



**הוד השרון**  
קהילה וטבע במרכז



**מכרז פומבי**  
**מס' 203/20**

**לביצוע עבודות החלפת יחידת קירור במתחם**  
**הספרייה העירונית ובית יד לבנים בהוד השרון**

מסמך ז'1 - מפרט טכני מיוחד

# ECGAM - Air-Cooled Chiller, Scroll Compressors



Job01

Tag ECGAM-1  
 Model number CGAM 80 HE SQ  
 Quantity 1



## General Information

Unit nominal tonnage	<b>80 tons</b>	Efficiency (Gross / Net)	<b>2.88 2.84 EER (kW/kW)</b>
Unit type	<b>High efficiency</b>	Sound power level	<b>88 dBA</b>
Sound attenuator package	<b>Super quiet</b>		
Refrigerant	<b>R410A</b>	SEER	<b>4.59</b>
Cooling Capacity (Gross / Net)	<b>61.70 tons 216.22 kW</b>	ETAsc (%)	<b>180.00</b>
TOPSS version number	<b>234</b>	SEPRMT	<b>3.67</b>
		SEPRHT	<b>5.38</b>

## Evaporator Information

Evaporator application	<b>Std cooling</b>	Fluid type	<b>Water</b>
Entering Water temperature	<b>12.0 C</b>	Fluid freeze point	<b>0.0 C</b>
Leaving Water temperature	<b>7.0 C</b>	Fluid concentration	
Fluid flow rate	<b>10.33 L/s</b>	Minimum flow rate	<b>5.40 L/s</b>
Pressure drop	<b>34.2 kPa</b>	Press drop at min flow rate	<b>9.6 kPa</b>
Fouling factor	<b>0.000000 m2-deg C/kW</b>	Maximum flow rate	<b>16.20 L/s</b>
		Press drop at max flow rate	<b>76.0 kPa</b>

Evaporator pressure drop includes the water strainer.

## Condenser Information

Unit application	<b>High ambient</b>	Total fan FLA	<b>13.20 A</b>
Ambient air temperature	<b>38.0 C</b>	Available static pressure	<b>0.0 kPa</b>
Elevation	<b>0.0 m</b>	Total airflow	<b>21.74 m3/s</b>
Number of fans	<b>6</b>	Fin material	<b>Lanced aluminum</b>
Fan motor power	<b>3.84 kW</b>		

## Compressor Information

Number of compressors	<b>4</b>	RLA	<b>LRA</b>
Number of circuit	<b>2</b>	Compressor A	<b>39.70 A 215.00 A</b>
Capacity steps	<b>4</b>	Compressor B	<b>39.70 A 215.00 A</b>
Total compressor power	<b>71.20 kW</b>	Compressor D	<b>39.70 A 215.00 A</b>
		Compressor E	<b>39.70 A 215.00 A</b>

## Electrical Information

Unit voltage	<b>400 volt 50 Hz 3 phases</b>	Unit current at design *	<b>128.13 A</b>
Unit hertz	<b>50 hertz</b>	Unit maximum current **	<b>171.80 A</b>
Unit power input	<b>75.36 kW</b>	Unit start-up current	<b>347.10 A</b>
Starter type	<b>Across the line</b>	Unit power factor *	<b>0.85</b>

Notes: \* At job conditions.

\*\* I MAX used to determine minimum copper cables section (the short circuit withstand of our main protection device is 15kA).

\* Electrical information excludes pump data.

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## Physical Information

Lenath	3647 mm	Water connections	114.00
Width	2273 mm	Refrigerant charge circuit 1	34 kg
Height	2379 mm	Refrigerant charge circuit 2	34 kg
Operating weight	2351 kg	Oil charge circuit 1	13.40 L
Shipping weight	2312 kg		

## Acoustical Performance

	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Sound power	87 dB	82 dB	83 dB	90 dB	80 dB	77 dB	71 dB	62 dB
Sound pressure (10m)	55 dB	50 dB	51 dB	58 dB	48 dB	45 dB	39 dB	30 dB

Note: Sound data is based on ISO 3744.

