



SUBMITTAL

Project

BRCC Chillers

Date

Friday, May 10, 2019

General Contractor

Mechanical Contractor

Mechanical Engineer

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Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

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50 Ton

Project: BRCC Chillers
Prepared By:

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50 Ton

**Tag Cover Sheet
Unit Report
Certified Drawing
Wiring Diagram
Detailed Performance Report**

Unit Report For 50 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

Unit Information

Tag Name:..... **50 Ton**
 Model Number:..... **30RAP050**
 Condenser Type:..... **Air Cooled**
 Compressor Type:..... **Scroll**
 Nameplate Voltage:..... **460-3-60** V-Ph-Hz
 Quantity:..... **1**
 Manufacturing Source:..... **Charlotte, NC USA**
 Refrigerant:..... **R410A**
 Independent Refrigerant Circuits:..... **2**
 Capacity Control Steps:..... **5**
 Minimum Capacity:..... **14.5** %
 Shipping Weight:..... **2588** lb
 Operating Weight:..... **2383** lb
 Unit Length:..... **89** in
 Unit Width:..... **93** in
 Unit Height:..... **79** in

Accessories and Installed Options

Evaporator Heater
 Non-Fused Disconnect
 Micro Channel
 Low Sound
 Hot Gas Bypass
 Low Ambient Head Pressure Control
 Security Grilles/Hail Guards
 BACnet Communications
 Single Point
 Fixed Speed Condenser Fan

Chiller Warranty Information (Note: for US & Canada only)

First Year - Parts Only (Standard)
 Start-Up with 1st Year Carrier CCS Labor - 1st Unit
 Compressor Years 2-5 Parts Only

Ordering Information

Part Number	Description	Quantity
30RAP0506D-07F14	Packaged Chiller	1
	Base Unit	
	Evaporator Heater	
	Non-Fused Disconnect	
	Micro Channel	
	Low Sound	
	Hot Gas Bypass	
	Low Ambient Head Pressure Control	
	Security Grilles/Hail Guards	
	BACnet Communications	
	Single Point	
	Fixed Speed Condenser Fan	

Certified Drawing for 50 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

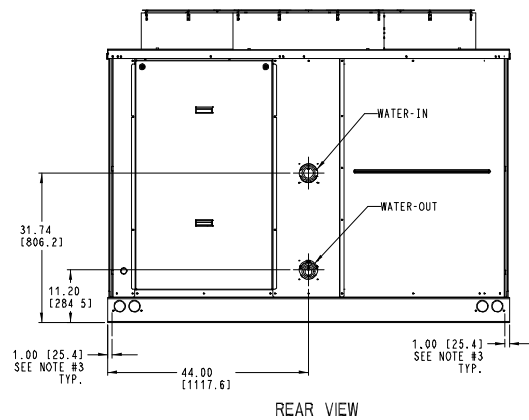
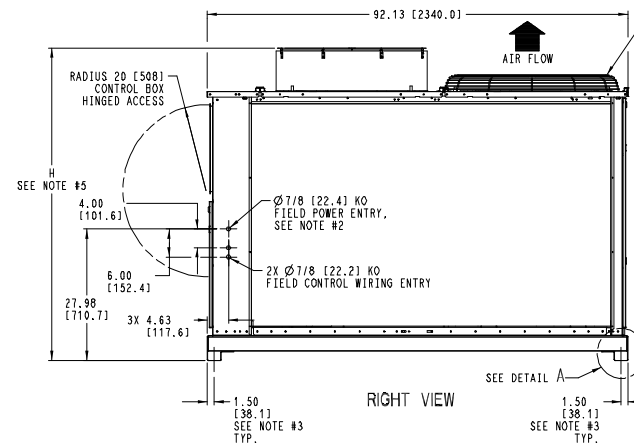
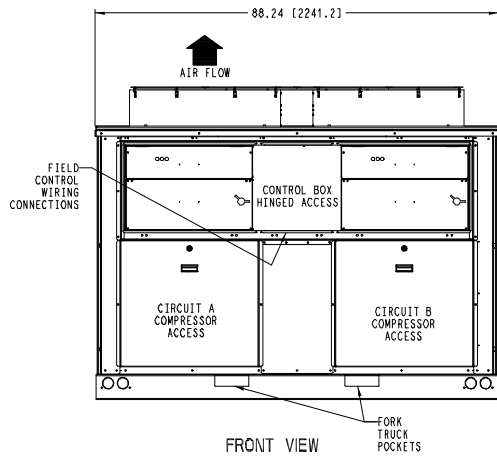
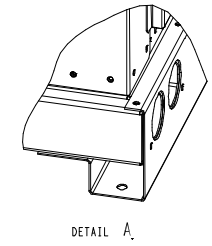
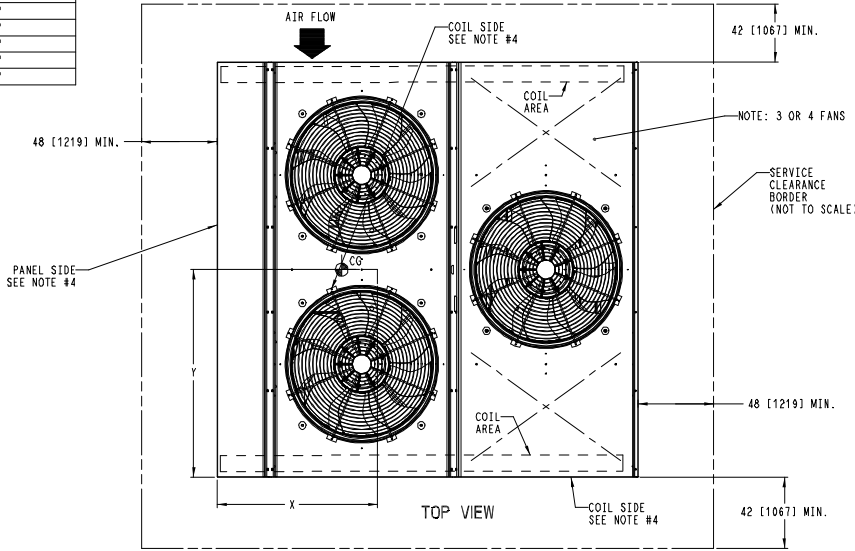
UNIT	CENTER OF GRAVITY		UNIT HEIGHT		WATER CONNECTION VICTAULIC IPS CARBON STEEL	WATER IN/OUT
	X	Y	H (STANDARD)	H (VALUE SOUND)		
30RA035	36.45 [926]	46.08 [1170]	66.5 [1689]	61.0 [1549]		2-1/2"
30RA040	36.24 [921]	44.03 [1118]	66.5 [1689]	61.0 [1549]		2-1/2"
30RA045	36.24 [921]	46.15 [1172]	78.5 [1994]	73.0 [1854]		2-1/2"
30RA050	36.00 [914]	44.00 [1118]	78.5 [1994]	73.0 [1854]		2-1/2"
30RA055	36.48 [927]	44.60 [1133]	78.5 [1994]	73.0 [1854]		2-1/2"
30RA060	36.50 [927]	44.56 [1132]	78.5 [1994]	73.0 [1854]		2-1/2"

Carrier
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NOTES:

1. DO NOT CAP OR OTHERWISE OBSTRUCT THE LIQUID LINE TEMPERATURE RELIEF.
2. $\varnothing 7/8$ [22.4] PILOT HOLE PROVIDED FOR LOCATING FIELD POWER WIRING. ACTUAL HOLE REQUIRED DEPENDS ON FIELD WIRE SIZING.
3. $\varnothing 0.437$ [11.10] HOLE USED FOR MOUNTING UNIT.
4. UNIT MUST HAVE CLEARANCES AS FOLLOWS:
TOP - DO NOT RESTRICT
COIL SIDE - 42 [1067] FROM SOLID SURFACE.
PANEL SIDE - 48 [1219] PER NEC.
5. SEE TABLE COLUMN H; DIMENSION FOR STANDARD FAN OR VALUE SOUND FAN OPTION.
6. CARRIER DOES NOT RECOMMEND INSTALLATION IN A PIT.
7. UNIT CAN BE HANDLED USING THE FORK TRUCK LIFT POCKETS (MINIMUM OF 60" FORK LENGTH).
8. WATER CONNECTIONS RECESSED 2-5/8 INCHES INSIDE UNIT. ALL WATER DRAIN AND VENTING HOLES ARE 1/4" NPT.

