



Submittal

Prepared For:
Superior Mechanical
Attn: Ben Wyke

Date: October 10, 2022

Engineer:
US Army Corps of Engineers
Joel Rutledge, P.E.

Job Name:
MATOC SRM 81st Readiness Div NC009 HVAC Reset
500 Wilshire Avenue SW
Concord, NC 28025

Trane U.S. Inc. is pleased to provide the following submittal for your review and approval.

Product Summary

Qty Product

1 - Air-Cooled Scroll Chiller

Notes:

1. This submittal is based on mechanical specifications and drawings sealed 07-13-2022.
2. Electrical requirements shall be coordinated / confirmed with the electrical contractor prior to ordering equipment. **NOTE: Separate 115 / 120 volt, 1 phase electrical supplies are required for the evaporator freeze protection on chiller as well as buffer tank heaters. See wiring diagram.**
3. Neoprene isolators shall be provided with chiller to provide isolation from support structure.
4. The following items are not included unless noted otherwise:
 - Controls and interface wiring**
 - Electrical disconnects**
 - Mounting pads or rails**
 - Seismic restraints**

Jeff Auten
Trane U.S. Inc.
4501 South Tryon Street
Charlotte, NC 28217
Office Phone: (704) 525-9600

The attached information describes the equipment we propose to furnish for this project and is submitted for your approval.
Submittal acceptance and return is a critical step, so please ensure submittals are returned with approval to release to production within 14 days of submittal date.

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Tag Data - Air-Cooled Scroll (Qty: 1)

Item	Tag(s)	Qty	Description	Model Number
A1	CH-01	1	30-Ton Air-Cooled Scroll Chiller (CGAM)	CGAM030A2**3AXD2A1A1A1AX*A1C1A4XXX8B1A1A5 A1D1XXL*X

Product Data - Air-Cooled Scroll**Item: A1 Qty: 1 Tag(s): CH-01**

Air-cooled scroll packaged chiller
 30 nominal tons
 208 volts, 60 hertz, 3 phases
 Extra efficiency/performance
 Full factory refrigerant charge (HFC-410A)
 Factory installed freeze protection
 Refrigerant isolation valves (discharge valve)
 UL listed to US safety standards
 ASHRAE 90.1 all versions up to 2016
 AHRI certified
 Factory installed flow switch - set point 60 cm/sec
 Phase reversal protection
 Standard cooling (40 to 65F)
 Grooved pipe connection
 Factory insulation, 0.75"
 Performance based on water
 Wide ambient operation (0 to 125F)
 Lanced aluminum fins
 Across the line starter/direct on line
 Single point connection main line unit power-ancillary items require other power
 Circuit breaker
 Enclosure type UL 1995 rated for outdoor applications
 BACnet interface
 Dual high head pump
 Pump flow control by variable speed drive
 With buffer storage tank
 Default A short circuit rating
 Elastomeric isolators
 Water strainer factory installed
 Comprehensive acoustic package
 Architectural louvered panels
 2nd-5th year compressor parts
 1st year parts, labor & refrigerant warranty, entire unit
 Startup provided by Trane

Performance Data - 20-130 Ton Air-Cooled (CGAM)

Tags	CH-01
Refrigeration capacity (tons)	28.70
Total power input (kW)	31.11
Full load refrigeration efficiency (EER (Btu/W-h))	11.071
NPLV.IP (EER (Btu/W-h))	15.506
IPLV.IP (EER (Btu/W-h))	15.434
Sound power level (dBA)	86
Sound pressure level (dBA)	60
Refrigerant	R410A
Refrigerant charge circuit 1 (lb)	62.0
Oil charge circuit 1 (gal)	1.90
Entering fluid evap (F)	55.99
Leaving fluid evap (F)	44.00
Flow evap (gpm)	57.22
Min flow evap (gpm)	33.40
Min flow PD evap+strainer (ft H2O)	5.49
Evap fluid freeze point (F)	32.00
Fluid pressure drop evap (ft H2O)	10.62
Total PD evap+strainer (ft H2O)	14.36
Evap fouling factor (hr-sq ft-deg F/ Btu)	0.000100
Saturated evap temp circuit 1 (F)	37.20
Ambient air temperature (F)	95.00
Saturated cond temp circuit 1 (F)	115.19
Compressor power input (kW)	27.32
RLA - compressor 1A (A)	51.00
LRA - compressor 1A (A)	345.00
RLA - compressor 1B (A)	51.00
LRA - compressor 1B (A)	345.00
Total airflow (cfm)	26008
Number of Fans	3
Fan power (kW)	3.61
FLA - Condenser Fan (each) (A)	6.20
Pump size (hp)	5.003
Pump nominal current (A)	15.00
Expansion tank volume (gal)	5.00
Buffer tank volume (gal)	140.00
Avail head pressure at water connection (ft H2O)	77.47
Total PD pump+evap+strainer (ft H2O)	15.47
Single point power MCA (A)	153
Single point power MOP (A)	200
Short circuit current rating (A)	5000
Number of compressors	2
Number of circuits	1
Refrigeration capacity steps	2
Shipping weight (lb)	4014
Operating weight (lb)	5262

Product Report - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): CH-01

Unit Overview	
Chiller Model	CGAM
Unit Nominal Tonnage	30 tons
Unit Type	Extra efficiency
Refrigeration Capacity	28.70 tons
Cooling Efficiency	11.07 EER (Btu/W-h)
IPLV.IP	15.43 EER (Btu/W-h)
NPLV.IP	15.51 EER (Btu/W-h)
Elevation	0.000 ft
Unit Frequency	60. hertz
Unit Voltage	208.volt 3 phases
Refrigerant Type	R410A
Number of compressor	2
Number of circuits	1
Number of capacity steps	2
Agency Listing	UL/CUL
Model Number	CGAM030A2**3AXD2A1A1A1AX* A1C1A4XXX8B1A1A5A1D1XXL*X



Evaporator Information			
Evaporator Application			
Std cooling			
Fluid Temperatures		Flow Rate	
Evaporator Leaving	44.00 F	Design Flow	57.22 gpm
Evaporator Entering	55.99 F	Min Flow	33.40 gpm
Fluid Properties		Fluid Pressure Drop	
Fluid Type	Water	Total PD evap+strainer	14.4 ft H2O
Freeze Point	32.00 F	Design Evap PD	10.6 ft H2O
		Min PD	5.49 ft H2O
		Freeze protection	With freeze protection
		Fouling factor	0.000100 hr-sq ft-deg F/ Btu
		Flow switch set point	Flow switch set point 60 cm/sec
		Water connection size	2.500 in

Condenser Information			
Unit Application	Wide ambient	Fin Material	Lanced aluminum
Ambient Air Temp.	95.0 F	Total airflow	26008 cfm
		Number of Fans	3

Unit Electrical						
Unit					RLA	LRA
Compressor Starter	Across the line	Incoming Power Line Conn. Type	Single point	Compressor A	51.00 A	345.00 A
Total Power	31.11 kW	Power Line Conn. Type	Circuit breaker	Compressor B	51.00 A	345.00 A
Compressor Power	27.32 kW	Short Circuit Current Option	Default			
Fan Power	3.610 kW	Short Circuit Current Rating	5000 A			
Fan FLA	6.20 A	Single Point Power MCA	153 A			
		Single Point Power MOP	200 A			

Pump Package Information			
Pump type	Dual high head	Available head pressure at water connection	77.5 ft H2O
Pump size	5.003 hp	Total PD pump+evap+strainer	15.5 ft H2O
Pump nominal current	15.00 A	Expansion tank volume	5.00 gal
Pump flow control	Var speed drive	Buffer tank	With buffer storage tank
		Buffer tank volume	140.00 gal

Product Report - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): CH-01

Physical Information					
Dimensions		Weights		Refrigerant Charge	Oil Charge
Length	170 in	Operating Weight	5262 lb	Circuit 1	62.0 lb
Width	50 in	Shipping Weight	4014 lb		
Height	85 in				1.90 gal

Unit Acoustics (A-Weighted)			
A-Weighted	Sound Power	Sound Pressure*	Unit Sound Package
100%	86 dBA	60 dBA	Comprehensive package

Note: In Accordance with AHRI 370

*Note: at 30 feet in free field

Partload Information								
Partload Data.IP - IPLV 15.43 EER (Btu/W-h)								
Load %	Cap. tons	LWT Evap F	EWT Evap F	Flow Evap gpm	WPD Evap ft H2O	Amb F	Power kW	Eff. EER (Btu/W-h)
100	28.50	44.00	54.00	68.19	21.6	95.0	31.05	11.01
75	21.38	44.00	51.49	68.19	21.6	80.0	18.90	13.57
50	14.25	44.00	48.99	68.19	21.6	65.0	10.28	16.63
25	7.130	44.00	46.50	68.19	21.6	55.0	4.799	17.83

Warranty
Standard Warranty

Regulatory Compliance
ASHRAE 90.1
This unit complies with the efficiency requirements of ASHRAE 90.1 and CSA C743 - all versions up to 2016.

