temperature
6. Ratings based on 2.4 GPM cooler water per ton
7. Rated in accordance with ARI Standard 550/590-98 up to 200 tons.
8. For ratings other than 30% glycol, refer to the Design 03 dxchill program.

Ratings- Brine (30 % Ethylene Glycol) (R-22 SI)

| LCWT (°C) | LEAVING CONDENSER WATER TEMPERATURE (°C) | | | | | | | | | | | |
|--------------|--|-----------------|----|-----|-----------------|-----------------|----|-----|-----------------|-----------------|----|-----|
| | 30.0 | | | | 35.0 | | | | 40.0 | | | |
| | KW _o | KW _i | KW | COP | KW _o | KW _i | KW | COP | KW _o | KW _i | KW | COP |

YCWS0100SC

| | | | | | | | | | | | | |
|------|-------|------|-------|-----|-------|------|-------|-----|-------|------|-------|-----|
| -8.0 | 157.5 | 70.9 | 228.0 | 2.2 | 143.4 | 82.5 | 225.0 | 1.7 | 130.4 | 96.6 | 227.0 | 1.4 |
| -6.0 | 175.7 | 72.0 | 247.0 | 2.4 | 160.3 | 83.0 | 243.0 | 1.9 | 145.9 | 96.2 | 242.0 | 1.5 |
| -4.0 | 196.5 | 72.7 | 269.0 | 2.7 | 179.4 | 83.0 | 262.0 | 2.2 | 163.6 | 95.6 | 259.0 | 1.7 |
| -2.0 | 220.4 | 72.9 | 293.0 | 3.0 | 201.4 | 82.8 | 284.0 | 2.4 | 183.9 | 94.8 | 278.0 | 1.9 |
| 0.0 | 248.2 | 72.9 | 321.0 | 3.4 | 227.2 | 82.4 | 309.0 | 2.8 | 207.8 | 93.8 | 301.0 | 2.2 |
| 2.0 | 279.6 | 72.6 | 352.0 | 3.9 | 256.2 | 81.7 | 338.0 | 3.1 | 234.8 | 92.8 | 327.0 | 2.5 |
| 4.0 | 303.0 | 71.8 | 374.0 | 4.2 | 278.0 | 80.7 | 358.0 | 3.4 | 255.0 | 91.4 | 346.0 | 2.8 |

YCWS0120SC

| | | | | | | | | | | | | |
|------|-------|------|-------|-----|-------|------|-------|-----|-------|-------|-------|-----|
| -8.0 | 190.0 | 80.4 | 270.0 | 2.4 | 173.3 | 93.5 | 266.0 | 1.9 | 157.8 | 109.1 | 266.0 | 1.5 |
| -6.0 | 211.8 | 82.5 | 294.0 | 2.6 | 193.3 | 95.0 | 288.0 | 2.0 | 176.3 | 110.0 | 286.0 | 1.6 |
| -4.0 | 236.5 | 84.1 | 320.0 | 2.8 | 216.1 | 96.2 | 312.0 | 2.3 | 197.4 | 110.6 | 308.0 | 1.8 |
| -2.0 | 264.9 | 85.3 | 350.0 | 3.1 | 242.4 | 97.0 | 339.0 | 2.5 | 221.7 | 111.0 | 332.0 | 2.0 |
| 0.0 | 297.9 | 86.1 | 384.0 | 3.5 | 273.1 | 97.5 | 370.0 | 2.8 | 250.1 | 111.0 | 361.0 | 2.3 |
| 2.0 | 335.2 | 86.6 | 421.0 | 3.9 | 307.6 | 97.7 | 405.0 | 3.2 | 282.2 | 110.9 | 393.0 | 2.5 |
| 4.0 | 362.9 | 86.5 | 449.0 | 4.2 | 333.4 | 97.5 | 430.0 | 3.4 | 306.2 | 110.4 | 416.0 | 2.8 |

YCWS0140SC

| | | | | | | | | | | | | |
|------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| -8.0 | 225.5 | 90.0 | 315.0 | 2.5 | 205.8 | 104.6 | 310.0 | 2.0 | 187.4 | 121.8 | 309.0 | 1.5 |
| -6.0 | 251.1 | 93.1 | 344.0 | 2.7 | 229.4 | 107.3 | 336.0 | 2.1 | 209.3 | 124.0 | 333.0 | 1.7 |
| -4.0 | 280.1 | 95.6 | 375.0 | 2.9 | 256.3 | 109.5 | 365.0 | 2.3 | 234.2 | 125.8 | 360.0 | 1.9 |
| -2.0 | 313.6 | 97.7 | 411.0 | 3.2 | 287.1 | 111.3 | 398.0 | 2.6 | 262.8 | 127.3 | 390.0 | 2.1 |
| 0.0 | 352.3 | 99.3 | 451.0 | 3.6 | 323.2 | 112.7 | 435.0 | 2.9 | 296.2 | 128.4 | 424.0 | 2.3 |
| 2.0 | 395.9 | 100.6 | 496.0 | 3.9 | 363.7 | 113.8 | 477.0 | 3.2 | 333.9 | 129.2 | 463.0 | 2.6 |
| 4.0 | 428.4 | 101.2 | 529.0 | 4.2 | 393.9 | 114.3 | 508.0 | 3.5 | 362.2 | 129.5 | 491.0 | 2.8 |

YCWS0180SC

| | | | | | | | | | | | | |
|------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| -8.0 | 276.6 | 100.8 | 377.0 | 2.7 | 252.0 | 116.9 | 368.0 | 2.2 | 229.4 | 135.9 | 365.0 | 1.7 |
| -6.0 | 308.6 | 104.1 | 412.0 | 3.0 | 281.7 | 119.8 | 401.0 | 2.4 | 256.3 | 138.2 | 394.0 | 1.9 |
| -4.0 | 343.1 | 106.6 | 449.0 | 3.2 | 314.8 | 122.0 | 436.0 | 2.6 | 287.1 | 140.0 | 427.0 | 2.1 |
| -2.0 | 386.9 | 108.8 | 495.0 | 3.6 | 354.4 | 123.8 | 478.0 | 2.9 | 322.7 | 141.4 | 464.0 | 2.3 |
| 0.0 | 436.3 | 110.3 | 546.0 | 4.0 | 398.9 | 125.0 | 524.0 | 3.2 | 364.7 | 142.3 | 507.0 | 2.6 |
| 2.0 | 492.0 | 111.3 | 603.0 | 4.4 | 450.2 | 125.9 | 576.0 | 3.6 | 412.3 | 142.9 | 555.0 | 2.9 |
| 4.0 | 533.4 | 111.7 | 645.0 | 4.8 | 488.6 | 126.1 | 614.0 | 3.9 | 447.9 | 142.9 | 590.0 | 3.1 |

NOTES:

1. KW_o = Unit kW Cooling Capacity Output
2. KW_i = Compressor kW Input
3. COP = Coefficient of Performance
4. LCWT= Leaving Chilled Water Temperature
5. Ratings based on 0.047 l/s cooler water per kW.
6. For ratings other than 30% glycol, refer to the Design 03 dxchill program.

| LCWT (°C) | LEAVING CONDENSER WATER TEMPERATURE (°C) | | | | | | | | | | | |
|--------------|--|-----|----|-----|------|-----|----|-----|------|-----|----|-----|
| | 30.0 | | | | 35.0 | | | | 40.0 | | | |
| | KWo | KWi | KW | COP | KWo | KWi | KW | COP | KWo | KWi | KW | COP |

YCWS0200SC

| | | | | | | | | | | | | |
|------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| -8.0 | 313.6 | 113.8 | 427.0 | 2.8 | 285.6 | 132.0 | 417.0 | 2.2 | 259.9 | 153.5 | 413.0 | 1.7 |
| -6.0 | 349.7 | 117.5 | 467.0 | 3.0 | 319.0 | 135.2 | 454.0 | 2.4 | 290.5 | 156.1 | 446.0 | 1.9 |
| -4.0 | 387.5 | 120.3 | 507.0 | 3.2 | 356.5 | 137.8 | 494.0 | 2.6 | 325.5 | 158.2 | 483.0 | 2.1 |
| -2.0 | 438.6 | 122.9 | 561.0 | 3.6 | 400.0 | 139.8 | 539.0 | 2.9 | 365.1 | 159.7 | 524.0 | 2.3 |
| 0.0 | 494.3 | 124.7 | 619.0 | 4.0 | 451.9 | 141.3 | 593.0 | 3.2 | 412.7 | 160.9 | 573.0 | 2.6 |
| 2.0 | 557.1 | 125.9 | 683.0 | 4.4 | 510.1 | 142.4 | 652.0 | 3.6 | 467.3 | 161.6 | 629.0 | 2.9 |
| 4.0 | 603.7 | 126.3 | 730.0 | 4.8 | 553.5 | 142.7 | 696.0 | 3.9 | 507.4 | 161.7 | 669.0 | 3.1 |