DIMENSIONS IN [] ARE IN MILLIMETERS



FOR LOW AMBIENT OPTION

DATE	SUPERCEDES	30RAP035-060 UNIT ASSY	30RA55556	REV
09/07/15	G			H

Field Wiring Diagram for 50 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

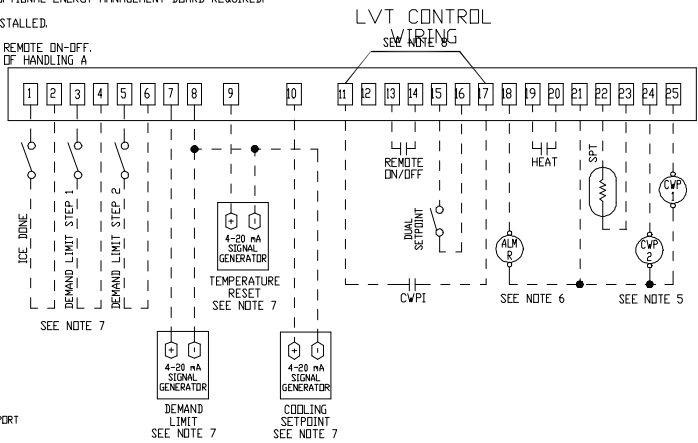
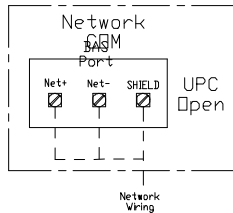
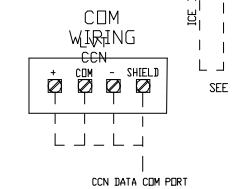
NOTES:

1. FACTORY WIRING IS IN ACCORDANCE WITH UL 1995 STANDARDS. FIELD MODIFICATIONS OR ADDITIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES.
2. ALL UNITS OR MODULES HAVE SINGLE POINT PRIMARY POWER CONNECTION. MAIN POWER MUST BE SUPPLIED FROM A FIELD OR FACTORY SUPPLIED DISCONNECT.
3. WIRING FOR MAIN FIELD SUPPLY MUST BE RATED 75C. USE COPPER CONDUCTORS ONLY.
 - a. INCOMING WIRE SIZE RANGE FOR TERMINAL BLOCK WITH MCA UP TO 175 AMPS IS 14 AWG TO 2/0 FOR 10-60 TON CHILLERS.
 - b. INCOMING WIRE SIZE RANGE FOR TERMINAL BLOCK WITH MCA FROM 175.1 AMPS TO 335 AMPS IS 6 AWG TO 400 KCMIL FOR 10-60 TON CHILLERS.
 - c. INCOMING WIRE SIZE RANGE FOR TERMINAL BLOCK WITH MCA UP TO 420 AMPS IS 2 AWG TO 600KCMIL FOR 70-150 TON CHILLER.
 - d. INCOMING WIRE SIZE RANGE FOR TERMINAL BLOCK WITH MCA FROM 420.1 AMPS TO 760 AMPS IS 6 AWG TO 500 KCMIL(TWO OPENINGS PER POLE) FOR 70-150 TON CHILLERS.
 - e. INCOMING WIRE SIZE RANGE FOR NON-FUSED DISCONNECT WITH MCA UP TO 100 AMPS IS 14AWG TO 3/0.
 - f. INCOMING WIRE SIZE RANGE FOR NON-FUSED DISCONNECT WITH MCA FROM 100.1 AMPS TO 250 AMPS IS 6AWG TO 350 KCMIL.
 - g. INCOMING WIRE SIZE RANGE FOR NON FUSED DISCONNECT WITH MCA FROM 250.1 TO 600 AMPS IS 3/0 AWG TO 500KCMIL (TWO OPENINGS PER POLE)
4. REFER TO CERTIFIED DIMENSIONAL DRAWINGS FOR EXACT LOCATIONS OF THE MAIN POWER AND CONTROL POWER ENTRANCE LOCATIONS.
5. TERMINALS 21 AND 25 OF THE LVT ARE FOR CONTROL OF CHILLED WATER PUMP1 (CWP1) STARTER. TERMINALS 21 AND 24 OF THE LVT ARE FOR CONTROL OF CHILLED WATER PUMP2 (CWP2) STARTER. THE MAXIMUM LOAD ALLOWED FOR THE CHILLED WATER PUMP RELAY IS 5 VA SEALED, 10 VA INRUSH AT 24 V. FIELD POWER SUPPLY IS NOT REQUIRED.
6. TERMINALS 18 AND 21 OF LVT ARE FOR AN ALARM RELAY. THE MAXIMUM LOAD ALLOWED FOR THE ALARM RELAY IS 5 VA SEALED, 10 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
7. MAKE APPROPRIATE CONNECTIONS TO LVT AS SHOWN FOR ENERGY MANAGEMENT BOARD OPTIONS. THE CONTACTS FOR DEMAND LIMIT AND ICE JUNE OPTIONS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 MA. INSTALLATION OF OPTIONAL ENERGY MANAGEMENT BOARD REQUIRED.
8. REMOVE JUMPER BETWEEN TERMINALS 11 AND 17 WHEN FIELD CWP1 IS INSTALLED.
9. TERMINALS 13 & 14 OF TR5 ARE FOR FIELD EXTERNAL CONNECTIONS FOR REMOTE ON-OFF. THE CONTACTS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50MA.

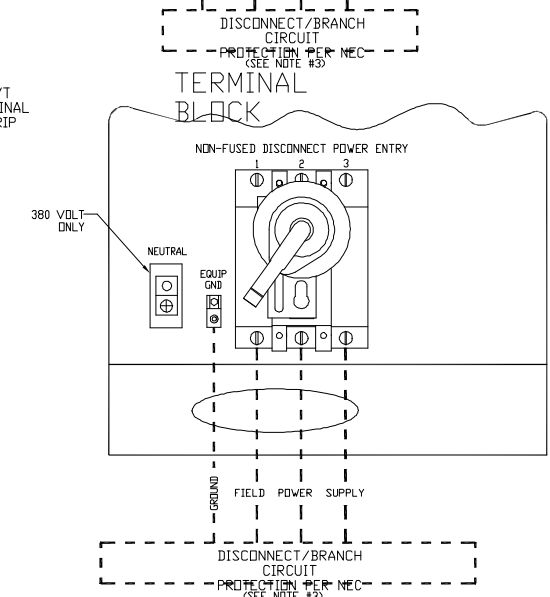
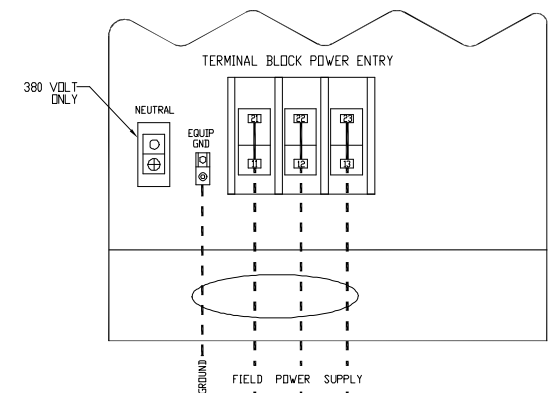
LEGEND:

- ALM R - ALARM RELAY (24V) 5 VA MAX
- AWG - AMERICAN WIRE GAUGE
- CWP - CHILLED WATER PUMP
- CWPI - CHILLED WATER PUMP INTERLOCK
- EMM - ENERGY MANAGEMENT MODULE
- LVT - LOW VOLTAGE TERMINAL STRIP
- SPT - SPACE TEMPERATURE

- - - FIELD POWER WIRING
- - - FIELD CONTROL WIRING
- _____ FACTORY INSTALLED WIRING
- FACTORY INSTALLED OPTION



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DATE	SUPERSEDES	30RAP010-150 ELECTRICAL	30RA555560	REV
11/04/11	03/07/11			D

Detailed Performance Summary For 50 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM



AquaSnap™ Air-Cooled Scroll Chiller



Unit Information

Tag Name:..... **50 Ton**
Model Number:..... **30RAP050**
Condenser Type:..... **Air Cooled**
Compressor Type:..... **Scroll**
Nameplate Voltage:..... **460-3-60** V-Ph-Hz
Quantity:..... **1**
Manufacturing Source:..... **Charlotte, NC USA**
ASHRAE 90.1:..... **2013/2016, 2010, 2007**
Refrigerant:..... **R-410A**
Capacity Control Steps:..... **5**
Minimum Capacity:..... **14.50** %
Shipping Weight:..... **2588** lb
Operating Weight:..... **2383** lb
Refrigerant Weight (Circuit A):..... **18** lb
Refrigerant Weight (Circuit B):..... **18** lb
Unit Length:..... **89** in
Unit Width:..... **93** in
Unit Height:..... **79** in
Minimum Outdoor Operating Temp:..... **-20.0** °F
Chiller Pressure Drop*:..... **12.6** ft H2O

*Use Chiller Pressure Drop for sizing pumps. This value includes losses due to chiller piping, fittings, 40 mesh factory supplied strainer and BPHX.