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.



Information for LEED Projects		
Refrigerant (R410A) - ckt 1	62.0 lb	ASHRAE 90.1 - all versions up to 2016
Rated Capacity (AHRI)	28.50 tons	This product meets the minimum efficiency requirements of ASHRAE Standard 90.1 and CANS/CSA C743 for all versions (which are based on AHRI standard rating conditions) and, therefore, also meets the LEED "Minimum Energy Performance" prerequisite in the Energy and Atmosphere section.
Rated Efficiency (AHRI)	11.01 EER (Btu/W-h)	
IPLV	15.43 EER (Btu/W-h)	The LEED Green Building Rating System™, developed by the U.S. Green Building Council, provides independent, third-party verification that a building project meets green building and performance measures.
Refrigeration Capacity	28.70 tons	
Cooling Efficiency	11.07 EER (Btu/W-h)	
Compress Power	27.32 kW	
Fan Motor Power	3.610 kW	

Trane Select Assist 263
 Version Number:
 Data Generation Date: 10/5/2022

Mechanical Specifications - Air-Cooled Scroll**Item: A1 Qty: 1 Tag(s): CH-01****Foundation**

Provide rigid, non-warping mounting pads or a concrete foundation of sufficient strength and mass to support the applicable operating weight (i.e. including completed piping, and full operating charges of refrigerant, oil and water). The expectation of Trane equipment is that piping is fully supported by an independent structure/system, without being connected to the waterbox. Once in place, the unit must be level within 1/2" across the length and width of the unit. The Trane Company is not responsible for equipment problems resulting from an improperly designed or constructed foundation.

Center Of Gravity

Different unit configurations and options may cause a variation in the center of gravity from what is listed in the submittal. Refer to the Installation, Operating and Maintenance manual for specific lifting instructions.

General

Units are constructed of a galvanized steel frame with galvanized steel panels and access doors. Component surfaces are finished with a powder-coated paint. Each unit ships with full operating charges of refrigerant and oil.

Compressor and Motor

The unit is equipped with two hermetic, direct-drive, 3600 rpm 60 Hz suction gas-cooled scroll compressors. The simple design has only three major moving parts and a completely enclosed compression chamber which leads to increased efficiency. Overload protection is internal to the compressors. The compressor includes: centrifugal oil pump, oil level sight glass and oil charging valve. Each compressor will have compressor heaters installed and properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles.

Unit-Mounted Starter

The control panel is designed per UL 1995. The starter is in an across-the-line configuration, factory-mounted and fully pre-wired to the compressor motor and control panel. Typically, Trane scroll compressors are up to full speed in one second when started across-the-line.

A factory-installed, factory-wired 820 VA control power transformer provides all unit control power (120 Vac secondary) and Trane CH530 module power (24 Vac secondary).

A molded case standard interrupting capacity circuit breaker, factory pre-wired with terminal block power connections and equipped with a lockable external operator handle, is available to disconnect the chiller from main power.

Power Connection

Power connections include main three-phase power and two separate 115V, 20 amp customer provided single phase power connections are required to power the evaporator heaters (if used for freeze protection) as well as the buffer tank heaters. Short circuit current rating of 5 kA is provided.

Evaporator

Braze plate evaporator is made of stainless steel with copper as the braze material. It is designed to withstand a refrigerant side working pressure of 430 psig and a waterside working pressure of 150 psig. Evaporator is tested at 1.1 times maximum allowable refrigerant side working pressure and 1.5 times maximum allowable water side working pressure. It has one water pass. A water strainer and a flow switch are factory installed.

Immersion heaters protect the evaporator to an ambient of -20°F.

All evaporators have grooved pipe connections.

Note: An additional 115V, 20 amp field provided single phase power connection is required to power the heaters (if used for freeze protection).

Condenser

Air-cooled condenser coils have lanced aluminum fins mechanically bonded to internally-finned copper tubing.

The condenser coil has an integral sub-cooling circuit. The maximum allowable working pressure of the condenser is 650 psig. Condensers are factory proof tested at 650 psig.

Direct-drive vertical discharge condenser fans are balanced and individually protected. Three-phase condenser fan motors with permanently lubricated ball bearings and external thermal overload protection are provided.

A variable speed drive on the first fan of each circuit allows the unit to start and operate with ambient temperatures between 0.0 F and 125.0 F.

Refrigerant Circuits

The unit has a single refrigerant circuit. The circuit has Trane scroll compressors piped in parallel with a passive oil management system. A passive oil management system maintains proper oil levels within compressors and has no moving parts. Each refrigerant circuit includes filter drier, electronic expansion valve, liquid line and discharge service valves. Capacity modulation is achieved by turning compressors on and off. The unit has two capacity stages.

Unit Controls

The microprocessor-based control panel is factory-installed and factory-tested. The control system is powered by a pre-wired control power transformer, and will turn on and off compressors to meet the load. Microprocessor-based chilled water reset based on return water is standard. The unit comes with a factory installed flow switch.

The Trane CH530 microprocessor automatically acts to prevent unit shutdown due to abnormal operating conditions associated with low evaporator refrigerant temperature and high condensing temperature. If an abnormal operating condition continues and the protective limit is reached, the machine will shut down.

The panel includes machine protection for the following conditions: low evaporator refrigerant temperature and pressure, high condenser refrigerant pressure, critical sensor or detection circuit faults, lost communication between modules, phase loss, phase reversal, over temperature protection, external and local emergency stop, and loss of evaporator water flow.

When a fault is detected, the control system conducts more than 100 diagnostic checks and displays results. The display will identify the fault, indicate date, time, and operating mode at time of occurrence, and provide type of reset required and a help message.

Data contained in available reports includes: water and air temperatures, refrigerant pressures and temperatures, flow switch status, EXV position, and compressor starts and run-time. All necessary settings and setpoints are programmed into the microprocessor-based controller via the operator interface. The controller is capable of receiving signals simultaneously from a variety of control sources, in any combination, and priority order of control sources can be programmed.

Communications

BACNet Interface allows the user to easily interface using BACNet MS/TP via a single twisted-pair wiring to a factory-installed and tested communication board.

Pump

Pump package includes: two pumps, expansion vessel, drainage valve, shut-off valve at entering and leaving connections.

The pump package is single point power integrated into the chiller unit power with a separate factory wired control panel and separate power for freeze protection.

The control of the pump is integrated into the chiller controller. The CH530 displays evaporator pump starts and run-times. Freeze protection down to an ambient of -29°C (-20°F) is included as standard. The cold parts of the pump package will be insulated. Designed with one redundant pump, it is controlled to operate both pumps through a lead/lag and failure/recovery functionality.

The pump offering can be for applications that have short water loops, de-coupled systems or for applications where the integrated chiller pump could serve the entire loop volume.

A variable speed drive is installed in an additional panel to control the pump. The inverter is adjusted upon start up to balance the system flow and head requirements. The purpose is to save on wasted pump energy caused by a traditional balancing valve.

Buffer Tank

The water tank is factory-installed for easy installation at the building site and it is engineered for continuous flow. Tank construction is welded steel; it is powder coated, fully insulated and designed with freeze protection down to -20°F. It is rated with a waterside working pressure of 150 psig and tested at 225 psig.. Water connections are grooved pipe.

The purpose of the tank is to increase the chilled water circuit inertia, which is necessary with short water loops. A high circuit inertia reduces the compressor cycling to increase the compressor life span and allow for more precise water temperature accuracy. It also saves energy as compared to hot gas bypass.

Note: An additional 115V, 20 amp field provided power connection is required to power the buffer tank heaters.

Comprehensive Acoustic Package

Acoustical treatment for compressors is factory installed.

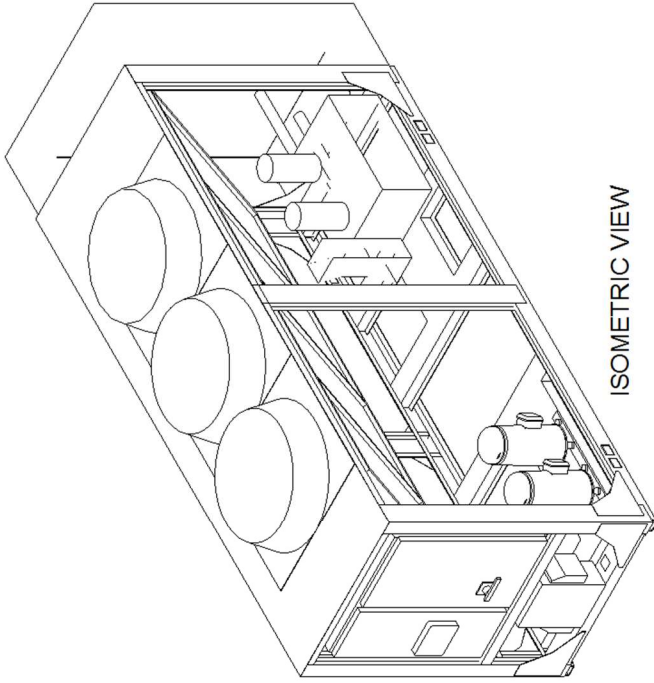
Architectural Louvered Panels

Louvered panels cover the complete condensing coil and service area beneath the condenser.