YCWS0220SC

| | | | | | | | | | | | | |
|------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| -8.0 | 341.6 | 125.7 | 467.0 | 2.7 | 311.4 | 145.8 | 457.0 | 2.1 | 283.4 | 169.5 | 453.0 | 1.7 |
| -6.0 | 381.1 | 129.9 | 511.0 | 2.9 | 347.6 | 149.4 | 497.0 | 2.3 | 316.6 | 172.4 | 489.0 | 1.8 |
| -4.0 | 424.2 | 133.1 | 557.0 | 3.2 | 387.9 | 152.2 | 540.0 | 2.6 | 354.6 | 174.8 | 529.0 | 2.0 |
| -2.0 | 477.6 | 135.9 | 613.0 | 3.5 | 436.4 | 154.6 | 591.0 | 2.8 | 395.4 | 176.4 | 572.0 | 2.2 |
| 0.0 | 533.9 | 137.7 | 671.0 | 3.9 | 489.6 | 156.2 | 645.0 | 3.1 | 450.6 | 177.9 | 628.0 | 2.5 |
| 2.0 | 606.2 | 139.3 | 745.0 | 4.4 | 555.3 | 157.5 | 712.0 | 3.5 | 508.6 | 178.7 | 687.0 | 2.9 |
| 4.0 | 657.0 | 139.8 | 796.0 | 4.7 | 602.4 | 157.9 | 760.0 | 3.8 | 552.5 | 178.9 | 731.0 | 3.1 |

YCWS0240SC

| | | | | | | | | | | | | |
|------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| -8.0 | 373.8 | 137.7 | 511.0 | 2.7 | 340.8 | 159.7 | 500.0 | 2.1 | 310.2 | 185.7 | 496.0 | 1.7 |
| -6.0 | 415.7 | 142.1 | 557.0 | 2.9 | 380.2 | 163.7 | 543.0 | 2.3 | 346.6 | 189.0 | 535.0 | 1.8 |
| -4.0 | 466.0 | 146.0 | 612.0 | 3.2 | 425.4 | 166.9 | 592.0 | 2.6 | 387.9 | 191.5 | 579.0 | 2.0 |
| -2.0 | 522.4 | 148.9 | 671.0 | 3.5 | 477.4 | 169.4 | 646.0 | 2.8 | 436.2 | 193.6 | 629.0 | 2.3 |
| 0.0 | 588.4 | 151.2 | 739.0 | 3.9 | 538.3 | 171.4 | 709.0 | 3.1 | 492.5 | 195.0 | 687.0 | 2.5 |
| 2.0 | 662.5 | 152.8 | 815.0 | 4.3 | 607.2 | 172.7 | 780.0 | 3.5 | 556.3 | 196.1 | 752.0 | 2.8 |
| 4.0 | 717.5 | 153.4 | 871.0 | 4.7 | 658.5 | 173.2 | 831.0 | 3.8 | 604.2 | 196.3 | 800.0 | 3.1 |

NOTES:

1. KWo = Unit kW Cooling Capacity Output
2. KWi = Compressor kW Input
3. COP = Coefficient of Performance
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based on 0.047 l/s cooler water per kW.
6. For ratings other than 30% glycol, refer to the Design 03 dxchill program.

Ratings- Brine (30 % Propylene Glycol) (R-22 English)

| LCWT (°F) | LEAVING CONDENSER WATER TEMPERATURE (°F) | | | | | | | | | | | |
|--------------|--|----|-----|-----|------|----|-----|-----|-------|----|-----|-----|
| | 85.0 | | | | 95.0 | | | | 105.0 | | | |
| | TONS | KW | MBH | EER | TONS | KW | MBH | EER | TONS | KW | MBH | EER |

YCWS0100SC

| | | | | | | | | | | | | |
|------|------|------|--------|------|------|------|--------|------|------|------|--------|-----|
| 16.0 | 42.9 | 68.9 | 750.0 | 7.5 | 38.7 | 82.1 | 744.0 | 5.6 | 34.8 | 98.4 | 753.0 | 4.2 |
| 20.0 | 48.4 | 70.5 | 821.0 | 8.2 | 43.7 | 82.8 | 807.0 | 6.3 | 39.4 | 98.0 | 807.0 | 4.8 |
| 24.0 | 54.7 | 71.5 | 900.0 | 9.2 | 49.5 | 83.1 | 877.0 | 7.1 | 44.7 | 97.4 | 868.0 | 5.5 |
| 28.0 | 62.1 | 71.9 | 990.0 | 10.4 | 56.2 | 82.9 | 957.0 | 8.1 | 50.8 | 96.4 | 939.0 | 6.3 |
| 32.0 | 70.8 | 72.0 | 1095.0 | 11.8 | 64.2 | 82.4 | 1052.0 | 9.3 | 58.2 | 95.3 | 1023.0 | 7.3 |
| 36.0 | 80.5 | 71.6 | 1210.0 | 13.5 | 73.1 | 81.7 | 1156.0 | 10.7 | 66.4 | 94.0 | 1117.0 | 8.5 |
| 40.0 | 87.9 | 70.8 | 1297.0 | 14.9 | 80.0 | 80.6 | 1234.0 | 11.9 | 72.7 | 92.5 | 1188.0 | 9.4 |

YCWS0120SC

| | | | | | | | | | | | | |
|------|------|------|--------|------|------|------|--------|------|------|------|--------|-----|
| 16.0 | 42.9 | 68.9 | 750.0 | 7.5 | 38.7 | 82.1 | 744.0 | 5.6 | 34.8 | 98.4 | 753.0 | 4.2 |
| 20.0 | 48.4 | 70.5 | 821.0 | 8.2 | 43.7 | 82.8 | 807.0 | 6.3 | 39.4 | 98.0 | 807.0 | 4.8 |
| 24.0 | 54.7 | 71.5 | 900.0 | 9.2 | 49.5 | 83.1 | 877.0 | 7.1 | 44.7 | 97.4 | 868.0 | 5.5 |
| 28.0 | 62.1 | 71.9 | 990.0 | 10.4 | 56.2 | 82.9 | 957.0 | 8.1 | 50.8 | 96.4 | 939.0 | 6.3 |
| 32.0 | 70.8 | 72.0 | 1095.0 | 11.8 | 64.2 | 82.4 | 1052.0 | 9.3 | 58.2 | 95.3 | 1023.0 | 7.3 |
| 36.0 | 80.5 | 71.6 | 1210.0 | 13.5 | 73.1 | 81.7 | 1156.0 | 10.7 | 66.4 | 94.0 | 1117.0 | 8.5 |
| 40.0 | 87.9 | 70.8 | 1297.0 | 14.9 | 80.0 | 80.6 | 1234.0 | 11.9 | 72.7 | 92.5 | 1188.0 | 9.4 |

YCWS0140SC

| | | | | | | | | | | | | |
|------|-------|------|--------|------|-------|-------|--------|------|-------|-------|--------|-----|
| 16.0 | 61.3 | 86.7 | 1031.0 | 8.5 | 55.4 | 103.0 | 1016.0 | 6.4 | 49.9 | 122.6 | 1017.0 | 4.9 |
| 20.0 | 69.0 | 90.4 | 1136.0 | 9.2 | 62.4 | 106.2 | 1111.0 | 7.0 | 56.4 | 125.2 | 1104.0 | 5.4 |
| 24.0 | 77.9 | 93.5 | 1253.0 | 10.0 | 70.5 | 108.9 | 1218.0 | 7.8 | 63.8 | 127.3 | 1200.0 | 6.0 |
| 28.0 | 88.1 | 95.9 | 1384.0 | 11.0 | 80.0 | 111.0 | 1338.0 | 8.6 | 72.5 | 128.9 | 1310.0 | 6.7 |
| 32.0 | 100.2 | 97.8 | 1537.0 | 12.3 | 91.1 | 112.6 | 1478.0 | 9.7 | 82.8 | 130.2 | 1438.0 | 7.6 |
| 36.0 | 113.7 | 99.2 | 1702.0 | 13.7 | 103.5 | 113.8 | 1630.0 | 10.9 | 94.2 | 131.0 | 1577.0 | 8.6 |
| 40.0 | 124.1 | 99.9 | 1829.0 | 14.9 | 113.1 | 114.3 | 1747.0 | 11.9 | 103.1 | 131.3 | 1685.0 | 9.4 |

YCWS0180SC

| | | | | | | | | | | | | |
|------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|
| 16.0 | 75.4 | 97.4 | 1237.0 | 9.3 | 68.0 | 115.3 | 1209.0 | 7.1 | 61.1 | 136.9 | 1200.0 | 5.4 |
| 20.0 | 85.1 | 101.4 | 1368.0 | 10.1 | 77.0 | 118.8 | 1329.0 | 7.8 | 69.2 | 139.7 | 1307.0 | 5.9 |
| 24.0 | 96.3 | 104.6 | 1513.0 | 11.1 | 87.0 | 121.5 | 1458.0 | 8.6 | 78.5 | 141.8 | 1425.0 | 6.6 |
| 28.0 | 109.4 | 107.0 | 1678.0 | 12.3 | 98.9 | 123.5 | 1608.0 | 9.6 | 89.4 | 143.3 | 1562.0 | 7.5 |
| 32.0 | 124.9 | 108.8 | 1870.0 | 13.8 | 113.1 | 125.0 | 1783.0 | 10.9 | 102.3 | 144.4 | 1721.0 | 8.5 |
| 36.0 | 142.1 | 109.9 | 2080.0 | 15.5 | 128.8 | 125.9 | 1975.0 | 12.3 | 116.7 | 145.0 | 1895.0 | 9.7 |
| 40.0 | 155.3 | 110.2 | 2240.0 | 16.9 | 141.0 | 126.1 | 2123.0 | 13.4 | 127.8 | 144.9 | 2028.0 | 10.6 |

NOTES:

1. Tons = Unit Cooling Capacity Output
2. kW = Compressor Input Power
3. MBH = Condenser heat rejection
4. EER = Chiller Energy Efficiency Ratio (Capacity [Tons x 12] ÷ kW)
5. LCWT = Leaving Chilled Water Temperature
6. Ratings based on 2.4 GPM cooler water per ton
7. Rated in accordance with ARI Standard 550/590-98 up to 200 tons.
8. For ratings other than 30% glycol, refer to the Design 03 dxchill program.