Notes: The sound power levels are in free field according to ISO 3746-1996. Reference source 1 pW.

The sound pressure levels are calculated from the sound power levels according to the formula:  $L_p = L_w - 10 \log S$ .

The sound data per octave band are for information only.



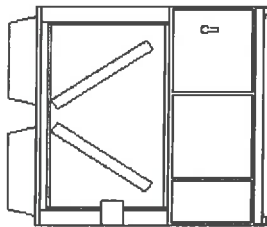


Job#1

20-120 Ton Chiller (EGGM)  
Rev: ECGM-1  
Qty: 1 Tag: ECGM-1  
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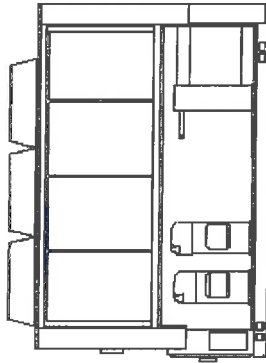
GENERAL VIEWS

LEFT SIDE VIEW

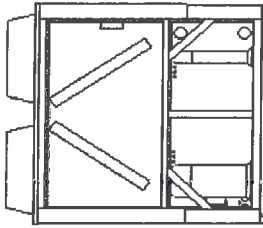


Louvered panels not shown  
over control panel for clarity

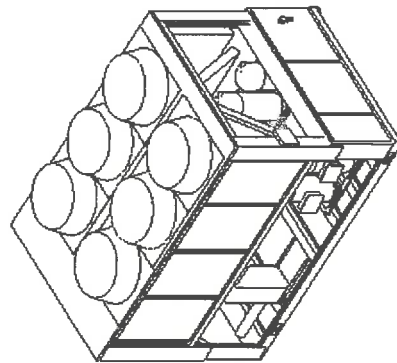
FRONT VIEW



RIGHT SIDE VIEW



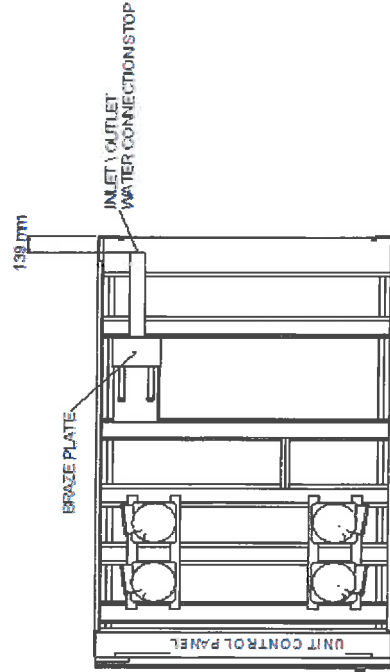
ISOMETRIC VIEW



TOP VIEW

Condenser, control panel and  
VSD (when ordered) removed for clarity

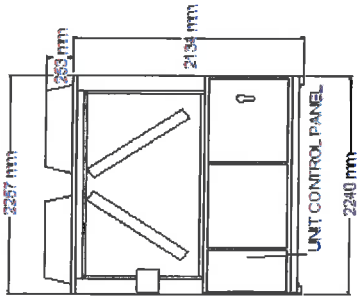
The flow switch is shipped as an accessory and will be assembled on site.  
The instructions are sent with the documentation of the kit.