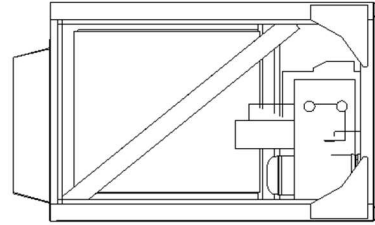
Isolators

Molded elastomeric isolators, sized to reduce vibration transmission to the supporting structure when the unit is installed, ship with the chiller.

Dimensional Drawings - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): CH-01



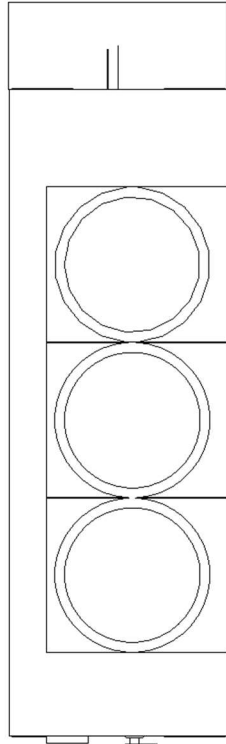
ISOMETRIC VIEW



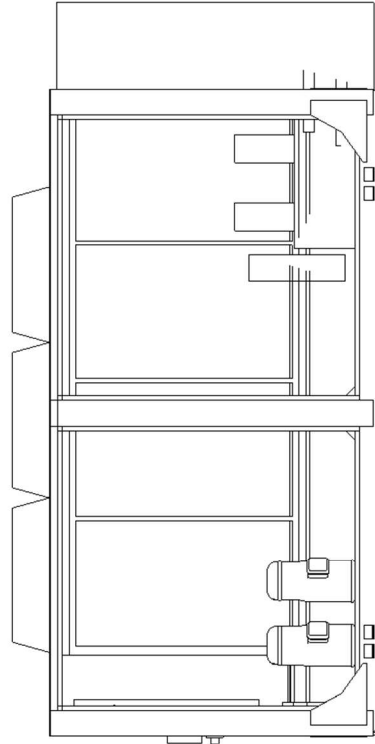
BACK VIEW
SIDES AND TOP OF BUFFER TANK
REMOVED FOR CLARITY

INLET/OUTLET WATER
CONNECTION SIZE
2.5" (65mm)

BRAZE PLATE
WATER VOLUME/STORAGE
2.2 GAL (8.3 LITERS)