| LCWT (°F) | LEAVING CONDENSER WATER TEMPERATURE (°F) | | | | | | | | | | | |
|--------------|--|----|-----|-----|------|----|-----|-----|-------|----|-----|-----|
| | 85.0 | | | | 95.0 | | | | 105.0 | | | |
| | TONS | KW | MBH | EER | TONS | KW | MBH | EER | TONS | KW | MBH | EER |

YCWS0200SC

| | | | | | | | | | | | | |
|-------------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|
| 16.0 | 85.5 | 109.9 | 1401.0 | 9.3 | 77.0 | 130.2 | 1368.0 | 7.1 | 69.3 | 154.7 | 1359.0 | 5.4 |
| 20.0 | 96.7 | 114.5 | 1551.0 | 10.1 | 87.0 | 134.1 | 1502.0 | 7.8 | 78.5 | 157.8 | 1481.0 | 6.0 |
| 24.0 | 109.2 | 118.1 | 1713.0 | 11.1 | 98.6 | 137.2 | 1651.0 | 8.6 | 89.0 | 160.2 | 1614.0 | 6.7 |
| 28.0 | 123.9 | 120.9 | 1900.0 | 12.3 | 112.1 | 139.6 | 1821.0 | 9.6 | 101.3 | 162.0 | 1768.0 | 7.5 |
| 32.0 | 141.4 | 122.9 | 2116.0 | 13.8 | 128.1 | 141.3 | 2020.0 | 10.9 | 116.0 | 163.2 | 1949.0 | 8.5 |
| 36.0 | 160.8 | 124.3 | 2353.0 | 15.5 | 145.9 | 142.4 | 2237.0 | 12.3 | 132.4 | 164.0 | 2148.0 | 9.7 |
| 40.0 | 175.6 | 124.7 | 2533.0 | 16.9 | 159.7 | 142.7 | 2403.0 | 13.4 | 145.1 | 163.9 | 2300.0 | 10.6 |

YCWS0220SC

| | | | | | | | | | | | | |
|-------------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|
| 16.0 | 93.2 | 121.4 | 1532.0 | 9.2 | 84.0 | 143.8 | 1498.0 | 7.0 | 75.6 | 170.7 | 1489.0 | 5.3 |
| 20.0 | 105.2 | 126.5 | 1693.0 | 10.0 | 94.2 | 147.9 | 1635.0 | 7.6 | 85.5 | 174.2 | 1621.0 | 5.9 |
| 24.0 | 118.9 | 130.5 | 1873.0 | 10.9 | 107.4 | 151.6 | 1806.0 | 8.5 | 97.0 | 176.9 | 1767.0 | 6.6 |
| 28.0 | 135.0 | 133.6 | 2076.0 | 12.1 | 122.1 | 154.3 | 1991.0 | 9.5 | 110.4 | 179.0 | 1935.0 | 7.4 |
| 32.0 | 154.0 | 136.0 | 2312.0 | 13.6 | 139.5 | 156.2 | 2207.0 | 10.7 | 126.4 | 180.4 | 2132.0 | 8.4 |
| 36.0 | 175.0 | 137.5 | 2569.0 | 15.3 | 158.9 | 157.5 | 2444.0 | 12.1 | 144.2 | 181.3 | 2349.0 | 9.5 |
| 40.0 | 191.2 | 138.0 | 2765.0 | 16.6 | 173.8 | 157.9 | 2624.0 | 13.2 | 158.0 | 181.3 | 2514.0 | 10.5 |

YCWS0240SC

| | | | | | | | | | | | | |
|-------------|-------|-------|--------|------|-------|-------|--------|------|-------|-------|--------|------|
| 16.0 | 102.0 | 133.0 | 1678.0 | 9.2 | 91.9 | 157.5 | 1641.0 | 7.0 | 82.7 | 187.1 | 1631.0 | 5.3 |
| 20.0 | 115.1 | 138.5 | 1854.0 | 10.0 | 103.9 | 162.3 | 1801.0 | 7.7 | 93.6 | 190.9 | 1774.0 | 5.9 |
| 24.0 | 130.1 | 143.0 | 2049.0 | 10.9 | 117.5 | 166.1 | 1977.0 | 8.5 | 106.1 | 193.9 | 1935.0 | 6.6 |
| 28.0 | 147.6 | 146.5 | 2271.0 | 12.1 | 133.6 | 169.1 | 2180.0 | 9.5 | 120.4 | 196.2 | 2115.0 | 7.4 |
| 32.0 | 168.3 | 149.1 | 2528.0 | 13.5 | 152.6 | 171.3 | 2415.0 | 10.7 | 138.3 | 197.9 | 2334.0 | 8.4 |
| 36.0 | 191.1 | 150.8 | 2807.0 | 15.2 | 173.6 | 172.8 | 2673.0 | 12.1 | 157.6 | 198.9 | 2570.0 | 9.5 |
| 40.0 | 208.6 | 151.5 | 3020.0 | 16.5 | 189.8 | 173.2 | 2869.0 | 13.1 | 172.7 | 199.0 | 2751.0 | 10.4 |

NOTES:

1. Tons = Unit Cooling Capacity Output
2. kW = Compressor Input Power
3. MBH = Condenser heat rejection
4. EER = Chiller Energy Efficiency Ratio (Capacity [Tons x 12] ÷ kW)
5. LCWT = Leaving Chilled Water Temperature
6. Ratings based on 2.4 GPM cooler water per ton
7. Rated in accordance with ARI Standard 550/590-98 up to 200 tons.
8. For ratings other than 30% glycol, refer to the Design 03 dxchill program.

Ratings- Brine (30 % Propylene Glycol) (R-22 SI)

| LCWT (°C) | LEAVING CONDENSER WATER TEMPERATURE (°C) | | | | | | | | | | | |
|--------------|--|-----|----|-----|------|-----|----|-----|------|-----|----|-----|
| | 30.0 | | | | 35.0 | | | | 40.0 | | | |
| | KWo | KWi | KW | COP | KWo | KWi | KW | COP | KWo | KWi | KW | COP |

YCWS0100SC

| | | | | | | | | | | | | |
|------|-------|------|-------|-----|-------|------|-------|-----|-------|------|-------|-----|
| -8.0 | 156.6 | 70.8 | 227.0 | 2.2 | 142.8 | 82.5 | 225.0 | 1.7 | 129.8 | 96.6 | 226.0 | 1.3 |
| -6.0 | 174.8 | 71.9 | 246.0 | 2.4 | 159.4 | 82.9 | 242.0 | 1.9 | 145.2 | 96.2 | 241.0 | 1.5 |
| -4.0 | 195.3 | 72.6 | 268.0 | 2.7 | 178.4 | 83.1 | 261.0 | 2.2 | 162.8 | 95.7 | 258.0 | 1.7 |
| -2.0 | 219.0 | 72.9 | 291.0 | 3.0 | 200.2 | 82.9 | 283.0 | 2.4 | 183.0 | 94.9 | 277.0 | 1.9 |
| 0.0 | 246.6 | 72.9 | 319.0 | 3.4 | 225.8 | 82.4 | 308.0 | 2.7 | 206.7 | 93.9 | 300.0 | 2.2 |
| 2.0 | 277.8 | 72.6 | 350.0 | 3.8 | 254.7 | 81.8 | 336.0 | 3.1 | 233.4 | 92.8 | 326.0 | 2.5 |
| 4.0 | 301.0 | 71.9 | 372.0 | 4.2 | 276.3 | 80.8 | 357.0 | 3.4 | 253.6 | 91.5 | 345.0 | 2.8 |

YCWS0120SC

| | | | | | | | | | | | | |
|------|-------|------|-------|-----|-------|------|-------|-----|-------|-------|-------|-----|
| -8.0 | 188.7 | 80.2 | 268.0 | 2.4 | 172.1 | 93.3 | 265.0 | 1.8 | 156.7 | 109.0 | 265.0 | 1.4 |
| -6.0 | 210.2 | 82.3 | 292.0 | 2.6 | 192.0 | 94.9 | 287.0 | 2.0 | 175.1 | 109.9 | 285.0 | 1.6 |
| -4.0 | 234.7 | 84.0 | 318.0 | 2.8 | 214.6 | 96.1 | 310.0 | 2.2 | 196.1 | 110.6 | 306.0 | 1.8 |
| -2.0 | 262.8 | 85.2 | 348.0 | 3.1 | 240.6 | 97.0 | 337.0 | 2.5 | 220.2 | 110.9 | 331.0 | 2.0 |
| 0.0 | 295.6 | 86.0 | 381.0 | 3.4 | 271.0 | 97.5 | 368.0 | 2.8 | 248.3 | 111.0 | 359.0 | 2.2 |
| 2.0 | 332.5 | 86.5 | 419.0 | 3.8 | 305.2 | 97.7 | 403.0 | 3.1 | 280.2 | 110.9 | 391.0 | 2.5 |
| 4.0 | 360.1 | 86.5 | 446.0 | 4.2 | 330.9 | 97.5 | 428.0 | 3.4 | 304.1 | 110.4 | 414.0 | 2.8 |