*Refer to Chiller Pressure Drop for sizing pumps.
Evaporator Pressure Drop*:..... **6.81** ft H2O
*Refer to Chiller Pressure Drop for sizing pumps.

Condenser Information

Altitude:..... **0.000** ft
Number of Fans:..... **3**
Total Condenser Fan Air Flow:..... **30,500** CFM
Entering Air Temperature:..... **95.0** °F

Performance Information

Cooling Capacity:..... **47.99** Tons
Total Compressor Power:..... **52.35** kW
Total Fan Motor Power:..... **3.779** kW
Total Unit Power (without pump):..... **56.13** kW
Efficiency (without pump) (EER):..... **10.26** BTU/Wh

Evaporator Information

Fluid Type:..... **Fresh Water**
Fouling Factor:..... **0.000100** (hr-sqft-F)/BTU
Leaving Temperature:..... **44.00** °F
Entering Temperature:..... **54.00** °F
Fluid Flow:..... **114.7** gpm
Fluid Flow Min:..... **57.00** gpm
Fluid Flow Max:..... **228.0** gpm

Detailed Performance Summary For 50 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

Integrated Pump Information

No Pump Selected

Fixed Speed Condenser Fan

Accessories and Installed Options

Evaporator Heater
Non-Fused Disconnect
Micro Channel
Low Sound
Hot Gas Bypass
Low Ambient Head Pressure Control
Security Grilles/Hail Guards
BACnet Communications
Single Point

Electrical Information

Unit Voltage:.....**460-3-60** V-Ph-Hz
Connection Type:.....**Single Point**

Amps	Electrical Circuit 1	Electrical Circuit 2
MCA	106.9	---
MOCP	125.0	---
ICF	228.0	---
Rec Fuse Size	125.0	

Detailed Performance Summary For 50 Ton

Project: BRCC Chillers
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05/10/2019
10:23AM

Integrated Part Load Value (AHRI)

IPLV:.....**15.30** BTU/Wh

Unit Performance				
Percent of Full Load Capacity, %	100.00	75.00	50.00	25.00
Percent of Full Load Power, %	100.00	55.83	30.23	17.35
Unloading Sequence	A	A	A	A
Cooling Capacity, Tons	47.99	35.99	23.99	12.00
Total Unit Power, kW	56.13	31.33	16.97	9.739
Efficiency (EER), BTU/Wh	10.26	13.78	16.97	14.78
Evaporator Data				
Fluid Entering Temperature, °F	54.00	51.49	48.99	46.50
Fluid Leaving Temperature, °F	44.00	44.00	44.00	44.00
Fluid Flow Rate, gpm	114.7	114.7	114.7	114.7
Fouling Factor, (hr-sqft-F)/BTU	0.000100	0.000100	0.000100	0.000100
Condenser Data				
Entering Air Temperature, °F	95.0	80.0	65.0	55.0

For some 75% operating points, the efficiency may be calculated at a condenser inlet air operating temperature as much as 0.8 degrees higher.

An uncoated Novation condenser coil was selected for this product. This is based on an installed location with postal code 28731 and a non-corrosive localized environment.
Sound power measured in accordance with ANSI/AHRI Standard 370-2015.



Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found in the AHRI Directory at www.ahridirectory.org.

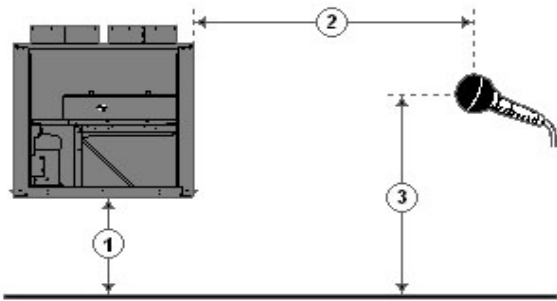
Detailed Performance Summary For 50 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

Unit Parameters

Tag Name:..... **50 Ton**
 Model Number:..... **30RAP050**
 Condenser Type:..... **Air Cooled**
 Compressor Type:..... **Scroll**
 Chiller Nameplate Voltage:..... **460-3-60** V-Ph-Hz
 Quantity:..... **1**
 Manufacturing Source:..... **Charlotte, NC USA**
 Refrigerant:..... **R-410A**
 Shipping Weight:..... **2588** lb
 Operating Weight:..... **2383** lb
 Refrigerant Weight (Circuit A):..... **18** lb
 Refrigerant Weight (Circuit B):..... **18** lb
 Unit Length:..... **89** in
 Unit Width:..... **93** in
 Unit Height:..... **79** in



1 - Chiller Height Above Ground
 2 - Horizontal Distance From Chiller to Receiver
 3 - Receiver Height Above Ground
 (See Note 3)

Accessories and Installed Options

Evaporator Heater	Low Ambient Head Pressure Control
Non-Fused Disconnect	Security Grilles/Hail Guards
Micro Channel	BACnet Communications
Low Sound	Single Point
Hot Gas Bypass	Fixed Speed Condenser Fan

Acoustic Information

Table 1. A-Weighted Sound Power Levels (dB re 1 picowatt). See note #1.

Octave Band Center Frequency, Hz	31	63	125	250	500	1k	2k	4k	8k	Overall
100% Load	38	61	70	80	84	85	85	79	72	90
75% Load	39	61	70	80	85	86	85	79	70	91
50% Load	37	58	68	78	83	84	83	77	67	89
25% Load	37	59	68	78	83	84	83	77	68	89

Table 2. A-Weighted Sound Pressure Levels (dB re 20 micropascals) calculated based upon user defined input for dimensions 1, 2 and 3 as shown in above diagram. See note #2 and #3.

Octave Band Center Frequency, Hz	31	63	125	250	500	1k	2k	4k	8k	Overall
100% Load	10	33	42	52	56	57	57	51	44	62
75% Load	11	33	42	52	57	57	57	51	42	63
50% Load	9	30	40	50	55	56	55	49	39	61
25% Load	9	31	40	50	55	56	55	49	40	61

- Notes: (1) Measurements performed in accordance with AHRI Standard 370-2015 for air cooled Chillers.
 (2) Chiller is assumed to be a point source on a reflecting plane.
 (3) Without user defined input, the default dimensions used to construct Table 2 are as follows:
 1 - Chiller Height Above Ground = 0.0 ft
 2 - Horizontal Distance From Chiller to Receiver = 30.0 ft
 3 - Receiver Height Above Ground = 3.0 ft

70 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

70 Ton

**Tag Cover Sheet
Unit Report
Certified Drawing
Wiring Diagram
Detailed Performance Report**

Unit Report For 70 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

Unit Information

Tag Name:..... **70 Ton**
 Model Number:..... **30RB070**
 Condenser Type:..... **Air Cooled**
 Compressor Type:..... **Scroll**
 Nameplate Voltage:..... **208/230-3-60** V-Ph-Hz
 Quantity:..... **1**
 Manufacturing Source:..... **Charlotte, NC USA**
 Refrigerant:..... **R410A**
 Independent Refrigerant Circuits:..... **2**
 Capacity Control Steps:..... **4**
 Minimum Capacity:..... **19.0** %
 Shipping Weight:..... **3738** lb
 Operating Weight:..... **3978** lb
 Unit Length:..... **95** in
 Unit Width:..... **89** in
 Unit Height:..... **90** in

Accessories and Installed Options

Freeze Protection
 Suction Line Insulation
 Non-Fused Disconnect
 Micro Channel
 Low Sound Option
 Low Ambient Head Pressure Control
 Minimum Load Control
 Single Point
 BACnet Communications
 Coil Trim Panels, Grilles, Upper Hail Guards

Chiller Warranty Information (Note: for US & Canada only)

First Year - Parts Only (Standard)
 Start-up and Complete Unit 1st Year Labor, First Unit
 Compressor Years 2-5 Parts Only