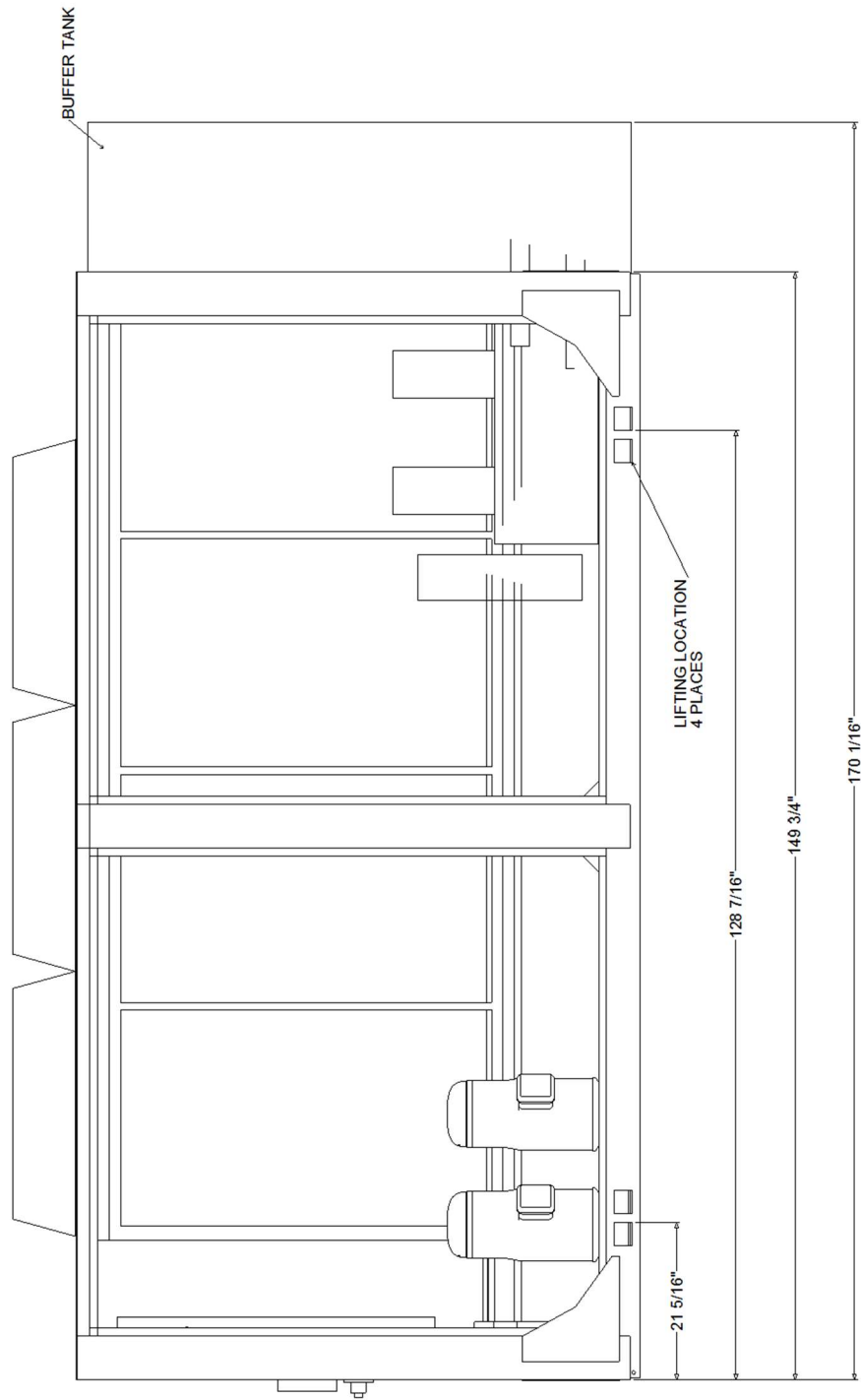
TOP VIEW



RIGHT SIDE VIEW

Dimensional Drawings - Air-Cooled Scroll

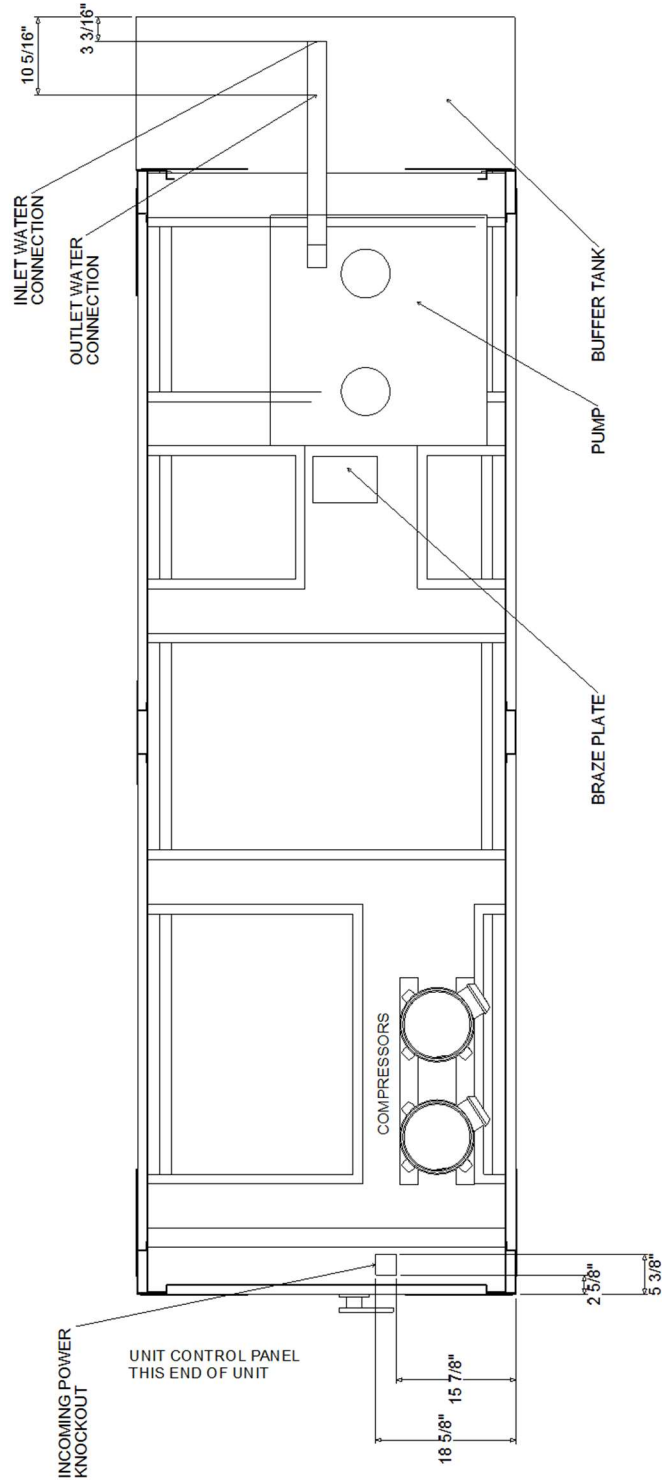
Item: A1 Qty: 1 Tag(s): CH-01



RIGHT SIDE VIEW

Dimensional Drawings - Air-Cooled Scroll

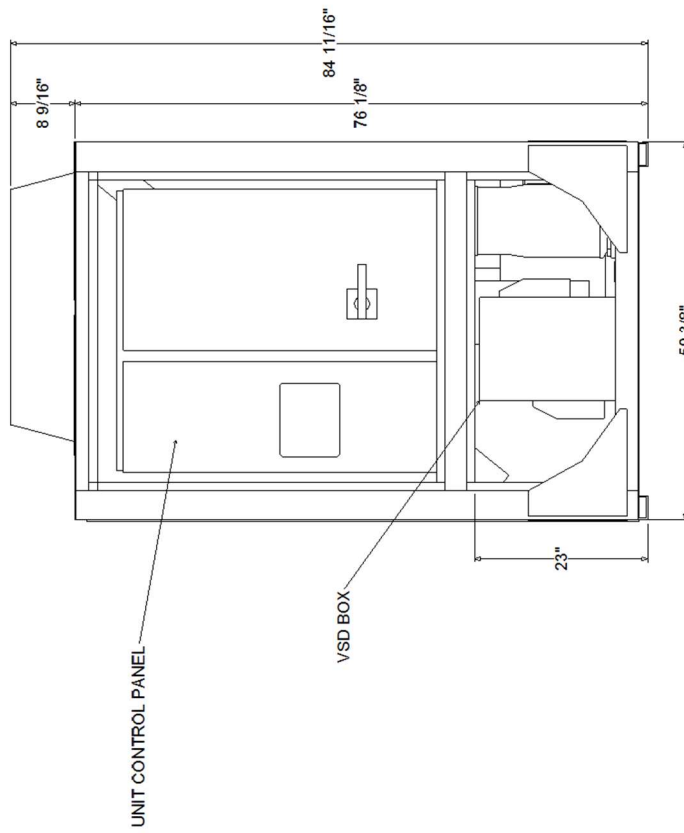
Item: A1 Qty: 1 Tag(s): CH-01



SIDES AND TOP OF BUFFER TANK
REMOVED FOR CLARITY

TOP VIEW
CONDENSER, CONTROL PANEL AND
VSD (WHEN ORDERED) REMOVED FOR CLARITY

Dimensional Drawings - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): CH-01



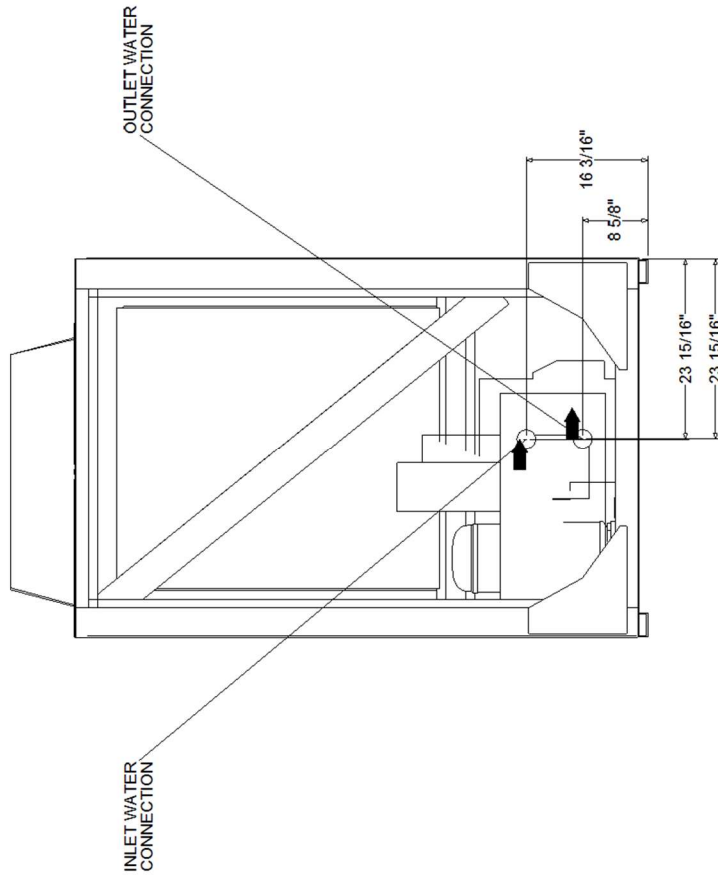
FRONT VIEW

Dimensional Drawings - Air-Cooled Scroll

Item: A1 Qty: 1 Tag(s): CH-01

BUFFER TANK VOLUME: 140.00 gal
EXPANSION TANK VOLUME: 5.00 gal

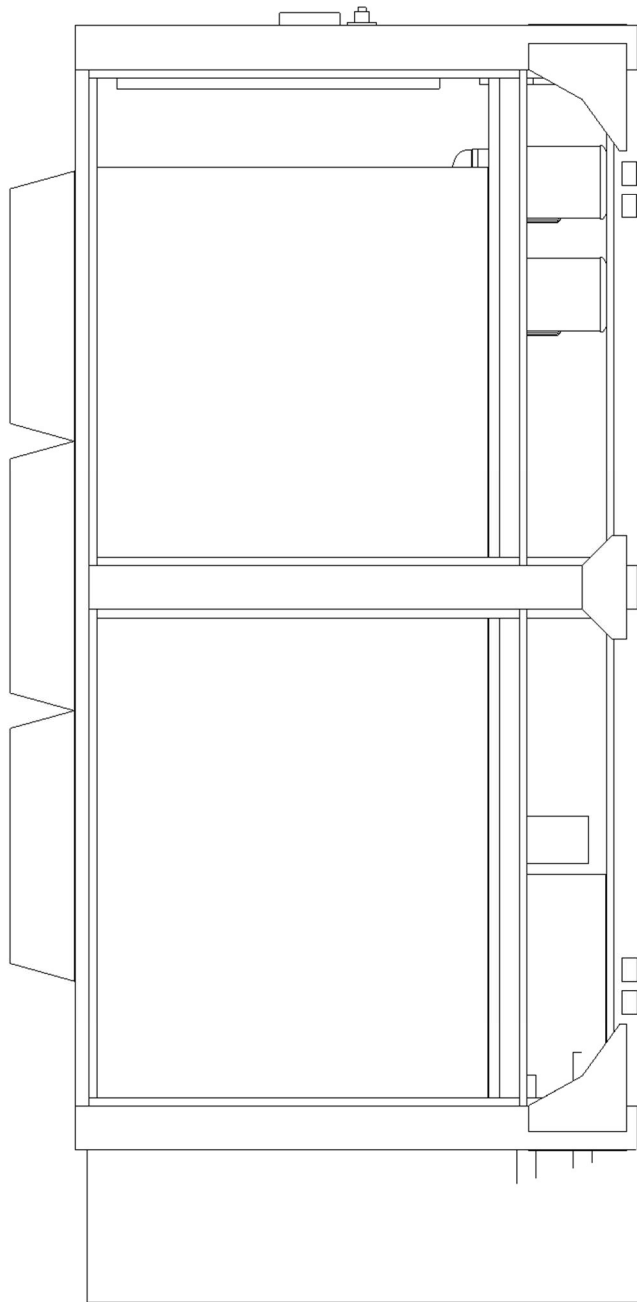
SIDES AND TOP OF BUFFER TANK
REMOVED FOR CLARITY