YCWS0140SC

| | | | | | | | | | | | | |
|------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| -8.0 | 223.6 | 89.7 | 313.0 | 2.5 | 204.2 | 104.4 | 308.0 | 2.0 | 186.1 | 121.7 | 307.0 | 1.5 |
| -6.0 | 249.0 | 92.8 | 341.0 | 2.7 | 227.6 | 107.1 | 334.0 | 2.1 | 207.8 | 123.9 | 331.0 | 1.7 |
| -4.0 | 277.8 | 95.4 | 373.0 | 2.9 | 254.2 | 109.3 | 363.0 | 2.3 | 232.4 | 125.7 | 358.0 | 1.9 |
| -2.0 | 310.8 | 97.5 | 408.0 | 3.2 | 284.8 | 111.2 | 396.0 | 2.6 | 260.8 | 127.2 | 388.0 | 2.1 |
| 0.0 | 349.2 | 99.2 | 448.0 | 3.5 | 320.4 | 112.6 | 433.0 | 2.9 | 293.9 | 128.3 | 422.0 | 2.3 |
| 2.0 | 392.4 | 100.5 | 492.0 | 3.9 | 360.6 | 113.7 | 474.0 | 3.2 | 331.3 | 129.1 | 460.0 | 2.6 |
| 4.0 | 424.8 | 101.1 | 526.0 | 4.2 | 390.7 | 114.2 | 505.0 | 3.4 | 359.4 | 129.4 | 488.0 | 2.8 |

YCWS0180SC

| | | | | | | | | | | | | |
|------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| -8.0 | 275.5 | 100.7 | 376.0 | 2.7 | 250.9 | 116.8 | 367.0 | 2.2 | 228.2 | 135.8 | 364.0 | 1.7 |
| -6.0 | 307.5 | 104.0 | 411.0 | 3.0 | 280.2 | 119.6 | 399.0 | 2.3 | 255.2 | 138.1 | 393.0 | 1.9 |
| -4.0 | 343.8 | 106.7 | 450.0 | 3.2 | 313.7 | 121.9 | 435.0 | 2.6 | 286.1 | 139.9 | 426.0 | 2.0 |
| -2.0 | 386.2 | 108.8 | 495.0 | 3.6 | 352.2 | 123.7 | 476.0 | 2.9 | 321.7 | 141.3 | 463.0 | 2.3 |
| 0.0 | 434.8 | 110.3 | 545.0 | 3.9 | 397.6 | 125.0 | 522.0 | 3.2 | 363.4 | 142.3 | 505.0 | 2.6 |
| 2.0 | 490.2 | 111.3 | 601.0 | 4.4 | 448.9 | 125.9 | 574.0 | 3.6 | 410.9 | 142.9 | 553.0 | 2.9 |
| 4.0 | 531.5 | 111.7 | 643.0 | 4.8 | 487.2 | 126.1 | 613.0 | 3.9 | 446.5 | 142.9 | 589.0 | 3.1 |

NOTES:

1. KW_o = Unit kW Cooling Capacity Output
2. KW_i = Compressor kW Input
3. COP = Coefficient of Performance
4. LCWT= Leaving Chilled Water Temperature
5. Ratings based on 0.047 l/s cooler water per kW.
6. For ratings other than 30% glycol, refer to the Design 03 dxchill program.

| LCWT (°C) | LEAVING CONDENSER WATER TEMPERATURE (°C) | | | | | | | | | | | |
|--------------|--|-----|----|-----|------|-----|----|-----|------|-----|----|-----|
| | 30.0 | | | | 35.0 | | | | 40.0 | | | |
| | KWo | KWi | KW | COP | KWo | KWi | KW | COP | KWo | KWi | KW | COP |

YCWS0200SC

| | | | | | | | | | | | | |
|-------------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| -8.0 | 312.2 | 113.7 | 425.0 | 2.8 | 284.3 | 131.8 | 416.0 | 2.2 | 258.6 | 153.4 | 412.0 | 1.7 |
| -6.0 | 348.5 | 117.4 | 465.0 | 3.0 | 317.8 | 135.1 | 453.0 | 2.4 | 289.2 | 156.0 | 445.0 | 1.9 |
| -4.0 | 389.6 | 120.5 | 510.0 | 3.2 | 355.5 | 137.7 | 493.0 | 2.6 | 324.2 | 158.1 | 482.0 | 2.1 |
| -2.0 | 437.1 | 122.8 | 560.0 | 3.6 | 400.5 | 139.8 | 540.0 | 2.9 | 364.6 | 159.7 | 524.0 | 2.3 |
| 0.0 | 492.4 | 124.6 | 617.0 | 4.0 | 450.5 | 141.3 | 591.0 | 3.2 | 412.0 | 160.9 | 572.0 | 2.6 |
| 2.0 | 554.8 | 125.8 | 680.0 | 4.4 | 508.3 | 142.3 | 650.0 | 3.6 | 465.5 | 161.6 | 627.0 | 2.9 |
| 4.0 | 601.2 | 126.3 | 727.0 | 4.8 | 551.5 | 142.7 | 694.0 | 3.9 | 505.8 | 161.7 | 667.0 | 3.1 |

YCWS0220SC

| | | | | | | | | | | | | |
|-------------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| -8.0 | 340.3 | 125.5 | 465.0 | 2.7 | 310.4 | 145.7 | 456.0 | 2.1 | 282.1 | 169.4 | 451.0 | 1.7 |
| -6.0 | 379.6 | 129.7 | 509.0 | 2.9 | 346.2 | 149.2 | 495.0 | 2.3 | 315.3 | 172.3 | 487.0 | 1.8 |
| -4.0 | 424.5 | 133.1 | 557.0 | 3.2 | 387.4 | 152.2 | 539.0 | 2.6 | 353.4 | 174.7 | 528.0 | 2.0 |
| -2.0 | 476.0 | 135.8 | 611.0 | 3.5 | 435.0 | 154.5 | 589.0 | 2.8 | 396.6 | 176.5 | 573.0 | 2.3 |
| 0.0 | 536.2 | 137.8 | 674.0 | 3.9 | 490.5 | 156.2 | 646.0 | 3.1 | 448.2 | 177.8 | 626.0 | 2.5 |
| 2.0 | 603.9 | 139.2 | 743.0 | 4.3 | 553.5 | 157.4 | 711.0 | 3.5 | 507.1 | 178.7 | 685.0 | 2.8 |
| 4.0 | 654.3 | 139.8 | 794.0 | 4.7 | 600.4 | 157.9 | 758.0 | 3.8 | 550.7 | 178.9 | 729.0 | 3.1 |

YCWS0240SC

| | | | | | | | | | | | | |
|-------------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|
| -8.0 | 373.2 | 137.6 | 510.0 | 2.7 | 339.4 | 159.5 | 499.0 | 2.1 | 308.7 | 185.6 | 494.0 | 1.7 |
| -6.0 | 415.5 | 142.1 | 557.0 | 2.9 | 379.2 | 163.6 | 542.0 | 2.3 | 345.2 | 188.8 | 534.0 | 1.8 |
| -4.0 | 464.4 | 145.9 | 610.0 | 3.2 | 423.9 | 166.8 | 590.0 | 2.5 | 386.3 | 191.4 | 577.0 | 2.0 |
| -2.0 | 520.5 | 148.8 | 669.0 | 3.5 | 475.9 | 169.4 | 645.0 | 2.8 | 434.9 | 193.5 | 628.0 | 2.3 |
| 0.0 | 586.0 | 151.1 | 737.0 | 3.9 | 536.5 | 171.3 | 707.0 | 3.1 | 491.0 | 195.0 | 686.0 | 2.5 |
| 2.0 | 659.5 | 152.7 | 812.0 | 4.3 | 604.9 | 172.7 | 777.0 | 3.5 | 554.5 | 196.0 | 750.0 | 2.8 |
| 4.0 | 714.2 | 153.4 | 867.0 | 4.7 | 655.9 | 173.2 | 829.0 | 3.8 | 602.1 | 196.3 | 798.0 | 3.1 |

NOTES:

1. KWo = Unit kW Cooling Capacity Output
2. KWi= Compressor kW Input
3. COP = Coefficient of Performance
4. LCWT= Leaving Chilled Water Temperature
5. Ratings based on 0.047 l/s cooler water per kW.
8. For ratings other than 30% glycol, refer to the Design 03 dxchill program.