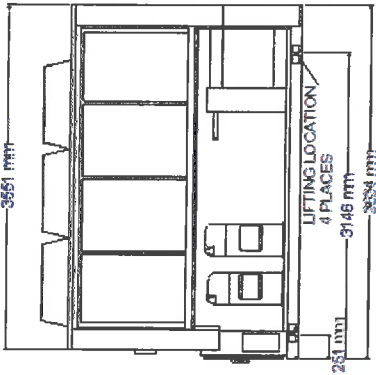
EGGM	080	HGH	SUPER QUIET	REV / A3
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UNIT DIMENSIONS

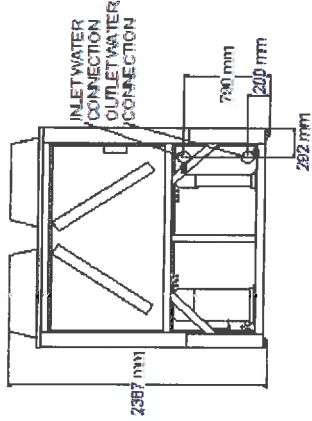
LEFT SIDE VIEW



FRONT VIEW

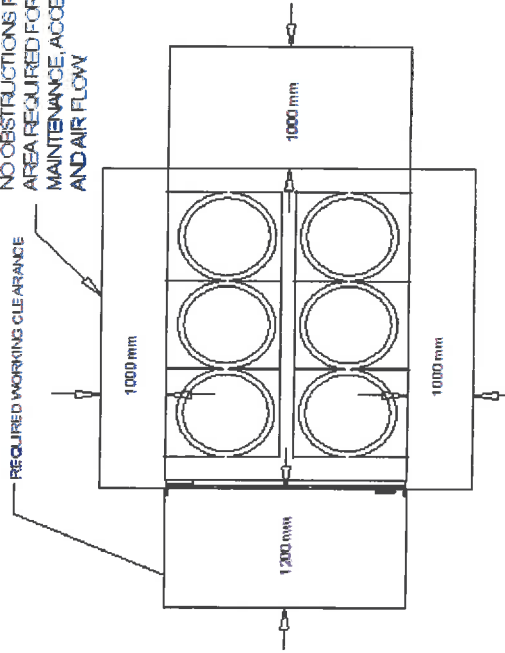


RIGHT SIDE VIEW

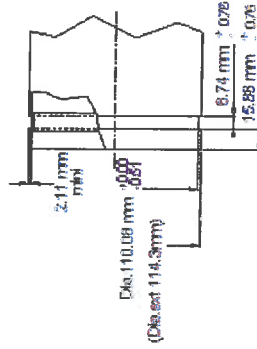


UNIT CLEARANCE

NO OBSTRUCTIONS RECOMMENDED.  
 AREA REQUIRED FOR UNIT OPERATION,  
 MAINTENANCE, ACCESS PANEL  
 AND AIR FLOW



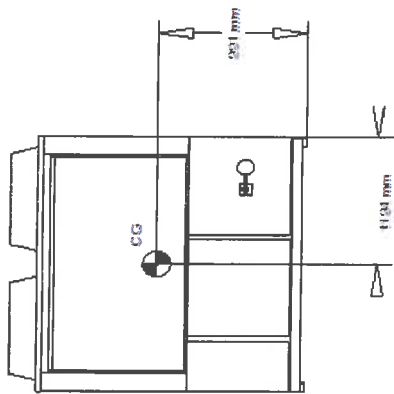
INLET/OUTLET WATER CONNECTION SIZE	4" (101.6mm)
BRASS PLATE	
WATER VOLUME/STORAGE	28.5 LITERS



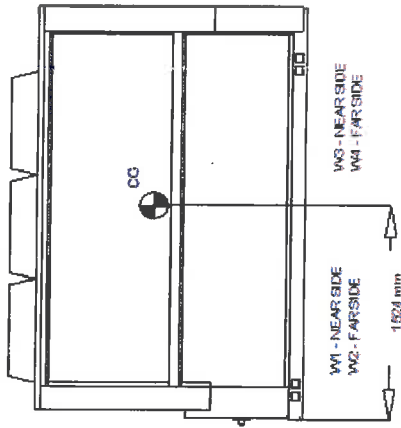
EGGM	080	HIGH	SUPER QUIET	REV / A2
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UNIT CENTER OF GRAVITY