BACK VIEW

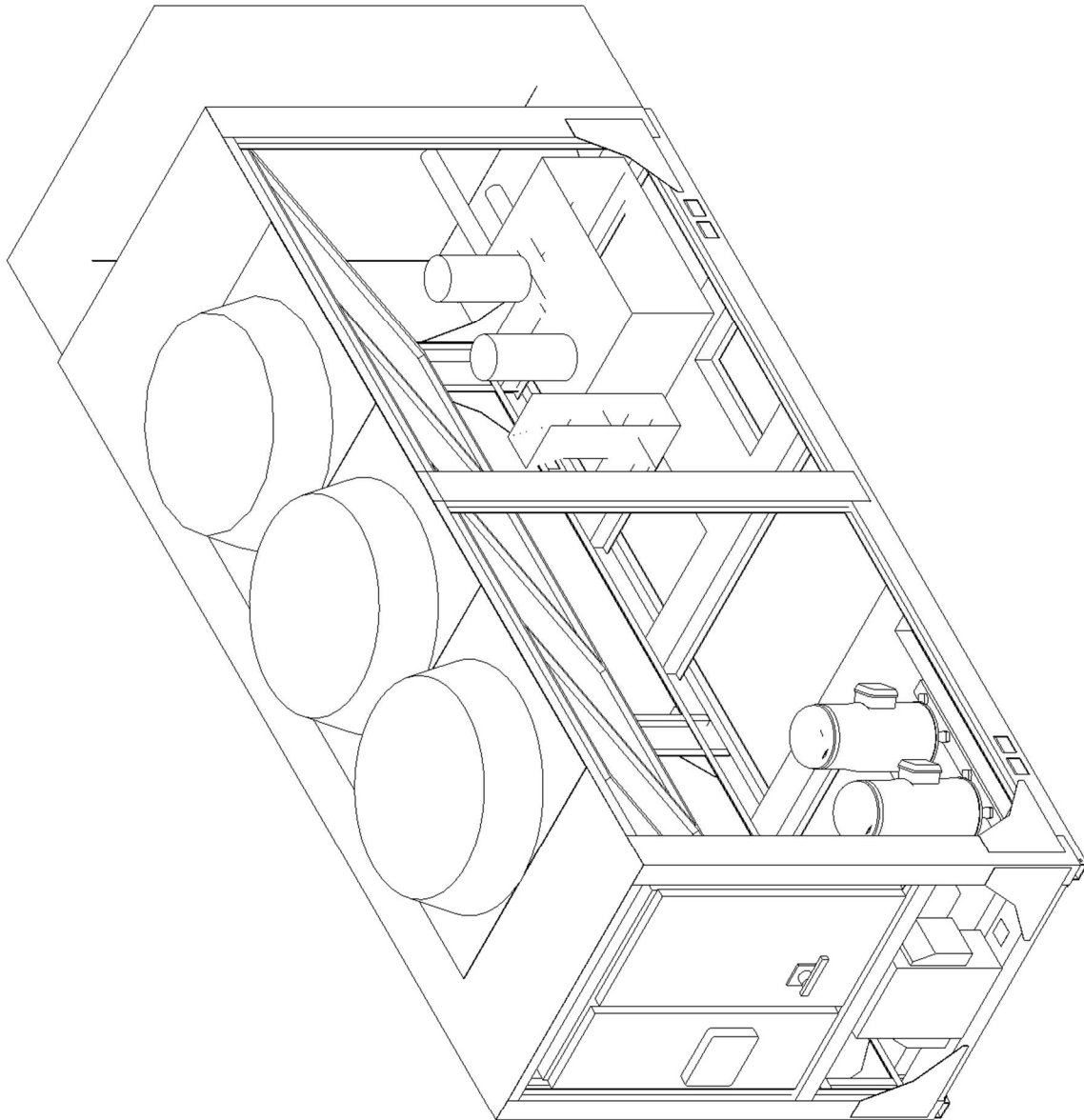
Dimensional Drawings - Air-Cooled Scroll

Item: A1 Qty: 1 Tag(s): CH-01



LEFT SIDE VIEW

Dimensional Drawings - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): CH-01

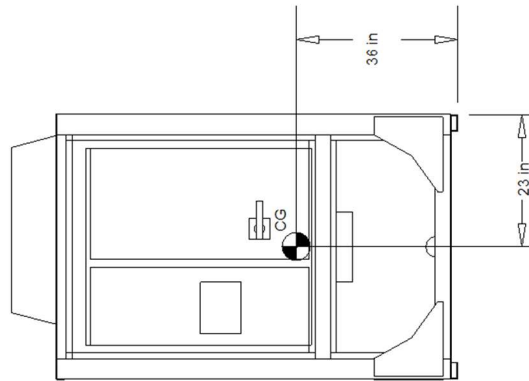


ISOMETRIC VIEW

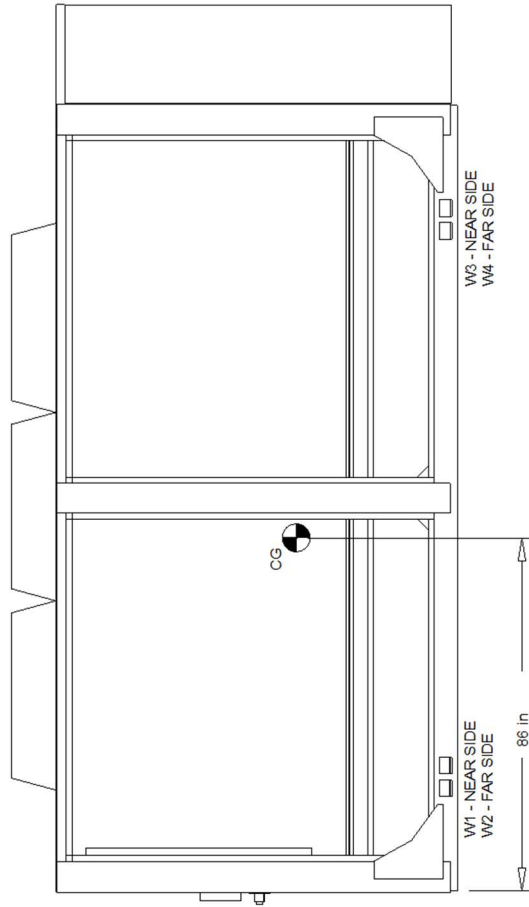
Weight, Clearance & Rigging - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): CH-01

UNIT CENTER OF GRAVITY

LIFTING WEIGHTS			
W1	W2	W3	SHIPPING WEIGHT
808 lb	677 lb	1,228 lb	4,014 lb
		1,028 lb	



FRONT VIEW
CONTROL PANEL END



SIDE VIEW

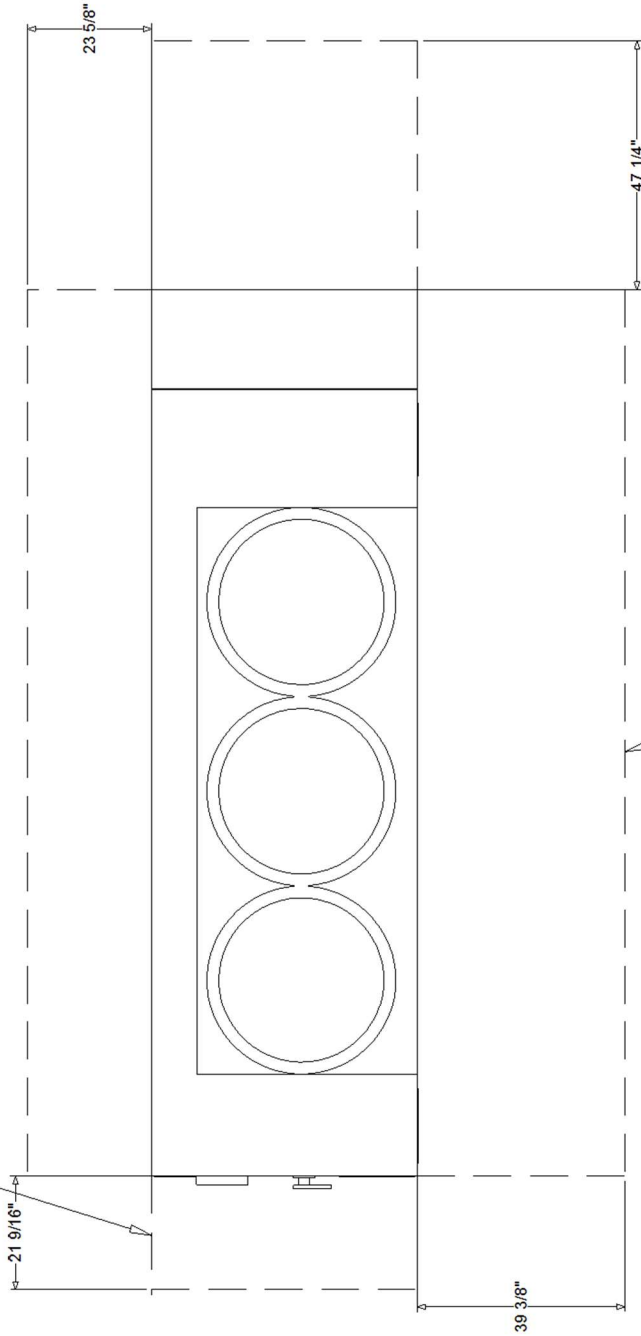
Different unit configurations and options may cause a variation in the center of gravity from what is listed. Refer to the Installation, Operating and Maintenance manual for specific lifting instructions.