Brine Correction Factors

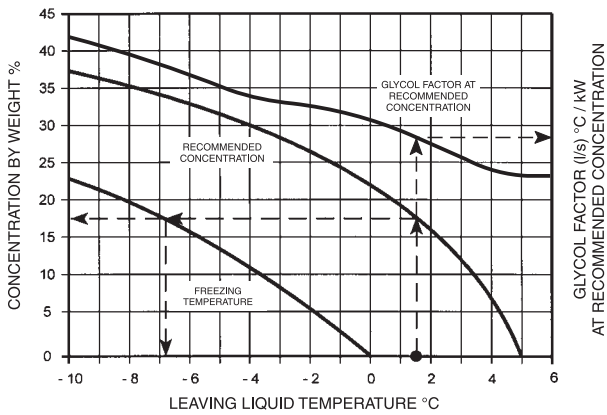


FIGURE 3 - RECOMMENDED CONCENTRATIONS FOR ETHYLENE GLYCOL SOLUTIONS

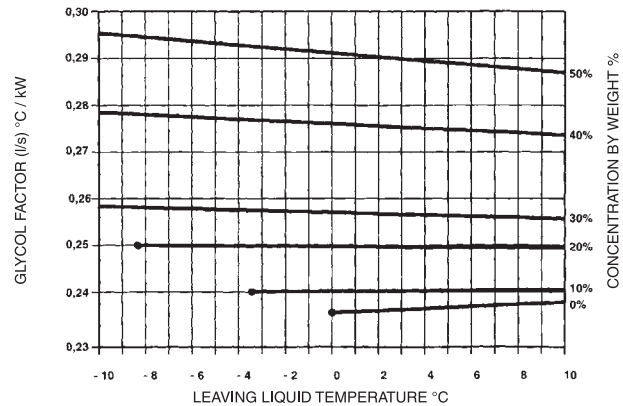


FIGURE 4 - FACTORS AT OTHER CONCENTRATIONS FOR ETHYLENE GLYCOL SOLUTIONS

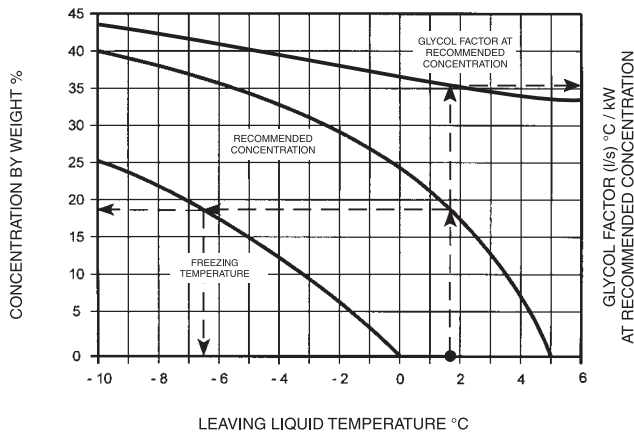


FIGURE 5 - RECOMMENDED CONCENTRATIONS FOR PROPYLENE GLYCOL SOLUTIONS

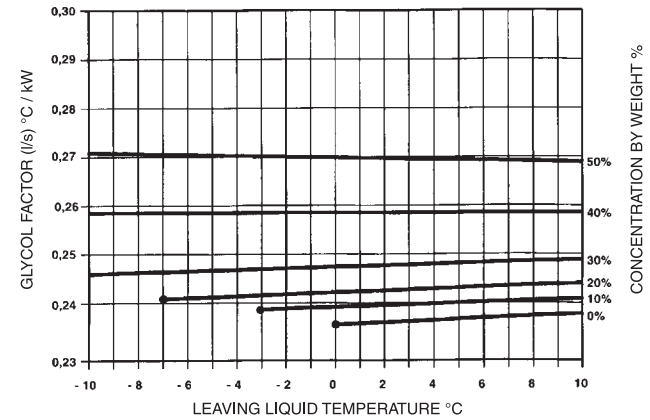


FIGURE 6 - FACTORS AT OTHER CONCENTRATIONS FOR PROPYLENE GLYCOL SOLUTIONS

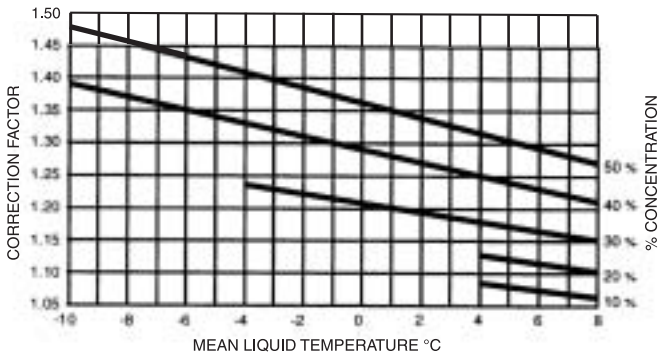


FIGURE 7 - PRESSURE DROP CORRECTION FACTORS FOR ETHYLENE GLYCOL SOLUTIONS

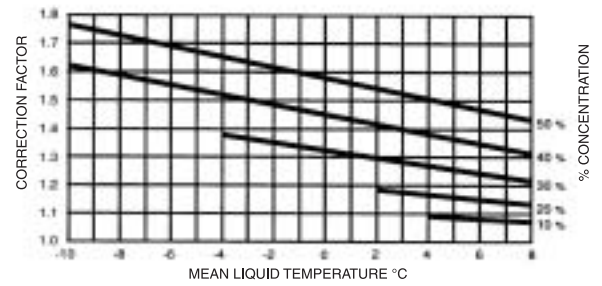


FIGURE 8 - PRESSURE DROP CORRECTION FACTORS FOR PROPYLENE GLYCOL SOLUTIONS

TABLE 1 - CORRECTION FACTORS

| % By Weight | Ethylene Glycol (pgs 20 - 23) | | Propylene Glycol (pgs 24 - 27) | |
|-------------|-------------------------------|-------------------------|--------------------------------|-------------------------|
| | Capacity Factor | Comp. Input Factor (kW) | Capacity Factor | Comp. Input Factor (kW) |
| 10 | 1.009 | 1.003 | 1.011 | 1.004 |
| 20 | 1.004 | 1.002 | 1.006 | 1.003 |
| 30 | 1.000 | 1.000 | 1.000 | 1.000 |
| 40 | 0.995 | 0.998 | 0.988 | 0.996 |
| 50 | 0.988 | 0.996 | 0.975 | 0.992 |

Part Load Ratings

English

| YCWS0100SB | | | |
|-----------------------|------|------|------|
| Load | Tons | kW | EER |
| 100% | 88.5 | 79.0 | 13.4 |
| 75% | 66.4 | 55.5 | 14.4 |
| 50% | 44.3 | 27.5 | 19.3 |
| 25% | 22.1 | 21.2 | 12.5 |
| IPLV: 16.4 EER | | | |

| YCWS0200SB | | | |
|-----------------------|-------|-------|------|
| Load | Tons | kW | EER |
| 100% | 175.6 | 142.3 | 14.8 |
| 75% | 131.7 | 99.1 | 16.0 |
| 50% | 87.8 | 48.1 | 22.0 |
| 25% | 44.0 | 36.4 | 14.5 |
| IPLV: 18.5 EER | | | |

| YCWS0120SB | | | |
|-----------------------|-------|------|------|
| Load | Tons | kW | EER |
| 100% | 106.3 | 96.7 | 13.2 |
| 75% | 79.7 | 67.1 | 14.3 |
| 50% | 53.2 | 35.1 | 18.2 |
| 25% | 26.6 | 27.6 | 11.5 |
| IPLV: 15.7 EER | | | |

| YCWS0220SB | | | |
|-----------------------|-------|-------|------|
| Load | Tons | kW | EER |
| 100% | 191.0 | 157.5 | 14.6 |
| 75% | 143.3 | 109.4 | 15.7 |
| 50% | 95.5 | 56.0 | 20.5 |
| 25% | 47.8 | 43.2 | 13.3 |
| IPLV: 17.6 EER | | | |

| YCWS0140SB | | | |
|-----------------------|-------|-------|------|
| Load | Tons | kW | EER |
| 100% | 125.6 | 114.4 | 13.2 |
| 75% | 94.2 | 78.5 | 14.4 |
| 50% | 62.8 | 38.2 | 19.7 |
| 25% | 31.4 | 28.5 | 13.2 |
| IPLV: 16.6 EER | | | |

| YCWS0240SB | | | |
|-----------------------|-------|-------|------|
| Load | Tons | kW | EER |
| 100% | 208.8 | 173.0 | 14.5 |
| 75% | 156.6 | 119.8 | 15.7 |
| 50% | 104.4 | 58.2 | 21.5 |
| 25% | 52.2 | 44.0 | 14.3 |
| IPLV: 18.1 EER | | | |

| YCWS0180SB | | | |
|-----------------------|-------|-------|------|
| Load | Tons | kW | EER |
| 100% | 155.1 | 125.7 | 14.8 |
| 75% | 116.3 | 87.7 | 15.9 |
| 50% | 77.5 | 45.0 | 20.7 |
| 25% | 38.8 | 34.2 | 13.6 |
| IPLV: 17.8 EER | | | |

Rated in accordance with ARI Standard 550/590

SI

| YCWS0100SB | | | |
|----------------------|-------|------|------|
| Load | kWo | kWi | COP |
| 100% | 312.0 | 79.1 | 3.95 |
| 75% | 233.5 | 55.5 | 4.21 |
| 50% | 155.8 | 27.5 | 5.67 |
| 25% | 77.7 | 21.2 | 3.67 |
| IPLV: 4.8 COP | | | |

| YCWS0200SB | | | |
|----------------------|-------|-------|------|
| Load | kWo | kWi | COP |
| 100% | 617.9 | 142.6 | 4.33 |
| 75% | 463.2 | 99.1 | 4.67 |
| 50% | 308.8 | 48.1 | 6.42 |
| 25% | 154.7 | 36.4 | 4.25 |
| IPLV: 5.4 COP | | | |

| YCWS0120SB | | | |
|----------------------|-------|------|------|
| Load | kWo | kWi | COP |
| 100% | 374.7 | 96.8 | 3.87 |
| 75% | 280.3 | 67.1 | 4.18 |
| 50% | 187.1 | 35.1 | 5.33 |
| 25% | 93.6 | 27.6 | 3.39 |
| IPLV: 4.6 COP | | | |

| YCWS0220SB | | | |
|----------------------|-------|-------|------|
| Load | kWo | kWi | COP |
| 100% | 672.0 | 157.9 | 4.26 |
| 75% | 504.0 | 109.4 | 4.61 |
| 50% | 335.9 | 56.0 | 6.00 |
| 25% | 168.1 | 43.2 | 3.89 |
| IPLV: 5.1 COP | | | |

| YCWS0140SB | | | |
|----------------------|-------|-------|------|
| Load | kWo | kWi | COP |
| 100% | 443.2 | 114.5 | 3.87 |
| 75% | 331.3 | 78.5 | 4.22 |
| 50% | 220.9 | 38.2 | 5.78 |
| 25% | 110.4 | 28.5 | 3.87 |
| IPLV: 4.9 COP | | | |

| YCWS0240SB | | | |
|----------------------|-------|-------|------|
| Load | kWo | kWi | COP |
| 100% | 734.9 | 173.3 | 4.24 |
| 75% | 550.8 | 119.8 | 4.60 |
| 50% | 367.2 | 58.2 | 6.31 |
| 25% | 183.6 | 44.0 | 4.17 |
| IPLV: 5.3 COP | | | |

| YCWS0180SB | | | |
|----------------------|-------|-------|------|
| Load | kWo | kWi | COP |
| 100% | 545.6 | 126.0 | 4.33 |
| 75% | 409.0 | 87.7 | 4.66 |
| 50% | 272.6 | 45.0 | 6.06 |
| 25% | 136.5 | 34.2 | 3.99 |
| IPLV: 5.2 COP | | | |