FRONT VIEW

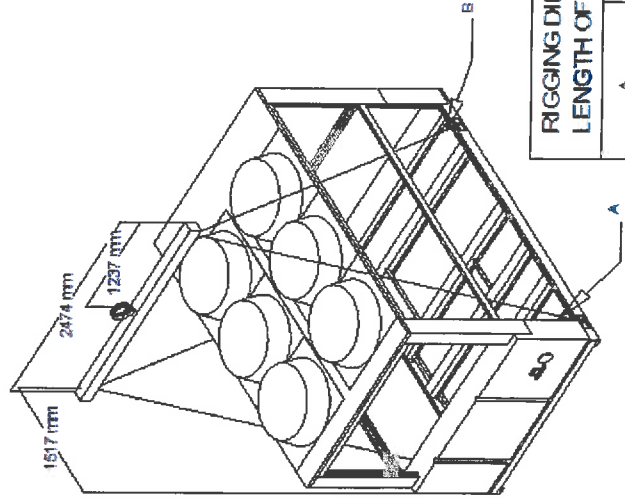


SIDE VIEW



UNIT RIGGING

LIFTING WEIGHTS				
W1	W2	W3	W4	SHIPPING WEIGHT
792.0 kg	648.2 kg	361.1 kg	355.9 kg	2312 kg



RIGGING DIMENSIONS LENGTH OF CABLES	
A	B
4039 mm	4173 mm

**WARNING**

**IMPROPER LIFTING AND MOVING!**

USE SPREADER BAR AS SHOWN IN DIAGRAM.  
 REFER TO INSTALLATION MANUAL OR NAMEPLATE  
 FOR UNIT WEIGHT. REFER TO INSTALLATION  
 INSTRUCTIONS LOCATED INSIDE CONTROL PANEL  
 FOR FURTHER RIGGING INFORMATION.

OTHER LIFTING ARRANGEMENTS COULD RESULT  
 IN DEATH, SERIOUS INJURY OR EQUIPMENT  
 DAMAGE.

ECGAM	030	HIGH	SUPERQUIET	REV / AC
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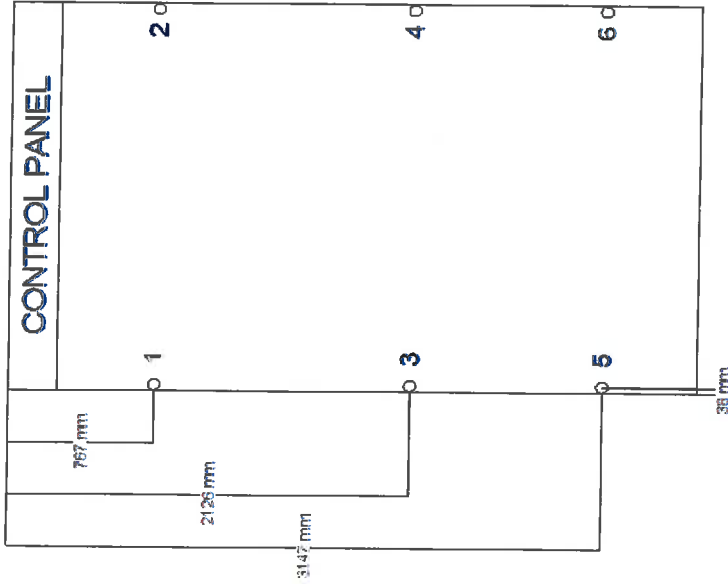
Job#1

20-120 Ton Chiller (ECGAM)  
 Item# ECGAM-1  
 Qty: 1 Tags: ECGAM-1  
 5/18/2020 6:12:38 PM