Weight, Clearance & Rigging - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): CH-01

UNIT CLEARANCE

NO OBSTRUCTIONS ABOVE THE CONDENSER

The distance provided is the minimum clearance required for the door(s) to swing fully open. The unit may require additional clearance per NFPA 70 (NEC) Article 110.26. All National, State and Local electrical codes shall be followed when installing the unit.



- NO OBSTRUCTIONS RECOMMENDED.
Area Required for unit operation, maintenance, and access panel.
- MORE CLEARANCE MAY BE NEEDED FOR AIRFLOW DEPENDING UPON THE INSTALLATION. REFER TO THE CLOSE SPACING BULLETIN.

TOP VIEW

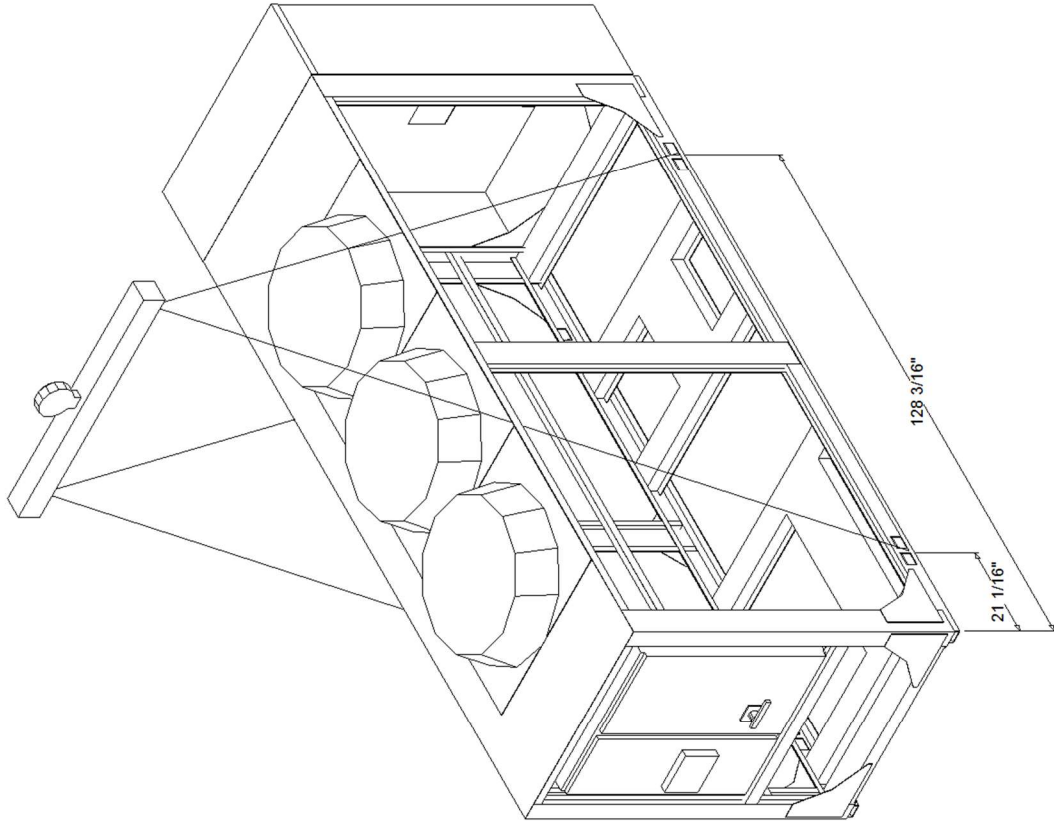
Weight, Clearance & Rigging - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): CH-01

UNIT RIGGING

LIFTING A UNIT WITH EQUAL LENGTH STRAPS WILL NOT PRODUCE A LEVEL UNIT DURING THE LIFT BECAUSE THE CG WILL NOT BE AT THE MIDPOINT BETWEEN THE BASE LIFTING HOLES. THE FOLLOWING ADJUSTMENTS MUST BE MADE TO PRODUCE A LEVEL LIFT:

- SINGLE SPREADER BAR LIFTING METHOD
 IF THE UNIT CG IS CLOSER TO THE CONTROL PANEL, THE STRAPS ON THE CONTROL PANEL SIDE OF THE SPREADER BAR MUST BE ADJUSTED TO BE SHORTER THAN THOSE ON THE OPPOSITE SIDE OF THE SPREADER BAR, ALLOWING THE SPREADER BAR TO MOVE TOWARD THE CONTROL PANEL AND OVER THE UNIT CG. SEVERAL ADJUSTMENTS OF THE STRAP LENGTH MAY BE REQUIRED TO PRODUCE A LEVEL UNIT DURING LIFT.
- H-TYPE SPREADER BAR LIFTING METHOD
 IF THE STRAPS FROM THE H BAR TO THE UNIT BASE ARE THE SAME LENGTH, THE CRANE LIFTING POINT ON THE CENTER WEB OF THE H BAR MUST BE ADJUSTED TO PRODUCE A LEVEL UNIT LIFT.

⚠ 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.
 DO NOT ALLOW LIFTING STRAPS TO CONTACT UNIT DURING LIFT!

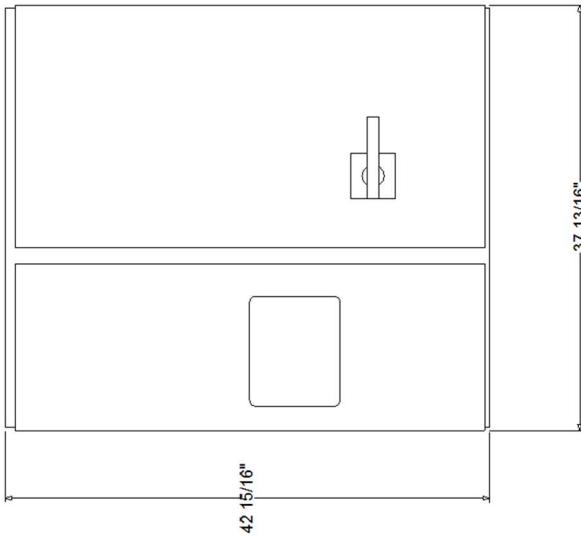
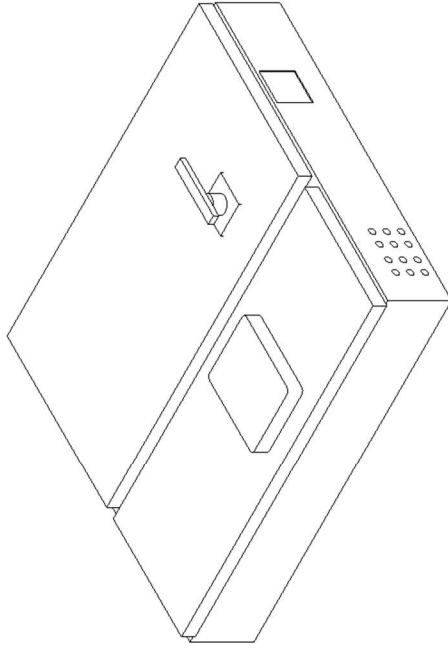


ISOMETRIC VIEW

Accessory - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): CH-01

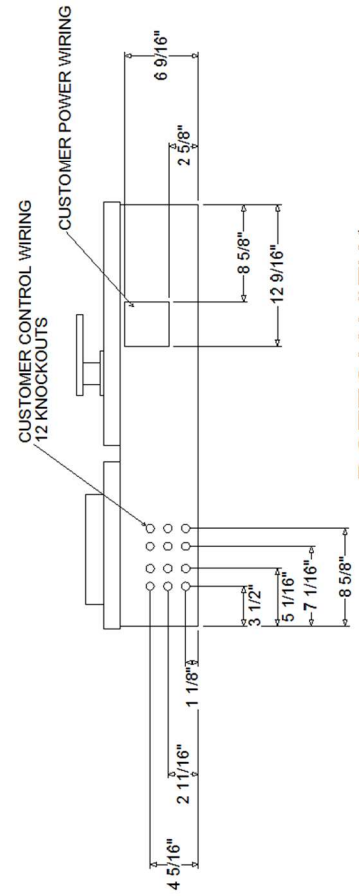
SHORT CIRCUIT RATING 5kA

CUSTOMER WIRE SELECTION TABLE	
POWER WIRE CONNECTION TO CIRCUIT BREAKER (1Q1)	
UNIT SIZE	UNIT EFF
030	XE
VOLTAGE 200	
CIR 1 (SINGLE POINT POWER)	
LUG WIRE SIZE RANGE (PER PHASE)	
(1 MAX Conductor per phase) 3/0-350MCM	