Rated in accordance with ARI Standard 550/590

Job Information

HS LAW

Selected By

Penn State
 104 Engineering Unit A
 University Park, PA
 wpb5@psu.edu

PSUAE
 Tel 814-863-2076

SPX Cooling Technologies Contact

H & H Associates, Inc.
 4510 Westport Drive
 Mechanicsburg, PA 17055
 frank@hassociates.com

Tel 717-796-2401
 Fax 717-796-9717

Cooling Tower Definition

| | | | |
|---------------|---------------------|-----------------------------|-------------|
| Manufacturer | Marley | Fan Motor Speed | 1800 rpm |
| Product | NC Class | Fan Motor Capacity per cell | 20.00 BHP |
| Model | NC8303G1 | Fan Motor Output per cell | 20.00 BHP |
| Cells | 1 | Fan Motor Output total | 20.00 BHP |
| CTI Certified | Yes | Air Flow per cell | 96690 cfm |
| Fan | 7.000 ft, 6 Blades | Air Flow total | 96690 cfm |
| Fan Speed | 434 rpm, 9544.2 fpm | ASHRAE 90.1 Performance | 52.0 gpm/Hp |
| Fans per cell | 1 | | |

Sound Pressure Level 80 dBA/Cell, 5.000 ft from Air Inlet Face. See sound report for details.

Conditions

| | | | |
|------------------------|-----------|-----------------------|----------------------------|
| Tower Water Flow | 800.0 gpm | Air Density In | 0.07094 lb/ft ³ |
| Hot Water Temperature | 95.00 °F | Air Density Out | 0.07136 lb/ft ³ |
| Range | 10.00 °F | Humidity Ratio In | 0.01712 |
| Cold Water Temperature | 85.00 °F | Humidity Ratio Out | 0.02821 |
| Approach | 7.00 °F | Wet-Bulb Temp. Out | 86.97 °F |
| Wet-Bulb Temperature | 78.00 °F | Estimated Evaporation | 8.9 gpm |
| Relative Humidity | 50 % | Total Heat Rejection | 3986000 Btu/h |

- This selection meets your design conditions.

Weights & Dimensions

| | Per Cell | Total |
|----------------------|-----------|-----------|
| Shipping Weight | 5900 lb | 5900 lb |
| Max Operating Weight | 12160 lb | 12160 lb |
| Width | 15.500 ft | 15.500 ft |
| Length | 7.896 ft | 7.896 ft |
| Height | 11.937 ft | |
| Static Lift | 11.151 ft | |

Minimum Enclosure Clearance

Clearance required on air inlet sides of tower without altering performance. Assumes no air from below tower.

| | |
|----------------|----------|
| Solid Wall | 5.949 ft |
| 50 % Open Wall | 4.588 ft |

Weights and dimensions do not include options; refer to sales drawings. For CAD layouts refer to file NC8303.dxf

Cold Weather Operation

Heater Sizing (to prevent freezing in the collection basin during periods of shutdown)

| | | | | | | |
|------------------------|--------|-------|------|-------|-------|-------|
| Heater kW/Cell | 12.0 | 9.0 | 7.5 | 6.0 | 4.5 | 3.0 |
| Ambient Temperature °F | -21.75 | -5.25 | 3.00 | 11.25 | 19.50 | 27.75 |

Job Information

HS LAW

Selected By

Penn State
 104 Engineering Unit A
 University Park, PA
 wpb5@psu.edu

PSUAE
 Tel 814-863-2076

SPX Cooling Technologies Contact

H & H Associates, Inc.
 4510 Westport Drive
 Mechanicsburg, PA 17055
 frank@hassociates.com

Tel 717-796-2401
 Fax 717-796-9717

Cooling Tower Definition

| | | | |
|---------------|--------------------|-----------------------------|-------------|
| Manufacturer | Marley | Fan Motor Speed | 1800 rpm |
| Product | NC Class | Fan Motor Capacity per cell | 30.00 BHp |
| Model | NC8305H1 | Fan Motor Output per cell | 30.00 BHp |
| Cells | 1 | Fan Motor Output total | 30.00 BHp |
| CTI Certified | Yes | Air Flow per cell | 133600 cfm |
| Fan | 8.000 ft, 6 Blades | Air Flow total | 133600 cfm |
| Fan Speed | 434 rpm, 10908 fpm | ASHRAE 90.1 Performance | 55.7 gpm/Hp |
| Fans per cell | 1 | | |

Sound Pressure Level 83 dBA/Cell, 5.000 ft from Air Inlet Face. See sound report for details.

Conditions

| | | | |
|------------------------|----------|-----------------------|----------------------------|
| Tower Water Flow | 1355 gpm | Air Density In | 0.07094 lb/ft ³ |
| Hot Water Temperature | 95.00 °F | Air Density Out | 0.07106 lb/ft ³ |
| Range | 10.00 °F | Humidity Ratio In | 0.01712 |
| Cold Water Temperature | 85.00 °F | Humidity Ratio Out | 0.02998 |
| Approach | 7.00 °F | Wet-Bulb Temp. Out | 88.81 °F |
| Wet-Bulb Temperature | 78.00 °F | Estimated Evaporation | 14 gpm |
| Relative Humidity | 50 % | Total Heat Rejection | 6751300 Btu/h |

- This selection meets your design conditions.

Weights & Dimensions

| | Per Cell | Total |
|----------------------|-----------|-----------|
| Shipping Weight | 8850 lb | 8850 lb |
| Max Operating Weight | 19150 lb | 19150 lb |
| Width | 18.750 ft | 18.750 ft |
| Length | 10.896 ft | 10.896 ft |
| Height | 12.979 ft | |
| Static Lift | 12.234 ft | |

Minimum Enclosure Clearance

Clearance required on air inlet sides of tower without altering performance. Assumes no air from below tower.

| | |
|----------------|----------|
| Solid Wall | 7.284 ft |
| 50 % Open Wall | 5.534 ft |

Weights and dimensions do not include options; refer to sales drawings. For CAD layouts refer to file NC8305.dxf

Cold Weather Operation

Heater Sizing (to prevent freezing in the collection basin during periods of shutdown)

| | | | | | | | |
|------------------------|--------|-------|------|-------|-------|-------|-------|
| Heater kW/Cell | 18.0 | 15.0 | 12.0 | 9.0 | 7.5 | 6.0 | 4.5 |
| Ambient Temperature °F | -16.14 | -6.05 | 4.04 | 14.13 | 19.17 | 24.22 | 29.26 |

| TANK MODELS | 1082C | 1098C | 1190C | 1320C | 1500C |
|--|---|---|---|--|--|
| Drawings | View drawings: 1082C 2F 1082C 3F 1082C 4F,U4F | View drawings: 1098C2F 1098C3F 1098C4F | View drawings: 1190C2F 1190C3F 1190C4F | View drawings: 1320CRF 1320CSF | View drawings: 1500CRF 1500CSF |
| | Download CAD drawings: 1082C2F 1082C3F 1082C4F 1082CU4F | Download CAD drawings: 1098C | Download CAD drawings: 1190C | Download CAD drawings: 1320CRF 1320CSF | Download CAD drawings: 1500CRF 1500CSF |
| Net-Usable Capacity Ton-Hr (i) | 82 | 98 | 162 | 324 | 486 |
| With Mix Air | -- | 92 | 156 | 312 | 469 |
| Max. Operating Temp.,°F | 100 | 100 | 100 | 100 | 100 |
| Factory Tested Pres., PSI | 250 | 250 | 250 | 250 | 250 |
| Max. Operating Pres., PSI (ii) | 100 | 90 | 90 | 90 | 90 |
| Dimensions (ODxH), in. | -- | -- | -- | -- | -- |
| Dimensions (WxLxH), in. | 74.5x75x84.5(2F) 74x76.5x84.5(3F) 74x76.5x84.5(4F) | 89x91x69.5(2F) 89x93x69.5(3F) 89x93x69.5(4F) | 89x91x102(2F) 89x93x102(3F) 89x93x102(4F) | 89x183x102(RF) 89x181x102(SF) | 89x273x102(RF) 89x271x102(SF) |
| Shipping Weight, lb (iii) | 1,095 | 1,275 | 2,000 | 4,000 | 6,000 |
| Weight, Filled, lb | 8,580 | 10,235 | 16,890 | 33,730 | 50,600 |

| | | | | | |
|--|---|-----------|-----------|-----------|-----------|
| Floor Loading, lb/Sq Ft | 286 | 237 | 391 | 391 | 391 |
| Volume Of Water/Ice, Gal | 820 | 980 | 1,655 | 3,310 | 4,965 |
| Vol. Solution in HX, Gal | 86 | 99 | 157 | 315 | 470 |
| With Mix Air | -- | 85 | 152 | 304 | 434 |
| Type of connection | 4" Flange | 4" Flange | 4" Flange | 4" Flange | 4" Flange |
| Total Burial Drawing | Full Burial Models 1190XC (2F, 3F, 4F); 1320XC & 1500XC (RF & SF); and 1098XC (2F, 3F, 4F). | | | | |
| <p>i. Typical value, actual varies with conditions ii. Consult factory for higher ratings iii. Shipping weight may vary slightly because of differences in volumes of residual water from hydrostatic test</p> | | | | | |