INSTALLATION ACCESSORIES

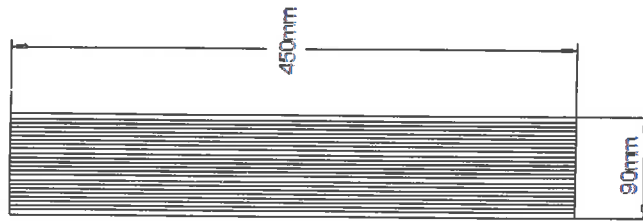
TOP VIEW

MOUNTING HOLE DIAMETER 15 mm  
 SURFACE ON THE GROUND  
 3531x2240mm



MOUNTING LOCATIONS & POINT LOAD WEIGHTS		TOTAL OPERATING WEIGHT						
1	2	3	4	5	6	7	8	
5830 kg	202.3 kg	303.3 kg	357.4 kg	157.4 kg	1164.3 kg	N/A	N/A	2351 kg

INSERT NEOPRENE PADS  
 UNDER THE UNIT AT EACH POINT



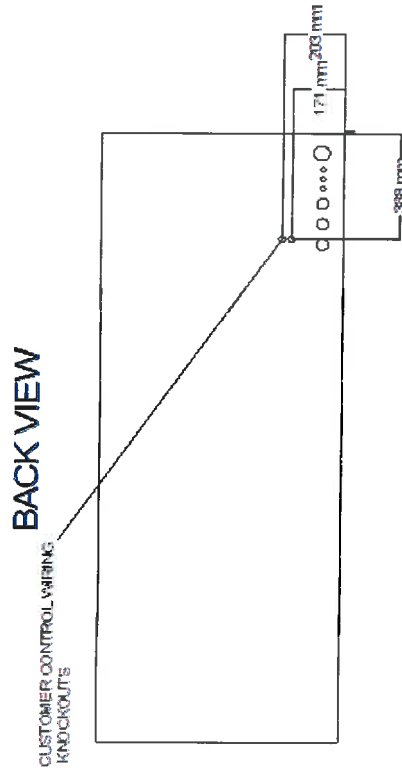
TOPSS Dimension Drawing  
 ALL WEIGHTS AND DIMENSIONS ARE APPROXIMATE.

ECGAM	080	HIGH	SUPER-QUIET	REV / A2
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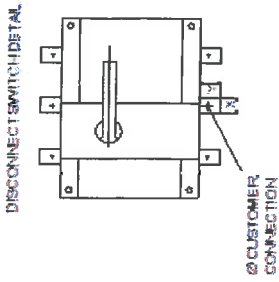
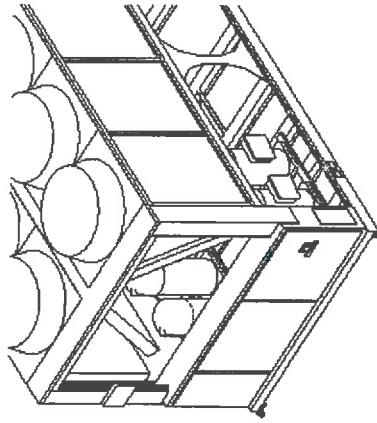
**CONTROL PANEL**

CUSTOMER WIRE SELECTION TABLE	
POWER WIRE CONNECTION TO DISCONNECT SWITCH (1C1D)	
VOLTAGE	CIRCUIT (SINGLE POINT POWER) DISCONNECT SWITCH AND CABLE SIZE (mm <sup>2</sup> )
400	3P/3C/3W A / Max 240mm <sup>2</sup>
TERMINAL DIMENSION (X/Y) HOLE Ø SECTION	
25mm x 20mm / Ø11mm	