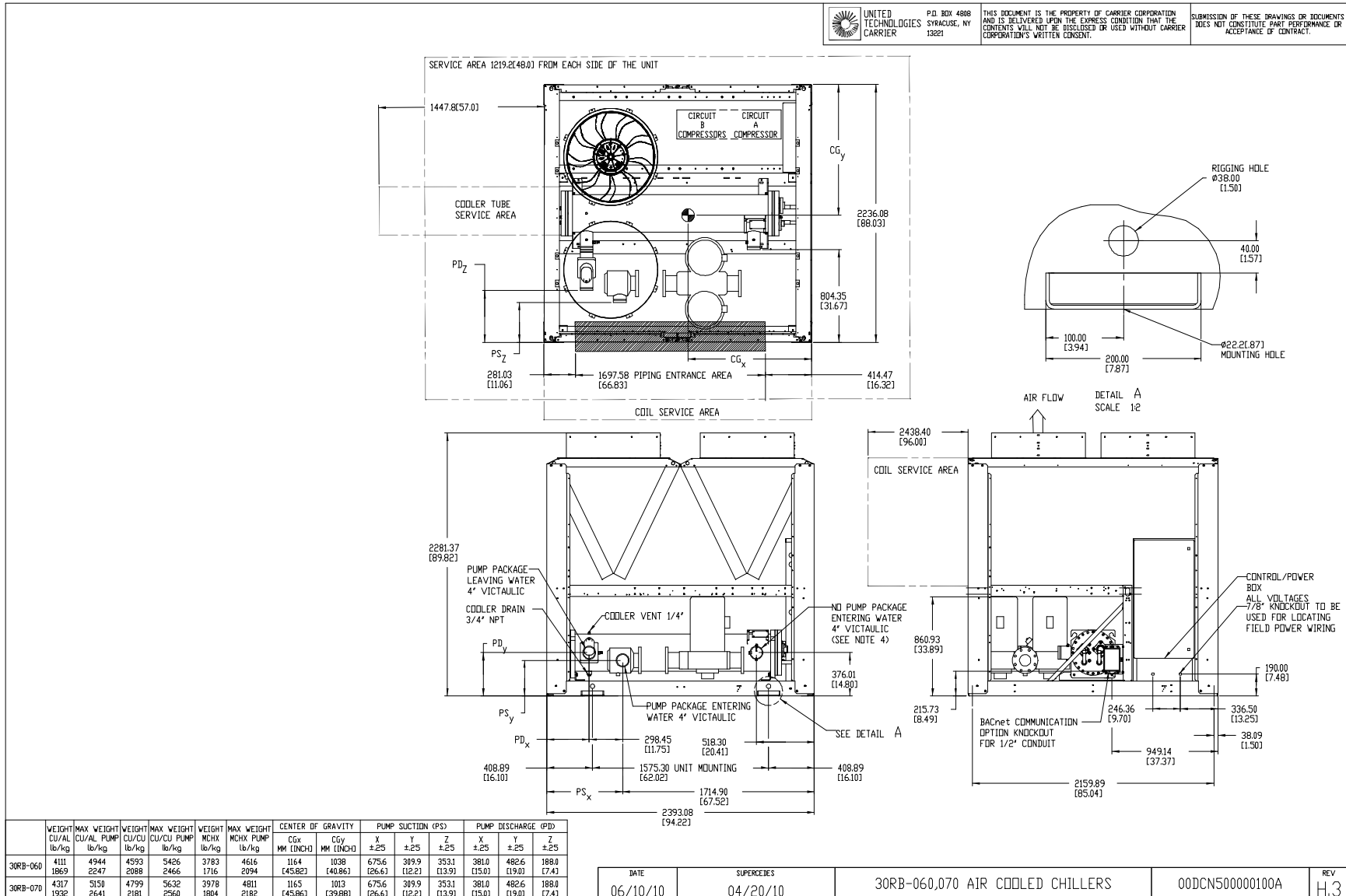
Ordering Information

Part Number	Description	Quantity
30RBX07054-LDL3C	Packaged Chiller	1
	Base Unit	
	Freeze Protection	
	Suction Line Insulation	
	Non-Fused Disconnect	
	Micro Channel	
	Low Sound Option	
	Low Ambient Head Pressure Control	
	Minimum Load Control	
	Single Point	
	BACnet Communications	
	Coil Trim Panels, Grilles, Upper Hail Guards	

Certified Drawing for 70 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM



Field Wiring Diagram for 70 Ton

Project: BRCC Chillers
Prepared By:

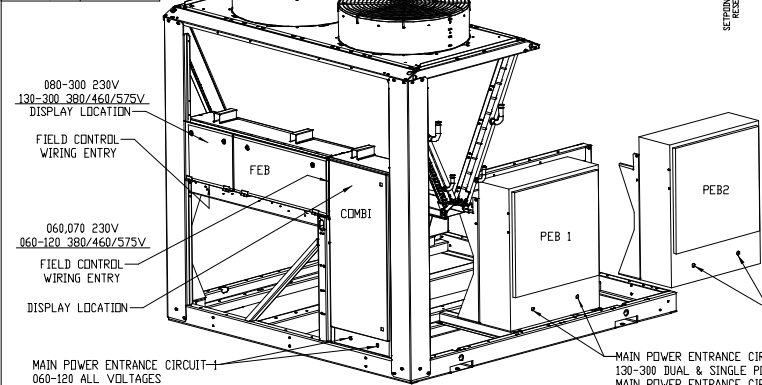
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NOTES:

1. FACTORY WIRING IS IN ACCORDANCE WITH UL 1995 STANDARDS. FIELD MODIFICATIONS OR ADDITIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES.
2. WIRING FOR MAIN FIELD SUPPLY MUST BE RATED 75C MINIMUM. USE COPPER FOR ALL UNITS. INCOMING WIRE SIZE RANGE FOR THE TERMINAL BLOCK IS #4 AWG TO 500 KCMIL. INCOMING WIRE SIZE RANGE OF NON-FUSED DISCONNECT WITH MCA UP TO 599.9 AMPS IS 3/0 TO 500 KCMIL. INCOMING WIRE SIZE RANGE OF NON-FUSED DISCONNECT WITH MCA FROM 600 TO 799.9 AMPS IS 1/0 TO 500 KCMIL. INCOMING WIRE SIZE RANGE OF NON-FUSED DISCONNECT WITH MCA FROM 800 TO 1999.9 AMPS IS 250 KCMIL TO 500 KCMIL.
3. TERMINALS 9 AND 10 OF TBS ARE FOR FIELD EXTERNAL CONNECTIONS FOR REMOTE ON-OFF. THE CONTACTS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 MA.
4. TERMINALS 1 AND 2 OF TBS ARE FOR EXTERNAL CONNECTIONS OF CHILLED WATER PUMP INTERLOCK. THE CONTACTS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 MA.
5. TERMINALS 11 AND 13 OF TBS ARE FOR CONTROL OF CHILLED WATER PUMP1 (PMP1) STARTER. TERMINALS 13 AND 15 OF TBS ARE FOR CONTROL OF CHILLED WATER PUMP2 (PMP2) STARTER. THE MAXIMUM LOAD ALLOWED FOR THE CHILLED WATER PUMP RELAY IS 5 VA SEALED, 10 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
6. FOR CONTROL OF CHILLED WATER PUMPS, A SET OF NORMALLY OPEN CONTACTS RATED FOR DRY CIRCUIT APPLICATION MUST BE SUPPLIED FROM FIELD SUPPLIED PUMP STARTER RELAY. CONNECT CONTACTS TO VIOLET AND PINK WIRES IN HARNESS FROM MAIN BASE BOARD CHANNEL 1B. WIRES IN HARNESS ARE MARKED PMP1-13 AND PMP1-14.
7. TERMINALS 12 AND 13 OF TBS ARE FOR A ALARM RELAY. THE MAXIMUM LOAD ALLOWED FOR THE ALARM RELAY IS 10 VA SEALED, 25 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
8. MAKE APPROPRIATE CONNECTIONS TO TB6 AS SHOWN FOR ENERGY MANAGEMENT BOARD OPTIONS. THE CONTACTS FOR OCCUPANCY OVERRIDE, DEMAND LIMIT AND ICE DONE OPTIONS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 MA.
9. J3 - 24 AND 25 OF EMM BOARD ARE FOR RUN RELAY AND SHUTDOWN RELAY. THE MAXIMUM LOAD ALLOWED FOR THE RUN AND SHUTDOWN RELAY IS 10 VA SEALED, 25 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.