Partial Burial

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AHU Selection Program Performance Summary (Chilled Water)

Project Name: THESIS HS-LAW LOW TEMP

3/31/2006

4:49:03 PM

Air Handler Unit: 39RN**Tag Name: AHU-1**

Cooling Application's Balance Criteria: Leaving Air DB

| | |
|----------------------------------|---------------------|
| Coil Model _____ | 39RN |
| Unit Size _____ | 85 |
| Row / FPI / Circ _____ | 8 / 10 / FL |
| Face Area Type _____ | Large |
| Coil Face Area _____ | 85.30 sqft |
| Face Velocity _____ | 439.6 fpm |
| Fin/Tube Material _____ | Al-Galv. |
| Tube Wall Thickness _____ | 0.020 in |
| Site Airflow Rate _____ | 37500 CFM |
| Site Altitude _____ | 0 ft |
| Total Cooling Capacity _____ | 2442.77 MBH |
| Sensible Cooling Capacity _____ | 1656.31 MBH |
| Fluid Flow Rate _____ | 336.6 gpm |
| Fluid Pressure Drop _____ | 38.1 ft wg |
| Fluid Velocity _____ | 5.9 ft/s |
| Entering Fluid Temperature _____ | 36.00 °F |
| Leaving Fluid Temperature _____ | 51.00 °F |
| Fluid Temperature Rise _____ | 15.0 °F |
| Cv Rating _____ | 82.7 |
| Entering Air Dry Bulb _____ | 85.00 °F |
| Entering Air Wet Bulb _____ | 67.00 °F |
| Entering Air Enthalpy _____ | 31.40 Btu/lb |
| Leaving Air Dry Bulb _____ | 44.29 °F |
| Leaving Air Wet Bulb _____ | 43.98 °F |
| Leaving Air Enthalpy _____ | 17.1 Btu/lb |
| Air Friction _____ | 0.90 in wg |
| Brine _____ | PG |
| Brine Concentration _____ | 25 % |

AHU Selection Program Performance Summary (Chilled Water)

Project Name: THESIS HS-LAW LOW TEMP

3/31/2006

4:50:18 PM

Air Handler Unit: 39M

Tag Name: AHU-2

Cooling Application's Balance Criteria: Leaving Air DB

| | |
|----------------------------------|---------------------|
| Coil Model _____ | MC |
| Unit Size _____ | 30 |
| Row / FPI / Circ _____ | 8 / 11 / FL |
| Face Area Type _____ | Large |
| Coil Face Area _____ | 30.35 sqft |
| Face Velocity _____ | 477.8 fpm |
| Fin-Casing Material _____ | Al-St. Stl. |
| Tube Wall Thickness _____ | 0.016 in |
| Site Airflow Rate _____ | 14500 CFM |
| Site Altitude _____ | 0 ft |
| Total Cooling Capacity _____ | 875.28 MBH |
| Sensible Cooling Capacity _____ | 621.92 MBH |
| Fluid Flow Rate _____ | 120.2 gpm |
| Fluid Pressure Drop _____ | 36.2 ft wg |
| Fluid Velocity _____ | 5.4 ft/s |
| Entering Fluid Temperature _____ | 36.00 °F |
| Leaving Fluid Temperature _____ | 51.00 °F |
| Fluid Temperature Rise _____ | 15.0 °F |
| Cv Rating _____ | 30.3 |
| Entering Air Dry Bulb _____ | 85.00 °F |
| Entering Air Wet Bulb _____ | 67.00 °F |
| Entering Air Enthalpy _____ | 31.40 Btu/lb |
| Leaving Air Dry Bulb _____ | 45.78 °F |
| Leaving Air Wet Bulb _____ | 45.73 °F |
| Leaving Air Enthalpy _____ | 18.0 Btu/lb |
| Air Friction _____ | 1.15 in wg |
| Brine _____ | PG |
| Brine Concentration _____ | 25 % |

AHU Selection Program Performance Summary (Chilled Water)

Project Name: THESIS HS-LAW LOW TEMP

3/31/2006

4:50:18 PM

Air Handler Unit: 39M

Tag Name: AHU-2

Cooling Application's Balance Criteria: Leaving Air DB

| | |
|----------------------------------|---------------------|
| Coil Model _____ | MC |
| Unit Size _____ | 30 |
| Row / FPI / Circ _____ | 8 / 11 / FL |
| Face Area Type _____ | Large |
| Coil Face Area _____ | 30.35 sqft |
| Face Velocity _____ | 477.8 fpm |
| Fin-Casing Material _____ | Al-St. Stl. |
| Tube Wall Thickness _____ | 0.016 in |
| Site Airflow Rate _____ | 14500 CFM |
| Site Altitude _____ | 0 ft |
| Total Cooling Capacity _____ | 875.28 MBH |
| Sensible Cooling Capacity _____ | 621.92 MBH |
| Fluid Flow Rate _____ | 120.2 gpm |
| Fluid Pressure Drop _____ | 36.2 ft wg |
| Fluid Velocity _____ | 5.4 ft/s |
| Entering Fluid Temperature _____ | 36.00 °F |
| Leaving Fluid Temperature _____ | 51.00 °F |
| Fluid Temperature Rise _____ | 15.0 °F |
| Cv Rating _____ | 30.3 |
| Entering Air Dry Bulb _____ | 85.00 °F |
| Entering Air Wet Bulb _____ | 67.00 °F |
| Entering Air Enthalpy _____ | 31.40 Btu/lb |
| Leaving Air Dry Bulb _____ | 45.78 °F |
| Leaving Air Wet Bulb _____ | 45.73 °F |
| Leaving Air Enthalpy _____ | 18.0 Btu/lb |
| Air Friction _____ | 1.15 in wg |
| Brine _____ | PG |
| Brine Concentration _____ | 25 % |

AHU Selection Program Performance Summary (Chilled Water)

Project Name: THESIS HS-LAW LOW TEMP

3/31/2006
6:13:40 PM**Air Handler Unit: 39M****Tag Name: AHU-4**

Cooling Application's Balance Criteria: Leaving Air WB

| | |
|----------------------------------|---------------------|
| Coil Model _____ | MC |
| Unit Size _____ | 10 |
| Row / FPI / Circ _____ | 8 / 8 / HF |
| Face Area Type _____ | Large |
| Coil Face Area _____ | 9.93 sqft |
| Face Velocity _____ | 261.8 fpm |
| Fin-Casing Material _____ | Al-St. Stl. |
| Tube Wall Thickness _____ | 0.016 in |
| Site Airflow Rate _____ | 2600 CFM |
| Site Altitude _____ | 0 ft |
| Total Cooling Capacity _____ | 140.56 MBH |
| Sensible Cooling Capacity _____ | 103.43 MBH |
| Fluid Flow Rate _____ | 19.3 gpm |
| Fluid Pressure Drop _____ | 14.0 ft wg |
| Fluid Velocity _____ | 3.0 ft/s |
| Entering Fluid Temperature _____ | 36.00 °F |
| Leaving Fluid Temperature _____ | 51.00 °F |
| Fluid Temperature Rise _____ | 15.0 °F |
| Cv Rating _____ | 7.8 |
| Entering Air Dry Bulb _____ | 85.00 °F |
| Entering Air Wet Bulb _____ | 67.00 °F |
| Entering Air Enthalpy _____ | 31.40 Btu/lb |
| Leaving Air Dry Bulb _____ | 48.62 °F |
| Leaving Air Wet Bulb _____ | 48.40 °F |
| Leaving Air Enthalpy _____ | 19.4 Btu/lb |
| Air Friction _____ | 0.34 in wg |
| Brine _____ | PG |
| Brine Concentration _____ | 25 % |

AHU Selection Program Performance Summary (Chilled Water)

Project Name: THESIS HS-LAW LOW TEMP

3/31/2006

5:23:55 PM

Air Handler Unit: 39M**Tag Name: AHU-5**

Cooling Application's Balance Criteria: Leaving Air DB

| | |
|----------------------------------|---------------------|
| Coil Model _____ | MC |
| Unit Size _____ | 30 |
| Row / FPI / Circ _____ | 8 / 11 / FL |
| Face Area Type _____ | Large |
| Coil Face Area _____ | 30.35 sqft |
| Face Velocity _____ | 369.0 fpm |
| Fin-Casing Material _____ | Al-St. Stl. |
| Tube Wall Thickness _____ | 0.016 in |
| Site Airflow Rate _____ | 11200 CFM |
| Site Altitude _____ | 0 ft |
| Total Cooling Capacity _____ | 675.63 MBH |
| Sensible Cooling Capacity _____ | 480.42 MBH |
| Fluid Flow Rate _____ | 92.8 gpm |
| Fluid Pressure Drop _____ | 22.8 ft wg |
| Fluid Velocity _____ | 4.2 ft/s |
| Entering Fluid Temperature _____ | 36.00 °F |
| Leaving Fluid Temperature _____ | 51.00 °F |
| Fluid Temperature Rise _____ | 15.0 °F |
| Cv Rating _____ | 29.5 |
| Entering Air Dry Bulb _____ | 85.00 °F |
| Entering Air Wet Bulb _____ | 67.00 °F |
| Entering Air Enthalpy _____ | 31.40 Btu/lb |
| Leaving Air Dry Bulb _____ | 45.77 °F |
| Leaving Air Wet Bulb _____ | 45.75 °F |
| Leaving Air Enthalpy _____ | 18.0 Btu/lb |
| Air Friction _____ | 0.76 in wg |
| Brine _____ | PG |
| Brine Concentration _____ | 25 % |