FRONT VIEW

ISOMETRIC VIEW

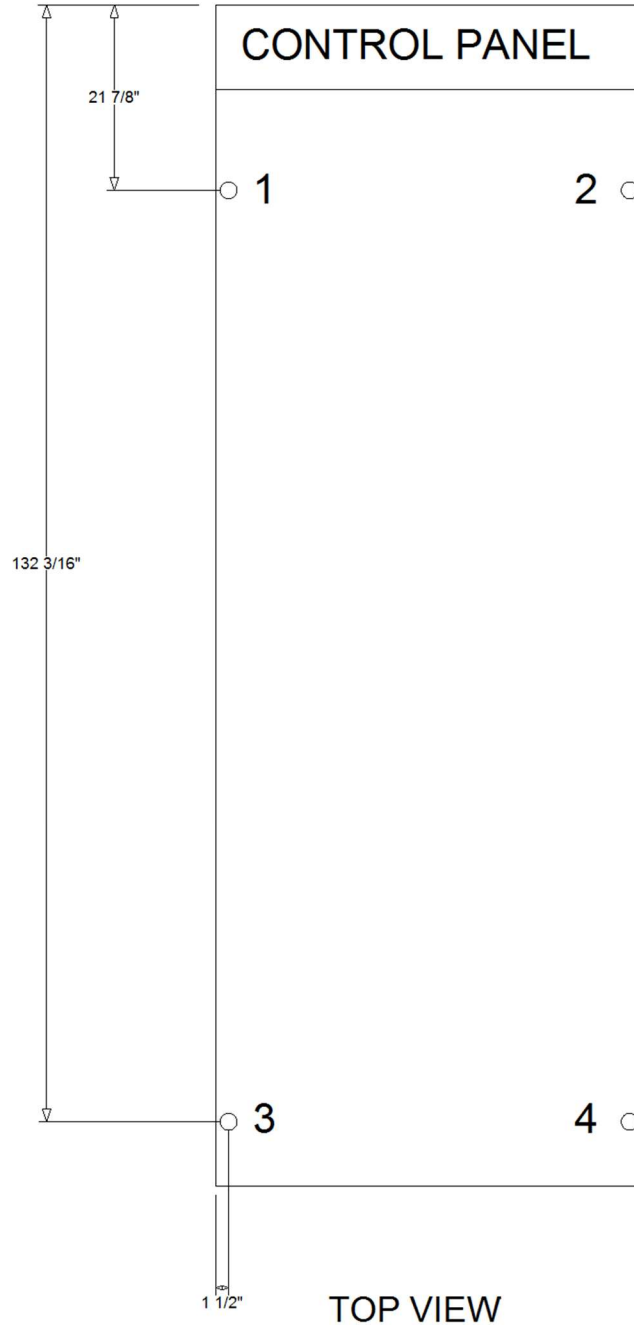


BOTTOM VIEW

Accessory - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): CH-01

UNIT SIZE	MOUNTING LOCATIONS & POINT LOAD WEIGHTS				TOTAL OPERATING WEIGHT
	1	2	3	4	
030	688 lb	610 lb	1,964 lb	1,728 lb	5,262 lb

MOUNTING HOLE DIAMETER 3/4"



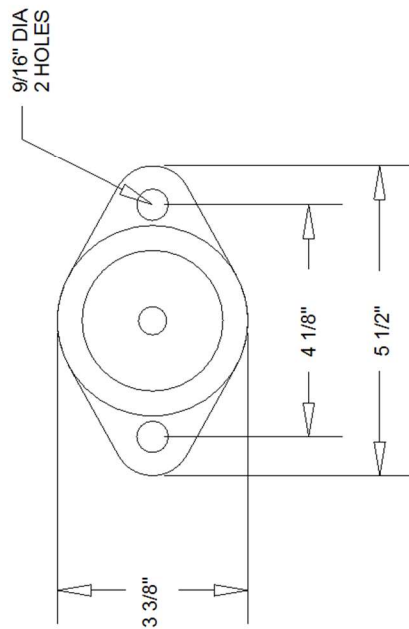
Accessory - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): CH-01

CONTROL PANEL	1	2	3	4
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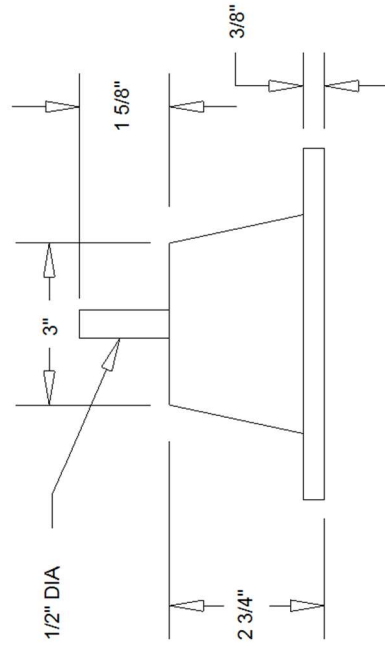
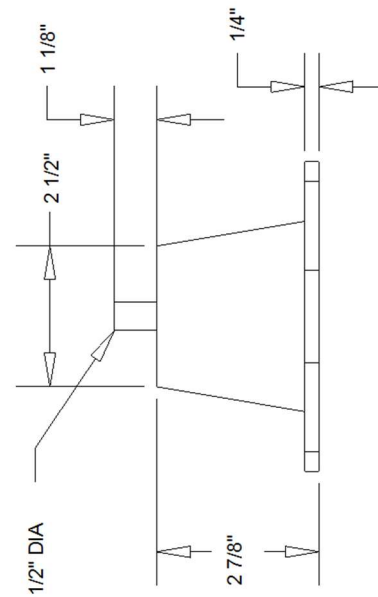
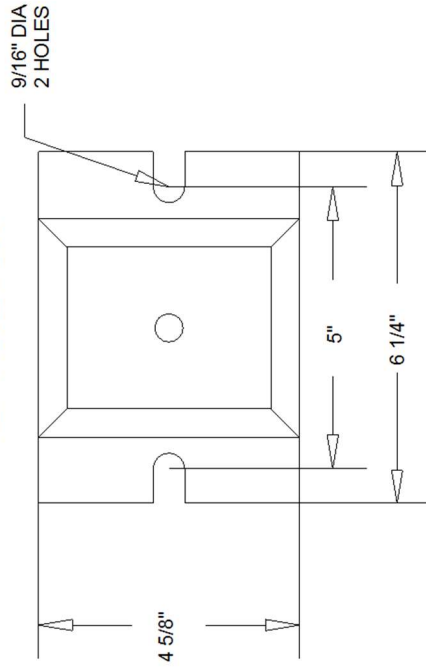
SEE ISOLATOR POINT LOADS FOR DETAILED INFORMATION ON ISOLATOR LOCATIONS.