- A - ALARM
CWP - CHILLED WATER PUMP INTERLOCK
CVP - CHILLED WATER PUMP
EMM - ENERGY MANAGEMENT
SHD R - SHUTDOWN RELAY
RUN R - RUN RELAY
MLV - MINIMUM LOAD VALVE
- TB - TERMINAL BLOCK
- - - FIELD POWER WIRING
- - - FIELD CONTROL WIRING

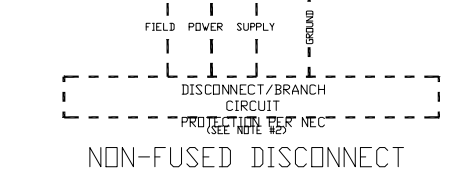
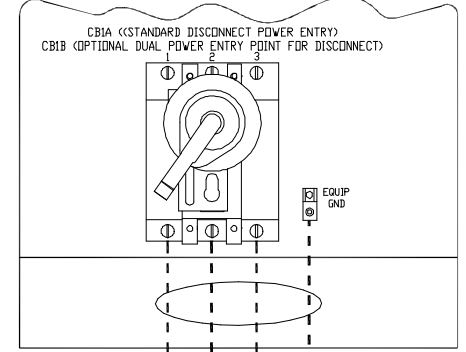
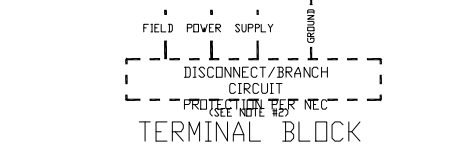
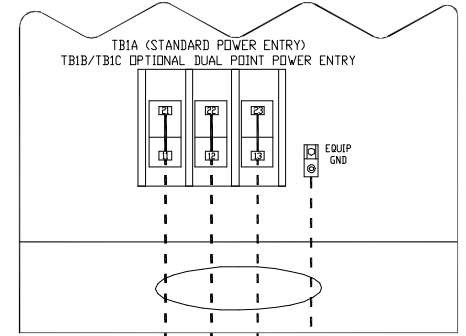
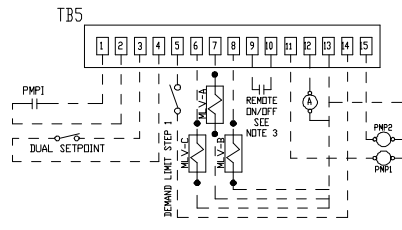
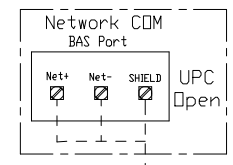
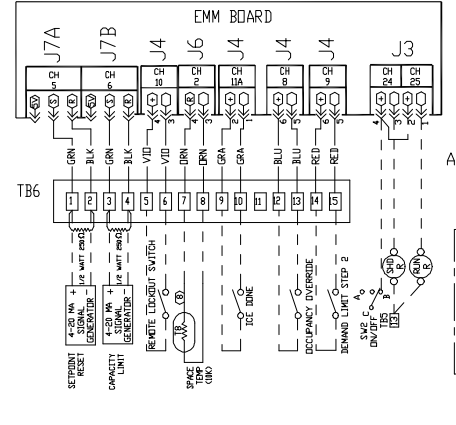
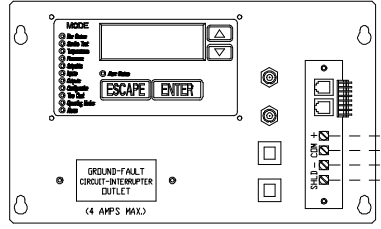
SIZE	STD UNIT
315A,B	160
330B	160
330A	
345A,B	170
360A	
360A	
390A,B	190



TYPICAL CONTROL BOX AND MAIN POWER ENTRY LOCATIONS

- 080-300 230V
130-300 380/460/575V
DISPLAY LOCATION
- 060,070 230V
060-120 380/460/575V
FIELD CONTROL WIRING ENTRY
- 060-120 230V
060-120 380/460/575V
FIELD CONTROL WIRING ENTRY
- DISPLAY LOCATION
- MAIN POWER ENTRANCE CIRCUIT-1
060-120 ALL VOLTAGES
130-190 DUAL & SINGLE POINT 208/230V
210-300 DUAL POINT 208/230V
- MAIN POWER ENTRANCE CIRCUIT 2
060-120 DUAL POINT ALL VOLTAGES
130-190 DUAL POINT WITH DISCONNECT OPTION 380/460/575V
210,225 DUAL POINT WITH DISCONNECT OPTION 380/460/575V
- MAIN POWER ENTRANCE CIRCUIT 1
210-300 DUAL POINT, 208/230V
- MAIN POWER ENTRANCE CIRCUIT 2
130-300 DUAL & SINGLE POINT, 380/460/575V
- MAIN POWER ENTRANCE CIRCUIT 2
130-190 DUAL POINT, 208/230V
- 130-190 DUAL POINT WITH TERMINAL BLOCKS, 380/460/575V
- 210,225 DUAL POINT WITH TERMINAL BLOCKS, 380/460/575V

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DATE	SUPERCEDES	30RB060-390 AIR-COOLED AQUASNAP CHILLER	00DCN500001300A	REV
06/10/10	03/09/09			G.2

Detailed Performance Summary For 70 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM



AquaSnap™ Air-Cooled Scroll Chiller



Unit Information

Tag Name:..... **70 Ton**
Model Number:..... **30RB070**
Condenser Type:..... **Air Cooled**
Compressor Type:..... **Scroll**
Nameplate Voltage:..... **208/230-3-60** V-Ph-Hz
Quantity:..... **1**
Manufacturing Source:..... **Charlotte, NC USA**
ASHRAE 90.1:..... **2010, 2007**
Refrigerant:..... **R-410A**
Capacity Control Steps:..... **4**
Minimum Capacity:..... **19.00** %
Shipping Weight:..... **3738** lb
Operating Weight:..... **3978** lb
Refrigerant Weight (Circuit A):..... **40** lb
Refrigerant Weight (Circuit B):..... **20** lb
Unit Length:..... **95** in
Unit Width:..... **89** in
Unit Height:..... **90** in
Minimum Outdoor Operating Temp:..... **-20.0** °F

Total Condenser Fan Air Flow:..... **49,600** CFM
Entering Air Temperature:..... **95.0** °F

Performance Information

Cooling Capacity:..... **66.20** Tons
Total Compressor Power:..... **70.09** kW
Total Fan Motor Power:..... **10.32** kW
Total Unit Power (without pump):..... **80.41** kW
Efficiency (without pump) (EER):..... **9.880** BTU/Wh

Evaporator Information

Fluid Type:..... **Fresh Water**
Fouling Factor:..... **0.000100** (hr-sqft-F)/BTU
Leaving Temperature:..... **44.00** °F
Entering Temperature:..... **54.00** °F
Fluid Flow:..... **158.3** gpm
Fluid Flow Min:..... **84.00** gpm
Fluid Flow Max:..... **336.0** gpm
Pressure Drop:..... **11.6** ft H2O

Condenser Information

Altitude:..... **0.000** ft
Number of Fans:..... **4**

Detailed Performance Summary For 70 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

Integrated Pump Information

No Pump Selected

Accessories and Installed Options

Freeze Protection
Suction Line Insulation
Non-Fused Disconnect
Micro Channel
Low Sound Option
Low Ambient Head Pressure Control
Minimum Load Control
Single Point
BACnet Communications
Coil Trim Panels, Grilles, Upper Hail Guards

Electrical Information

Unit Voltage:.....**208/230-3-60** V-Ph-Hz
Connection Type:.....**Single Point**
Minimum Voltage:.....**187** Volts
Maximum Voltage:.....**253** Volts

Amps	Electrical Circuit 1	Electrical Circuit 2
MCA	334.7	---
MOCP	400.0	---
ICF	777.0	---
Rec Fuse Size	400.0	

Detailed Performance Summary For 70 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

Integrated Part Load Value (AHRI)

IPLV:.....**13.09** BTU/Wh

Unit Performance				
Percent of Full Load Capacity, %	100.00	75.00	50.00	25.00
Percent of Full Load Power, %	100.00	61.73	34.78	18.97
Unloading Sequence	B	B	B	B
Cooling Capacity, Tons	66.20	49.65	33.10	16.55
Total Unit Power, kW	80.41	49.63	27.97	15.25
Efficiency (EER), BTU/Wh	9.880	12.00	14.20	13.02
Evaporator Data				
Fluid Entering Temperature, °F	54.00	51.49	48.99	46.50
Fluid Leaving Temperature, °F	44.00	44.00	44.00	44.00
Fluid Flow Rate, gpm	158.3	158.3	158.3	158.3
Fouling Factor, (hr-sqft-F)/BTU	0.000100	0.000100	0.000100	0.000100
Condenser Data				
Entering Air Temperature, °F	95.0	80.0	65.0	55.0

An uncoated Novation condenser coil was selected for this product. This is based on an installed location with postal code 28731 and a non-corrosive localized environment.

Sound power measured in accordance with ANSI/AHRI Standard 370-2015.



Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found in the AHRI Directory at www.ahridirectory.org.