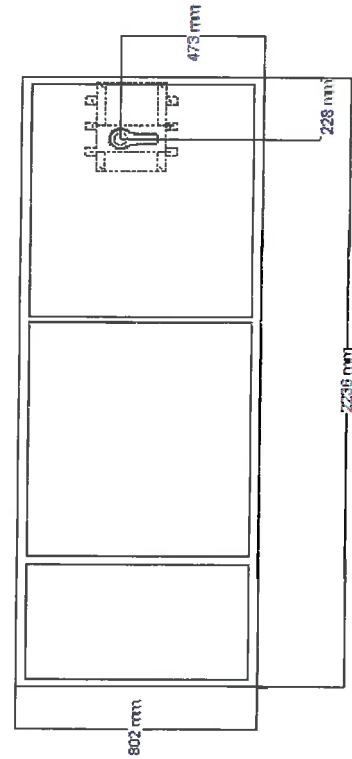
SHORT CIRCUIT RATING	15KA
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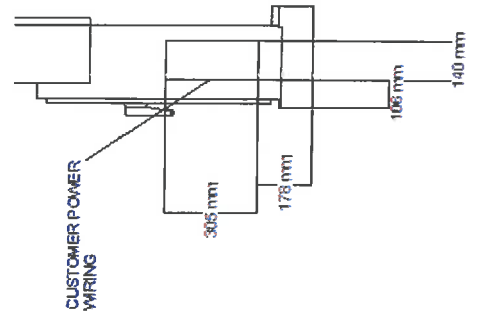
**ISOMETRIC VIEW**



**FRONT VIEW**



**RIGHT END VIEW**



CO. #	DB	HIGH	COMPACT HIGH-STATIC	REV. / A1
			BUPER QUIET	



Job#1

20-120 Ton Chiller (ECGAM)  
Rev: ECGAM-1  
Qty: 1 Tags: ECGAM-1  
5/10/2020 6:12:30 PM

**⚠ WARNING**  
**HAZARDOUS VOLTAGE!**  
DISCONNECT ALL ELECTRIC POWER, INCLUDING REMOTE DISCONNECTS AND FOLLOW/LOCKOUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTOR CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE.  
FAILURE TO DO THE ABOVE COULD RESULT IN DEATH OR SERIOUS INJURY.

# FIELD WIRING PAGE 1 OF 4

## NOTICE

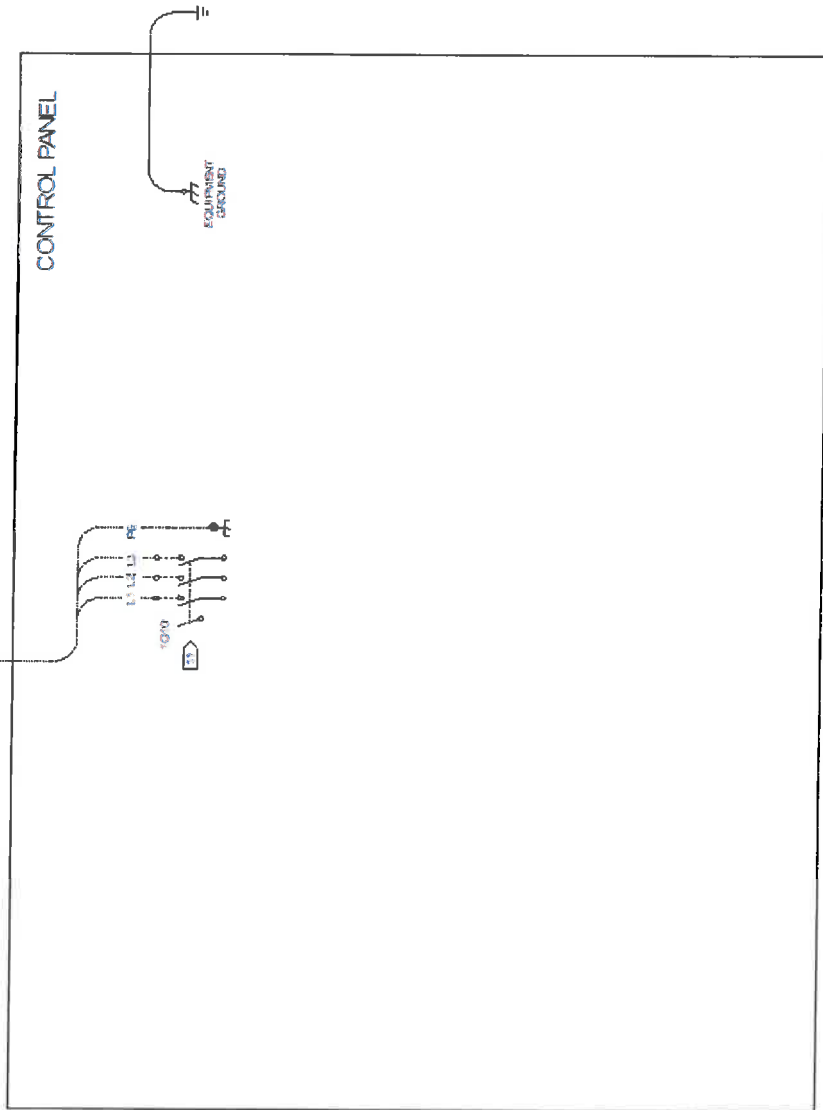
USE COPPER CONDUCTORS ONLY!

UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.

REPLACE WITH

UNIT

FAILURE TO DO THE ABOVE COULD RESULT IN EQUIPMENT DAMAGE.



ECGAM	080	HIGH	SUPERQUIET	REV / A1
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Job#1

20-120 Ton Chiller (ECGAM)  
Revis: ECGAM-1  
Qty: 1 Tags: ECGAM-1  
5/10/2020 6:12:30 PM

# FIELD WIRING PAGE 3 OF 4

NOTE 1 REFER TO ECGAM ELECTRICAL SCHEMATIC FOR SPECIFIC ELECTRICAL CONNECTION INFORMATION AND NOTES PERTAINING TO WIRING INSTALLATION.

NOTE 2 ALL FIELD WIRING MUST BE IN ACCORDANCE OF REQUIREMENTS.

NOTE 3 ALL CUSTOMER CONTROL CIRCUIT WIRING MUST BE COPPER CONDUCTORS ONLY AND HAVE A MINIMUM INSULATION RATING OF 300 VOLTS. EXCEPT AS NOTED, ALL CUSTOMER WIRING CONNECTIONS ARE MADE TO CIRCUIT BOARD MOUNTED BOX LUGS WITH AWIRE UNTIL 1.5mm<sup>2</sup>.

NOTE 4 ALL UNIT POWER WIRING MUST BE 600 VOLT COPPER CONDUCTORS ONLY AND HAVE A MINIMUM TEMPERATURE INSULATION RATING OF 75 DEGREE C. REFER TO UNIT NAMEPLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION DEVICE. PROVIDE AN EQUIPMENT GROUND IN ACCORDANCE WITH APPLICABLE ELECTRIC CODES.

1 CUSTOMER SUPPLIED POWER (100V OR 200V) TO POWER RELAYS. MAX FUSE SIZE IS 15 AMPS. GROUND ALL CUSTOMER SUPPLIED POWER SUPPLIES AS REQUIRED BY APPLICABLE CODES. GREEN/YELLOW GROUND TERMINALS ARE PROVIDED IN UNIT CONTROL PANEL.

2 USE THE PRODUCT INSTALLATION DOCUMENTATION INSIDE OF PANEL TO DETERMINE CABLE SECTION NEEDED.

4 WIRED TO CUSTOMER EXTERNAL DEMAND LIMIT 2-10V OR 4-20mA.

5 WIRED TO CUSTOMER CHILLED / HOT WATER SETPOINT 2-10V OR 4-20mA.

6 WIRED TO CUSTOMER % CAPACITY OUTPUT DEVICE 2-10V OR 4-20mA.

7 RELAY AT 120 VAC: 7.2 AMPS RESISTIVE, 2.68 AMPS PILOT DUTY, 1.6 HP 7.2 FLA AT 200VAC: 5 AMPS GENERAL PURPOSE.

8 CUSTOMER SUPPLIED CONTACTS FOR ALL LOW VOLTAGE CONNECTIONS MUST BE COMPATIBLE WITH DRY CIRCUIT 24 VOLT DC FOR A 12 mA RESISTIVE LOAD, SILVER OR GOLD PLATED CONTACTS RECOMMENDED.