AHU Selection Program Performance Summary (Chilled Water)

Project Name: THESIS HS-LAW LOW TEMP

3/31/2006

5:24:17 PM

Air Handler Unit: 39M**Tag Name: AHU-6**

Cooling Application's Balance Criteria: Leaving Air DB

| | |
|----------------------------------|---------------------|
| Coil Model _____ | MC |
| Unit Size _____ | 12 |
| Row / FPI / Circ _____ | 10 / 8 / HF |
| Face Area Type _____ | Large |
| Coil Face Area _____ | 12.64 sqft |
| Face Velocity _____ | 332.3 fpm |
| Fin-Casing Material _____ | Al-St. Stl. |
| Tube Wall Thickness _____ | 0.016 in |
| Site Airflow Rate _____ | 4200 CFM |
| Site Altitude _____ | 0 ft |
| Total Cooling Capacity _____ | 260.89 MBH |
| Sensible Cooling Capacity _____ | 183.40 MBH |
| Fluid Flow Rate _____ | 35.8 gpm |
| Fluid Pressure Drop _____ | 31.8 ft wg |
| Fluid Velocity _____ | 4.4 ft/s |
| Entering Fluid Temperature _____ | 36.00 °F |
| Leaving Fluid Temperature _____ | 51.00 °F |
| Fluid Temperature Rise _____ | 15.0 °F |
| Cv Rating _____ | 9.6 |
| Entering Air Dry Bulb _____ | 85.00 °F |
| Entering Air Wet Bulb _____ | 67.00 °F |
| Entering Air Enthalpy _____ | 31.40 Btu/lb |
| Leaving Air Dry Bulb _____ | 45.07 °F |
| Leaving Air Wet Bulb _____ | 44.97 °F |
| Leaving Air Enthalpy _____ | 17.6 Btu/lb |
| Air Friction _____ | 0.65 in wg |
| Brine _____ | PG |
| Brine Concentration _____ | 25 % |

AHU Selection Program Performance Summary (Chilled Water)

Project Name: THESIS HS-LAW LOW TEMP

3/31/2006

5:24:39 PM

Air Handler Unit: 39M**Tag Name: AHU-7**

Cooling Application's Balance Criteria: Leaving Air DB

| | |
|----------------------------------|---------------------|
| Coil Model _____ | MC |
| Unit Size _____ | 21 |
| Row / FPI / Circ _____ | 6 / 11 / HF |
| Face Area Type _____ | Large |
| Coil Face Area _____ | 21.44 sqft |
| Face Velocity _____ | 373.1 fpm |
| Fin-Casing Material _____ | Al-St. Stl. |
| Tube Wall Thickness _____ | 0.016 in |
| Site Airflow Rate _____ | 8000 CFM |
| Site Altitude _____ | 0 ft |
| Total Cooling Capacity _____ | 468.18 MBH |
| Sensible Cooling Capacity _____ | 335.39 MBH |
| Fluid Flow Rate _____ | 64.3 gpm |
| Fluid Pressure Drop _____ | 40.6 ft wg |
| Fluid Velocity _____ | 5.8 ft/s |
| Entering Fluid Temperature _____ | 36.00 °F |
| Leaving Fluid Temperature _____ | 51.00 °F |
| Fluid Temperature Rise _____ | 15.0 °F |
| Cv Rating _____ | 15.3 |
| Entering Air Dry Bulb _____ | 85.00 °F |
| Entering Air Wet Bulb _____ | 67.00 °F |
| Entering Air Enthalpy _____ | 31.40 Btu/lb |
| Leaving Air Dry Bulb _____ | 46.66 °F |
| Leaving Air Wet Bulb _____ | 46.53 °F |
| Leaving Air Enthalpy _____ | 18.4 Btu/lb |
| Air Friction _____ | 0.58 in wg |
| Brine _____ | PG |
| Brine Concentration _____ | 25 % |

AHU Selection Program Performance Summary (Chilled Water)

Project Name: THESIS HS-LAW LOW TEMP

3/31/2006

5:24:39 PM

Air Handler Unit: 39M**Tag Name: AHU-7**

Cooling Application's Balance Criteria: Leaving Air DB

| | |
|----------------------------------|---------------------|
| Coil Model _____ | MC |
| Unit Size _____ | 21 |
| Row / FPI / Circ _____ | 6 / 11 / HF |
| Face Area Type _____ | Large |
| Coil Face Area _____ | 21.44 sqft |
| Face Velocity _____ | 373.1 fpm |
| Fin-Casing Material _____ | Al-St. Stl. |
| Tube Wall Thickness _____ | 0.016 in |
| Site Airflow Rate _____ | 8000 CFM |
| Site Altitude _____ | 0 ft |
| Total Cooling Capacity _____ | 468.18 MBH |
| Sensible Cooling Capacity _____ | 335.39 MBH |
| Fluid Flow Rate _____ | 64.3 gpm |
| Fluid Pressure Drop _____ | 40.6 ft wg |
| Fluid Velocity _____ | 5.8 ft/s |
| Entering Fluid Temperature _____ | 36.00 °F |
| Leaving Fluid Temperature _____ | 51.00 °F |
| Fluid Temperature Rise _____ | 15.0 °F |
| Cv Rating _____ | 15.3 |
| Entering Air Dry Bulb _____ | 85.00 °F |
| Entering Air Wet Bulb _____ | 67.00 °F |
| Entering Air Enthalpy _____ | 31.40 Btu/lb |
| Leaving Air Dry Bulb _____ | 46.66 °F |
| Leaving Air Wet Bulb _____ | 46.53 °F |
| Leaving Air Enthalpy _____ | 18.4 Btu/lb |
| Air Friction _____ | 0.58 in wg |
| Brine _____ | PG |
| Brine Concentration _____ | 25 % |

AHU Selection Program Performance Summary (Chilled Water)

Project Name: THESIS HS-LAW LOW TEMP

3/31/2006

5:25:57 PM

Air Handler Unit: 39M**Tag Name: AHU-9**

Cooling Application's Balance Criteria: Leaving Air DB

| | |
|----------------------------------|---------------------|
| Coil Model _____ | MC |
| Unit Size _____ | 12 |
| Row / FPI / Circ _____ | 10 / 8 / HF |
| Face Area Type _____ | Large |
| Coil Face Area _____ | 12.64 sqft |
| Face Velocity _____ | 379.7 fpm |
| Fin-Casing Material _____ | Al-St. Stl. |
| Tube Wall Thickness _____ | 0.016 in |
| Site Airflow Rate _____ | 4800 CFM |
| Site Altitude _____ | 0 ft |
| Total Cooling Capacity _____ | 296.02 MBH |
| Sensible Cooling Capacity _____ | 208.43 MBH |
| Fluid Flow Rate _____ | 40.7 gpm |
| Fluid Pressure Drop _____ | 39.7 ft wg |
| Fluid Velocity _____ | 4.9 ft/s |
| Entering Fluid Temperature _____ | 36.00 °F |
| Leaving Fluid Temperature _____ | 51.00 °F |
| Fluid Temperature Rise _____ | 15.0 °F |
| Cv Rating _____ | 9.8 |
| Entering Air Dry Bulb _____ | 85.00 °F |
| Entering Air Wet Bulb _____ | 67.00 °F |
| Entering Air Enthalpy _____ | 31.40 Btu/lb |
| Leaving Air Dry Bulb _____ | 45.29 °F |
| Leaving Air Wet Bulb _____ | 45.16 °F |
| Leaving Air Enthalpy _____ | 17.7 Btu/lb |
| Air Friction _____ | 0.81 in wg |
| Brine _____ | PG |
| Brine Concentration _____ | 25 % |

AHU Selection Program Performance Summary (Chilled Water)

Project Name: THESIS HS-LAW LOW TEMP

3/31/2006

5:26:25 PM

Air Handler Unit: 39M**Tag Name: AHU-10**

Cooling Application's Balance Criteria: Leaving Air WB

| | |
|----------------------------------|---------------------|
| Coil Model _____ | MC |
| Unit Size _____ | 10 |
| Row / FPI / Circ _____ | 8 / 8 / HF |
| Face Area Type _____ | Large |
| Coil Face Area _____ | 9.93 sqft |
| Face Velocity _____ | 241.7 fpm |
| Fin-Casing Material _____ | Al-St. Stl. |
| Tube Wall Thickness _____ | 0.016 in |
| Site Airflow Rate _____ | 2400 CFM |
| Site Altitude _____ | 0 ft |
| Total Cooling Capacity _____ | 128.85 MBH |
| Sensible Cooling Capacity _____ | 95.13 MBH |
| Fluid Flow Rate _____ | 17.7 gpm |
| Fluid Pressure Drop _____ | 12.0 ft wg |
| Fluid Velocity _____ | 2.7 ft/s |
| Entering Fluid Temperature _____ | 36.00 °F |
| Leaving Fluid Temperature _____ | 51.00 °F |
| Fluid Temperature Rise _____ | 15.0 °F |
| Cv Rating _____ | 7.8 |
| Entering Air Dry Bulb _____ | 85.00 °F |
| Entering Air Wet Bulb _____ | 67.00 °F |
| Entering Air Enthalpy _____ | 31.40 Btu/lb |
| Leaving Air Dry Bulb _____ | 48.75 °F |
| Leaving Air Wet Bulb _____ | 48.56 °F |
| Leaving Air Enthalpy _____ | 19.5 Btu/lb |
| Air Friction _____ | 0.30 in wg |
| Brine _____ | PG |
| Brine Concentration _____ | 25 % |