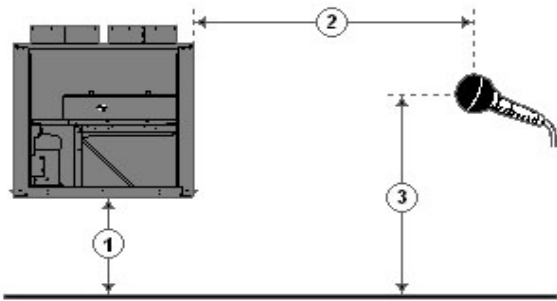
Detailed Performance Summary For 70 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

Unit Parameters

Tag Name:..... **70 Ton**
 Model Number:..... **30RB070**
 Condenser Type:..... **Air Cooled**
 Compressor Type:..... **Scroll**
 Chiller Nameplate Voltage:..... **208/230-3-60** V-Ph-Hz
 Quantity:..... **1**
 Manufacturing Source:..... **Charlotte, NC USA**
 Refrigerant:..... **R-410A**
 Shipping Weight:..... **3738** lb
 Operating Weight:..... **3978** lb
 Refrigerant Weight (Circuit A):..... **40** lb
 Refrigerant Weight (Circuit B):..... **20** lb
 Unit Length:..... **95** in
 Unit Width:..... **89** in
 Unit Height:..... **90** in



1 - Chiller Height Above Ground
 2 - Horizontal Distance From Chiller to Receiver
 3 - Receiver Height Above Ground
 (See Note 3)

Accessories and Installed Options

Freeze Protection	Low Ambient Head Pressure Control
Suction Line Insulation	Minimum Load Control
Non-Fused Disconnect	Single Point
Micro Channel	BACnet Communications
Low Sound Option	Coil Trim Panels, Grilles, Upper Hail Guards

Acoustic Information

Table 1. A-Weighted Sound Power Levels (dB re 1 picowatt). See note #1.

Octave Band Center Frequency, Hz	31	63	125	250	500	1k	2k	4k	8k	Overall
100% Load	39	67	80	86	91	95	90	86	78	98
75% Load	37	66	80	86	91	95	90	86	78	98
50% Load	37	66	80	86	91	95	90	86	78	98
25% Load	34	61	75	81	85	89	85	81	73	93

Table 2. A-Weighted Sound Pressure Levels (dB re 20 micropascals) calculated based upon user defined input for dimensions 1, 2 and 3 as shown in above diagram. See note #2 and #3.

Octave Band Center Frequency, Hz	31	63	125	250	500	1k	2k	4k	8k	Overall
100% Load	10	39	52	58	63	67	62	58	50	70
75% Load	8	38	52	58	63	67	62	58	49	70
50% Load	8	38	52	58	63	67	62	58	49	70
25% Load	6	33	47	53	57	61	57	53	45	65

- Notes: (1) Measurements performed in accordance with AHRI Standard 370-2015 for air cooled Chillers.
 (2) Chiller is assumed to be a point source on a reflecting plane.
 (3) Without user defined input, the default dimensions used to construct Table 2 are as follows:
 1 - Chiller Height Above Ground = 0.0 ft
 2 - Horizontal Distance From Chiller to Receiver = 30.0 ft
 3 - Receiver Height Above Ground = 3.0 ft

100 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

100 Ton

**Tag Cover Sheet
Unit Report
Certified Drawing
Wiring Diagram
Detailed Performance Report**

Unit Report For 100 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

Unit Information

Tag Name:..... **100 Ton**
 Model Number:..... **30RB100**
 Condenser Type:..... **Air Cooled**
 Compressor Type:..... **Scroll**
 Nameplate Voltage:..... **208/230-3-60** V-Ph-Hz
 Quantity:..... **1**
 Manufacturing Source:..... **Charlotte, NC USA**
 Refrigerant:..... **R410A**
 Independent Refrigerant Circuits:..... **2**
 Capacity Control Steps:..... **5**
 Minimum Capacity:..... **18.0** %
 Shipping Weight:..... **5398** lb
 Operating Weight:..... **5663** lb
 Unit Length:..... **142** in
 Unit Width:..... **89** in
 Unit Height:..... **90** in

Accessories and Installed Options

Freeze Protection
 Suction Line Insulation
 Non-Fused Disconnect
 Micro Channel
 Low Sound Option
 Low Ambient Head Pressure Control
 Minimum Load Control
 Single Point
 BACnet Communications
 Coil Trim Panels, Grilles, Upper Hail Guards

Chiller Warranty Information (Note: for US & Canada only)

First Year - Parts Only (Standard)
 Start-up and Complete Unit 1st Year Labor, First Unit
 Compressor Years 2-5 Parts Only

Ordering Information

Part Number	Description	Quantity
30RBX10054-LDL3C	Packaged Chiller	1
	Base Unit	
	Freeze Protection	
	Suction Line Insulation	
	Non-Fused Disconnect	
	Micro Channel	
	Low Sound Option	
	Low Ambient Head Pressure Control	
	Minimum Load Control	
	Single Point	
	BACnet Communications	
	Coil Trim Panels, Grilles, Upper Hail Guards	

Certified Drawing for 100 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

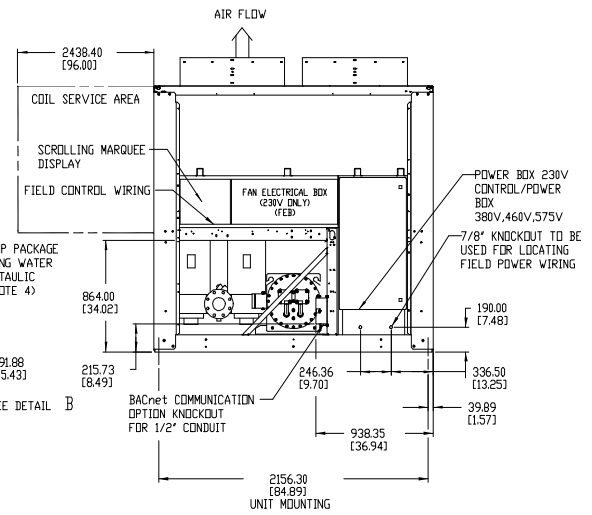
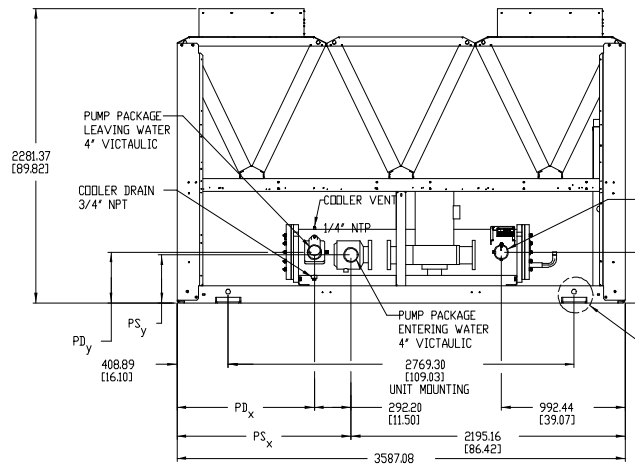
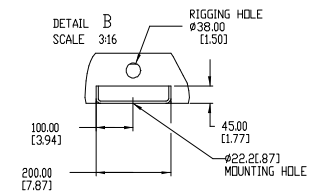
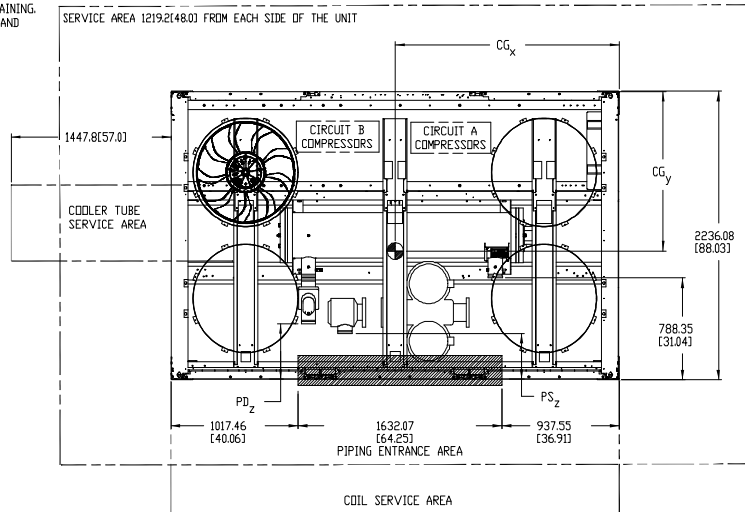
NOTES: 1. UNIT MUST HAVE CLEARANCES AS FOLLOWS:

- TOP- DO NOT RESTRICT SIDES AND END- 6" FROM SOLID SURFACE FOR AIRFLOW
- SIDE- 8" REQUIRED FOR COIL SERVICE AREA.
2. ALL PUMPS HAVE DRAINS LOCATED AT THE BOTTOM OF VOLUTE FOR DRAINING.
3. TEMPERATURE RELIEF DEVICES LOCATED ON SUCTION LINE, LIQUID LINE AND FILTER DRIER OF EACH CIRCUIT AND HAVE 1/4" FLARE CONNECTION.
4. NO PUMP PACKAGE LEAVING WATER CONNECTION IS SAME SIZE AND HAS SAME Y AND Z DIMENSIONS AS ENTERING WATER. ALSO HAS SAME PDX DIMENSION AS PUMP PACKAGE.