9 FIELD CONNECTIONS ARE ONLY MADE IN A CUSTOMER PROVIDED PUMP. THESE CONNECTIONS WILL BE MADE BY THE FACTORY WHEN THE PUMPS IS PROVIDED BY THE FACTORY.

10 THE CONTACTS FOR AUTO STOP AND EMERGENCY STOP SWITCHES ARE JUMPERED AT FACTORY BY JUMPER TO ENABLE UNIT OPERATION. IF REMOTE CONTROL IS DESIRED, REMOVE THE JUMPER AND CONNECT TO THE DESIRED CONTROL CIRCUIT.

11 SINGLE SOURCE POWER IS PROVIDED AS STANDARD ON THESE PRODUCTS.

12 CUSTOMER SUPPLIED 3 PHASE POWER.

ECGAM	030	H3-H	SUPER CHILLER	REV / AI
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Job#1

20-120 Ton Chiller (EGGM)  
 Name: ECGM-1  
 Qty: 1 Tags: ECGM-1  
 5/18/2020 6:12:38 PM

FIELD WIRING PAGE 4 OF 4

DESCRIPTION

DEVICE/TEXT

(0-10VDC CUSTOMER PUMP)	0-10VDC CUSTOMER PUMP INVERTER SPEED SIGNAL
(2-10VDC)	2-10VDC
(10-10)	SWITCH, NONE-FLUED, DISCONNECT
(SNC)	BLOCK, TERMINAL - FACTORY CONTROL WIRING, 0-10VDC
(RCS)	RELAY, CUSTOMER PROVIDED, NIGHT NOISE SETBACK REQUEST
(RSE)	RELAY, EXTERNAL INPUT, AUTO STOP
(RES)	RELAY, EXTERNAL INPUT, EMERGENCY STOP
(REI)	RELAY, EXTERNAL INPUT, ENABLE ICE MAKING
(RKT)	HEATING/COOLING SELECTOR
(RSEK(S)	RELAY, CUSTOMER PROVIDED, UNIT STATUS (PROGRAMMABLE)
(SMI 200K)	MOTOR, CUSTOMER PROVIDED, CHILLED WATER PUMP 1 (SM1) AND PUMP 2 (SM2)
(SOT)	FUSED DISCONNECT, CUSTOMER SUPPLIED 3 PHASE, POWER SUPPLY PUMP CIRCUIT BREAKER
(SIS-SFS)	FUSED DISCONNECT, CUSTOMER SUPPLIED 1 PHASE, CONTROL POWER SUPPLY
(AUTO STOP)	AUTO STOP
(CONTROL PANEL)	CONTROL PANEL
(CUSTOMER SUPPLIED PUMP)	CUSTOMER SUPPLIED PUMP
(EQUIPMENT GROUND)	EQUIPMENT GROUND
(NOTICE TRANE PUMP CONTROL)	TRANE PUMP CONTROL MUST BE USED TO PROVIDE PUMP CONTROL. CHILLED WATER PUMP MUST BE CONTROLLED BY THE CHILLER OUTPUT. FAILURE TO COMPLY WITH THIS REQUIREMENT COULD RESULT IN DAMAGE TO THE UNIT.
(PHASE)	PHASE
(PUMP 1)	PUMP 1
(PUMP 2)	PUMP 2
(SHIELDED TWISTED PAIR LEADS)	SHIELDED TWISTED PAIR LEADS
(TO NEXT UNIT)	TO NEXT UNIT
(TO TRACER OR OTHER TRANE DEVICE)	TO TRACER OR OTHER TRANE REMOTE DEVICE
(PE)	PROTECTIVE EARTH TERMINAL
(VFD)	PUMP VFD AUXILIARY PANEL

CGM	ISS	HCH	SUPER OLIET	REV / A1
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