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	WEIGHT CU/AL lb/kg	MAX WEIGHT CU/AL PUMP lb/kg	WEIGHT CU/AL lb/kg	MAX WEIGHT CU/AL PUMP lb/kg	WEIGHT MCHX lb/kg	MAX WEIGHT MCHX PUMP lb/kg	CENTER OF GRAVITY		PUMP SUCTION (PS)			PUMP DISCHARGE (PD)		
							CG _x MM [INCH]	CG _y MM [INCH]	X ±25	Y ±25	Z ±25	X ±25	Y ±25	Z ±25
30RB-090	5932	6855	6656	7579	5449	6372	1625	1017	1389.4	309.9	3531	1097.3	497.8	170.2
	2697	3116	3026	3445	2472	2890	64.00	40.00	54.73	12.27	113.91	43.27	119.61	16.77
30RB-100	6155	7078	6879	7802	5663	6386	1614	999	1389.4	309.9	3531	1097.3	497.8	170.2
	2798	3217	3127	3547	2569	2987	63.53	39.53	54.73	12.27	113.91	43.27	119.61	16.77

DATE	SUPERCEDES	30RB-090,100 AIR COOLED CHILLER	00DCN500000300A	REV
06/10/10	04/20/10			H.4

Field Wiring Diagram for 100 Ton

Project: BRCC Chillers
Prepared By:

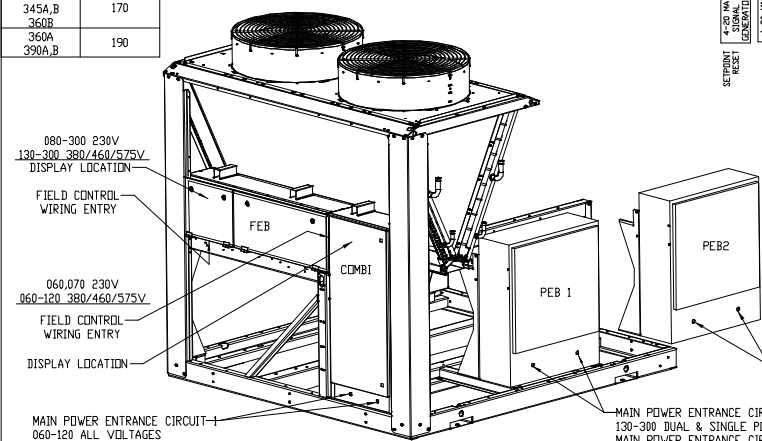
05/10/2019
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NOTES:

1. FACTORY WIRING IS IN ACCORDANCE WITH UL 1995 STANDARDS. FIELD MODIFICATIONS OR ADDITIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES.
2. WIRING FOR MAIN FIELD SUPPLY MUST BE RATED 75C MINIMUM. USE COPPER FOR ALL UNITS. INCOMING WIRE SIZE RANGE FOR THE TERMINAL BLOCK IS #4 AWG TO 500 KCMIL. INCOMING WIRE SIZE RANGE OF NON-FUSED DISCONNECT WITH MCA UP TO 599.9 AMPS IS 3/0 TO 500 KCMIL. INCOMING WIRE SIZE RANGE OF NON-FUSED DISCONNECT WITH MCA FROM 600 TO 799.9 AMPS IS 1/0 TO 500 KCMIL. INCOMING WIRE SIZE RANGE OF NON-FUSED DISCONNECT WITH MCA FROM 800 TO 1999.9 AMPS IS 250 KCMIL TO 500 KCMIL.
3. TERMINALS 9 AND 10 OF TBS ARE FOR FIELD EXTERNAL CONNECTIONS FOR REMOTE ON-OFF. THE CONTACTS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 MA.
4. TERMINALS 1 AND 2 OF TBS ARE FOR EXTERNAL CONNECTIONS OF CHILLED WATER PUMP INTERLOCK. THE CONTACTS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 MA.
5. TERMINALS 11 AND 13 OF TBS ARE FOR CONTROL OF CHILLED WATER PUMP1 (PMP1) STARTER. TERMINALS 13 AND 15 OF TBS ARE FOR CONTROL OF CHILLED WATER PUMP2 (PMP2) STARTER. THE MAXIMUM LOAD ALLOWED FOR THE CHILLED WATER PUMP RELAY IS 5 VA SEALED, 10 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
6. FOR CONTROL OF CHILLED WATER PUMPS, A SET OF NORMALLY OPEN CONTACTS RATED FOR DRY CIRCUIT APPLICATION MUST BE SUPPLIED FROM FIELD SUPPLIED PUMP STARTER RELAY. CONNECT CONTACTS TO VIOLET AND PINK WIRES IN HARNESS FROM MAIN BASE BOARD CHANNEL 1B. WIRES IN HARNESS ARE MARKED PMP1-13 AND PMP1-14.
7. TERMINALS 12 AND 13 OF TBS ARE FOR A ALARM RELAY. THE MAXIMUM LOAD ALLOWED FOR THE ALARM RELAY IS 10 VA SEALED, 25 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
8. MAKE APPROPRIATE CONNECTIONS TO TB6 AS SHOWN FOR ENERGY MANAGEMENT BOARD OPTIONS. THE CONTACTS FOR OCCUPANCY OVERRIDE, DEMAND LIMIT AND ICE DONE OPTIONS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 MA.
9. J3 - 24 AND 25 OF EMM BOARD ARE FOR RUN RELAY AND SHUTDOWN RELAY. THE MAXIMUM LOAD ALLOWED FOR THE RUN AND SHUTDOWN RELAY IS 10 VA SEALED, 25 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.

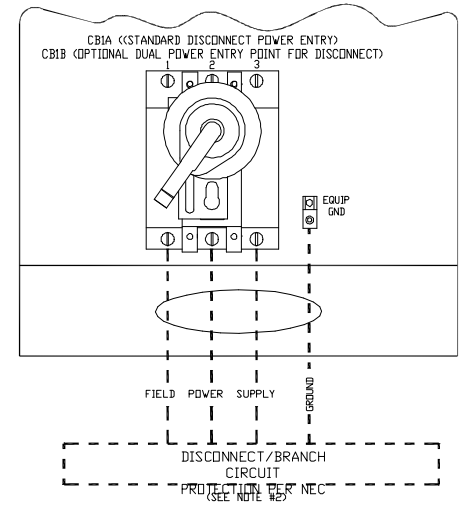
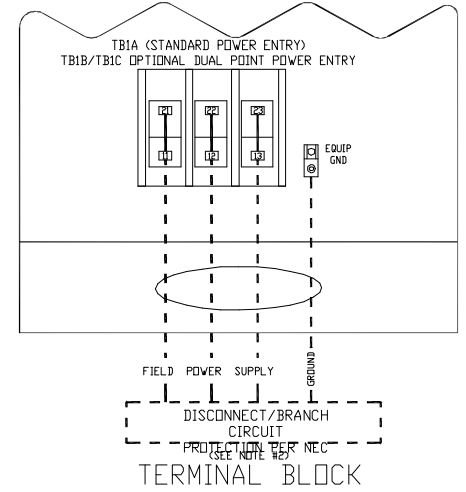
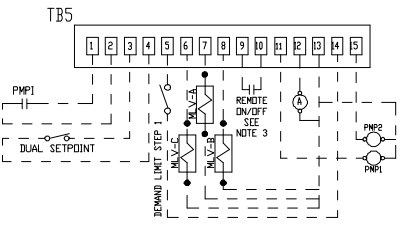
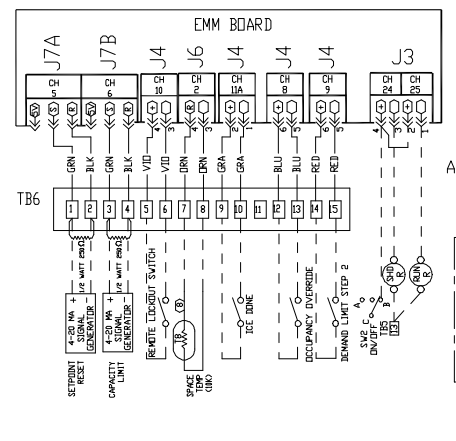
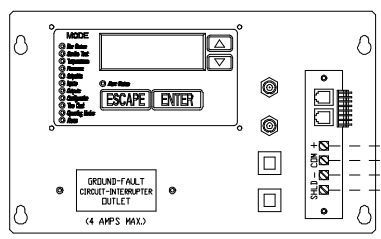
- A - ALARM
CWP - CHILLED WATER PUMP INTERLOCK
CVP - CHILLED WATER PUMP
EMM - ENERGY MANAGEMENT
SHD R - SHUTDOWN RELAY
RUN R - RUN RELAY
MLV - MINIMUM LOAD VALVE

SIZE	STD UNIT
315A,B	160
330A	170
345A,B	170
360A	190
390A,B	190



- MAIN POWER ENTRANCE CIRCUIT-1**
060-120 ALL VOLTAGES
130-190 DUAL & SINGLE POINT 208/230V
210-300 DUAL POINT 208/230V
- MAIN POWER ENTRANCE CIRCUIT 2**
060-120 DUAL POINT ALL VOLTAGES
130-190 DUAL POINT WITH DISCONNECT OPTION,380/460/575V
210,225 DUAL POINT WITH DISCONNECT OPTION,380/460/575V

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DATE	SUPERCEDES	30RB060-390 AIR-COOLED AQUASNAP CHILLER	00DCN500001300A	REV
06/10/10	03/09/09			G.2

Detailed Performance Summary For 100 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM



AquaSnap™ Air-Cooled Scroll Chiller



Unit Information

Tag Name:..... **100 Ton**
Model Number:..... **30RB100**
Condenser Type:..... **Air Cooled**
Compressor Type:..... **Scroll**
Nameplate Voltage:..... **208/230-3-60** V-Ph-Hz
Quantity:..... **1**
Manufacturing Source:..... **Charlotte, NC USA**
ASHRAE 90.1:..... **2010, 2007**
Refrigerant:..... **R-410A**
Capacity Control Steps:..... **5**
Minimum Capacity:..... **18.00** %
Shipping Weight:..... **5398** lb
Operating Weight:..... **5663** lb
Refrigerant Weight (Circuit A):..... **40** lb
Refrigerant Weight (Circuit B):..... **40** lb
Unit Length:..... **142** in
Unit Width:..... **89** in
Unit Height:..... **90** in
Minimum Outdoor Operating Temp:..... **-20.0** °F

Total Condenser Fan Air Flow:..... **74,400** CFM
Entering Air Temperature:..... **95.0** °F

Performance Information

Cooling Capacity:..... **92.83** Tons
Total Compressor Power:..... **94.08** kW
Total Fan Motor Power:..... **15.48** kW
Total Unit Power (without pump):..... **109.6** kW
Efficiency (without pump) (EER):..... **10.17** BTU/Wh

Evaporator Information

Fluid Type:..... **Fresh Water**
Fouling Factor:..... **0.000100** (hr-sqft-F)/BTU
Leaving Temperature:..... **44.00** °F
Entering Temperature:..... **54.00** °F
Fluid Flow:..... **222.0** gpm
Fluid Flow Min:..... **120.0** gpm
Fluid Flow Max:..... **480.0** gpm
Pressure Drop:..... **10.1** ft H2O

Condenser Information

Altitude:..... **0.000** ft
Number of Fans:..... **6**

Detailed Performance Summary For 100 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

Integrated Pump Information

No Pump Selected

Accessories and Installed Options

Freeze Protection
Suction Line Insulation
Non-Fused Disconnect
Micro Channel
Low Sound Option
Low Ambient Head Pressure Control
Minimum Load Control
Single Point
BACnet Communications
Coil Trim Panels, Grilles, Upper Hail Guards

Electrical Information

Unit Voltage:.....**208/230-3-60** V-Ph-Hz
Connection Type:.....**Single Point**
Minimum Voltage:.....**187** Volts
Maximum Voltage:.....**253** Volts

Amps	Electrical Circuit 1	Electrical Circuit 2
MCA	472.0	---
MOCP	500.0	---
ICF	914.3	---
Rec Fuse Size	500.0	

Detailed Performance Summary For 100 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

Integrated Part Load Value (AHRI)

IPLV:.....**13.23** BTU/Wh

Unit Performance				
Percent of Full Load Capacity, %	100.00	75.00	50.00	25.00
Percent of Full Load Power, %	100.00	61.35	35.61	20.53
Unloading Sequence	B	B	B	B
Cooling Capacity, Tons	92.83	69.63	46.42	23.21
Total Unit Power, kW	109.6	67.22	39.01	22.50
Efficiency (EER), BTU/Wh	10.17	12.43	14.28	12.38
Evaporator Data				
Fluid Entering Temperature, °F	54.00	51.49	48.99	46.50
Fluid Leaving Temperature, °F	44.00	44.00	44.00	44.00
Fluid Flow Rate, gpm	222.0	222.0	222.0	222.0
Fouling Factor, (hr-sqft-F)/BTU	0.000100	0.000100	0.000100	0.000100
Condenser Data				
Entering Air Temperature, °F	95.0	80.0	65.0	55.0

An uncoated Novation condenser coil was selected for this product. This is based on an installed location with postal code 28731 and a non-corrosive localized environment.

Sound power measured in accordance with ANSI/AHRI Standard 370-2015.



Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found in the AHRI Directory at www.ahridirectory.org.

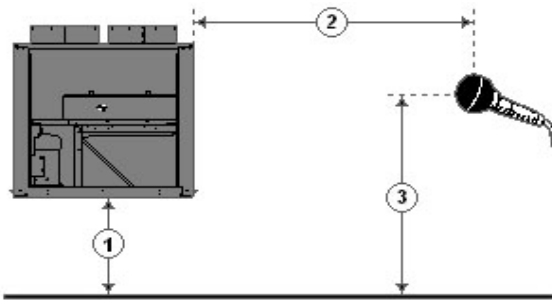
Detailed Performance Summary For 100 Ton

Project: BRCC Chillers
Prepared By:

05/10/2019
10:23AM

Unit Parameters

Tag Name:.....**100 Ton**
 Model Number:.....**30RB100**
 Condenser Type:.....**Air Cooled**
 Compressor Type:.....**Scroll**
 Chiller Nameplate Voltage:.....**208/230-3-60** V-Ph-Hz
 Quantity:.....**1**
 Manufacturing Source:.....**Charlotte, NC USA**
 Refrigerant:.....**R-410A**
 Shipping Weight:.....**5398** lb
 Operating Weight:.....**5663** lb
 Refrigerant Weight (Circuit A):.....**40** lb
 Refrigerant Weight (Circuit B):.....**40** lb
 Unit Length:.....**142** in
 Unit Width:.....**89** in
 Unit Height:.....**90** in



1 - Chiller Height Above Ground
 2 - Horizontal Distance From Chiller to Receiver
 3 - Receiver Height Above Ground
 (See Note 3)

Accessories and Installed Options

Freeze Protection	Low Ambient Head Pressure Control
Suction Line Insulation	Minimum Load Control
Non-Fused Disconnect	Single Point
Micro Channel	BACnet Communications
Low Sound Option	Coil Trim Panels, Grilles, Upper Hail Guards

Acoustic Information

Table 1. A-Weighted Sound Power Levels (dB re 1 picowatt). See note #1.

Octave Band Center Frequency, Hz	31	63	125	250	500	1k	2k	4k	8k	Overall
100% Load	39	68	80	87	92	97	91	88	79	100
75% Load	39	67	80	87	92	97	91	87	79	99
50% Load	38	67	80	87	92	97	91	87	79	99
25% Load	36	64	80	85	89	93	89	85	76	97

Table 2. A-Weighted Sound Pressure Levels (dB re 20 micropascals) calculated based upon user defined input for dimensions 1, 2 and 3 as shown in above diagram. See note #2 and #3.

Octave Band Center Frequency, Hz	31	63	125	250	500	1k	2k	4k	8k	Overall
100% Load	11	39	52	59	64	69	63	59	51	71
75% Load	11	39	52	59	64	68	63	59	51	71
50% Load	10	39	52	58	64	68	63	59	51	71
25% Load	8	36	52	57	61	65	61	57	48	68

- Notes: (1) Measurements performed in accordance with AHRI Standard 370-2015 for air cooled Chillers.
 (2) Chiller is assumed to be a point source on a reflecting plane.
 (3) Without user defined input, the default dimensions used to construct Table 2 are as follows:
 1 - Chiller Height Above Ground = 0.0 ft
 2 - Horizontal Distance From Chiller to Receiver = 30.0 ft
 3 - Receiver Height Above Ground = 3.0 ft