UNIT SIZE	MOUNTING LOCATIONS AND ISOLATOR NUMBER			
	1	2	3	4
030	RDP-3 CHARCOAL	RDP-3 CHARCOAL	RDP-4 LIME	RDP-4 LIME

RDP-3 ISOLATORS



RDP-4 ISOLATORS

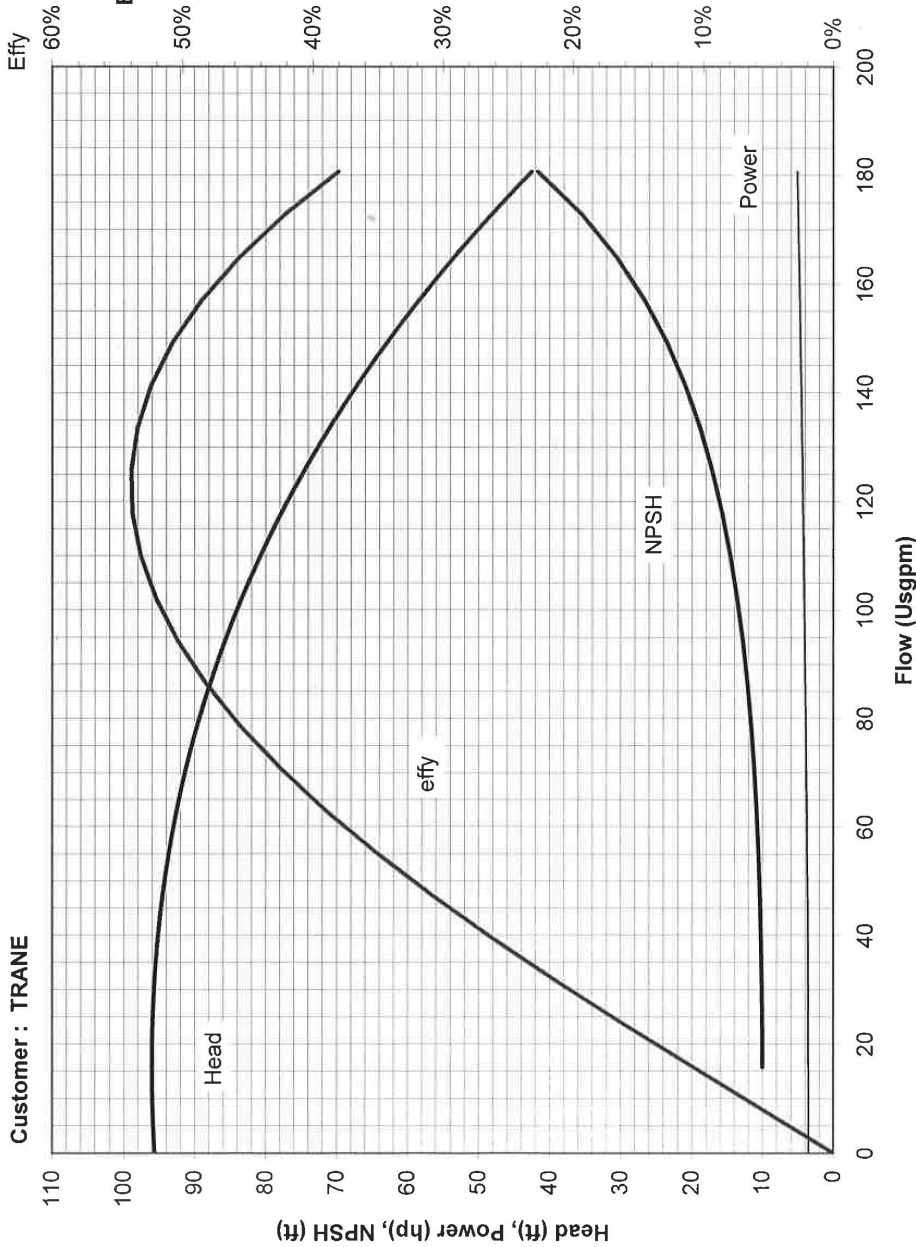


Accessory - Air-Cooled Scroll
 Item: A1 Qty: 1 Tag(s): CH-01



Pump s/n :

Customer : TRANE



Project

E-Curve : E-2854

50% Series : 4392

Size: 2x2x6 (50-150)

Imp Dia: 4.921 in

Comments:

Rated Conditions

Flow : NA Usgpm

Head : NA ft

Speed : 3500 rpm

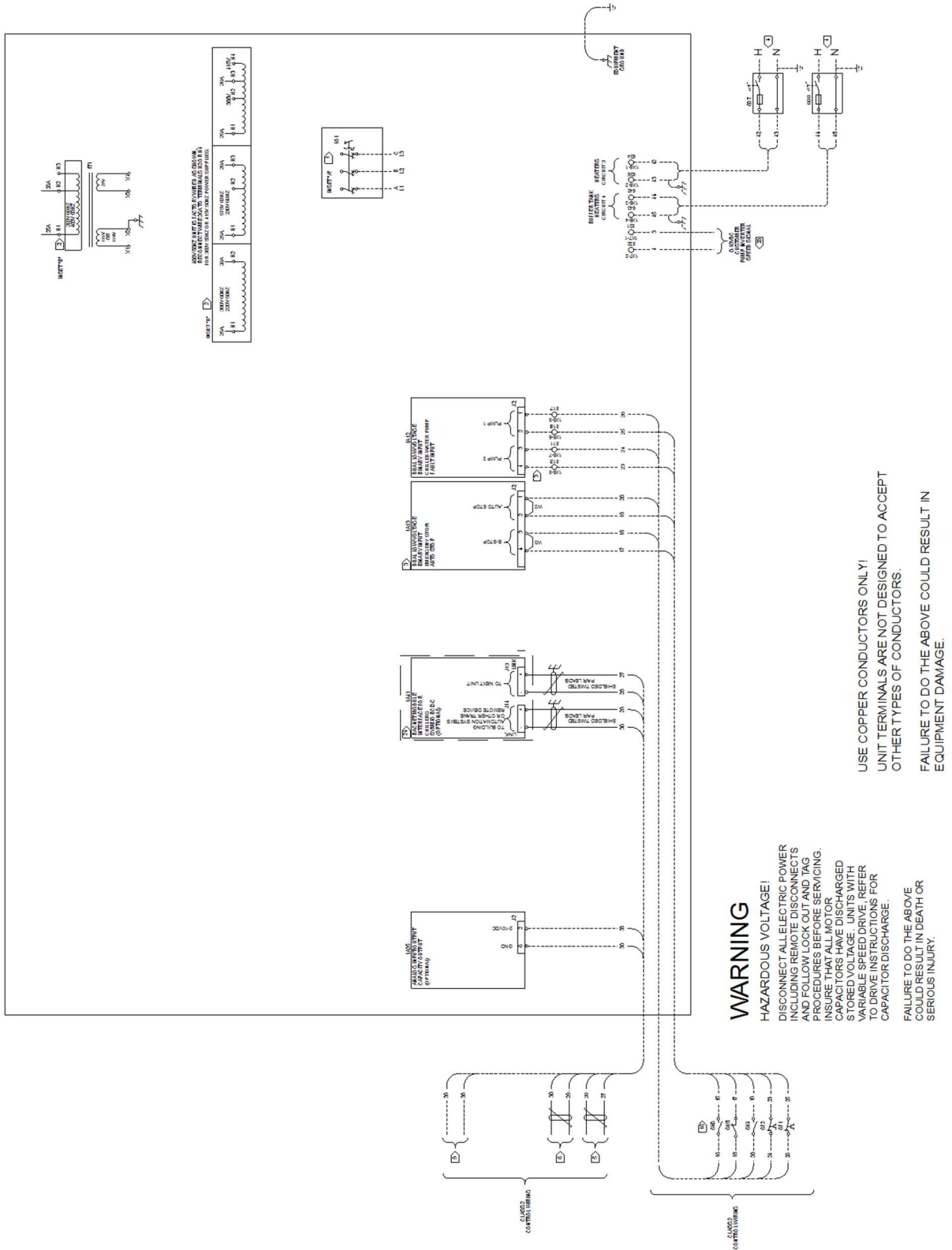
Motor : 5 hp

S.A. Armstrong Limited

1

7/6/2011

Field Wiring - Air-Cooled Scroll
 Item: A1 Qty: 1 Tag(s): CH-01



Field Wiring - Air-Cooled Scroll**Item: A1 Qty: 1 Tag(s): CH-01**

- 1 SINGLE SOURCE POWER IS PROVIDED AS STANDARD ON THESE PRODUCTS, FIELD CONNECTIONS ARE MADE TO 1X1, OR 1Q2.
- 2 FOR VOLTAGES 200V/60HZ, 220V/50HZ, 380V/60HZ, 460V/60HZ, WIRE 26A SHALL BE CONNECTED TO H2. FOR VOLTAGES 230V/60HZ & 575V/60HZ, WIRE 26A SHALL BE CONNECT TO H3. 400V/50HZ UNIT IS FACTORY WIRED WITH 26A CONNECTED TO H3 - RECONNECT WIRE 26A TO H2 FOR 380V/50HZ, OR H4 FOR 415V/50HZ. H4 IS ONLY AVAILABLE WITH 400V/50HZ PANELS.
- 3 FIELD CONNECTIONS ARE ONLY MADE IN A CUSTOMER PROVIDED PUMP (PTYP=NONE). THESE CONNECTIONS WILL BE MADE BY THE FACTORY WHEN THE PUMP IS PROVIDED BY THE FACTORY (PTYP=DHHP).
- 4 CUSTOMER SUPPLIED POWER 115/60/1 OR 220/50/1 TO POWER RELAYS. MAX FUSE SIZE IS 20 AMPS. GROUND ALL CUSTOMER SUPPLIED POWER SUPPLIES AS REQUIRED BY APPLICABLE CODES. GREEN GROUND SCREWS ARE PROVIDED IN UNIT CONTROL PANEL.
- 5 WIRED TO NEXT UNIT. 22 AWG SHIELDED COMMUNICATION WIRE EQUIVALENT TO HELIX LF22P0014216 RECOMMENDED. THE SUM TOTAL OF ALL INTERCONNECTED CABLE SEGMENTS NOT TO EXCEED 4500 FEET. CONNECTION TOPOLOGY SHOULD BE DAISY CHAIN. REFER TO BUILDING AUTOMATION SYSTEM (BAS) COMMUNICATION INSTALLATION LITERATURE FOR END OF LINE TERMINATION RESISTOR REQUIREMENTS.
- 6 WIRED TO TRACER OR OTHER TRANE REMOTE DEVICE. 22 AWG SHIELDED COMMUNICATION WIRE EQUIVALENT TO HELIX LF22P0014216 RECOMMENDED. THE SUM TOTAL OF ALL INTERCONNECTED CABLE SEGMENTS NOT TO EXCEED 4500 FEET. CONNECTION TOPOLOGY SHOULD BE DAISY CHAIN. REFER TO BUILDING AUTOMATION SYSTEM (BAS) COMMUNICATION INSTALLATION LITERATURE FOR END OF LINE TERMINATION RESISTOR REQUIREMENTS.
- 7 WIRED TO CUSTOMER CHILLED WATER SET POINT 2-10V OR 4-20mA.
- 8 WIRED TO CUSTOMER EXTERNAL DEMAND LIMIT 2-10V OR 4-20mA.
- 9 WIRED TO CUSTOMER 2-10V OR 4-20mA % CAPACITY ANNUNCIATOR.
- 10 CUSTOMER SUPPLIED POWER 115/60/1 TO CONVENIENCE OUTLET. MAX FUSE SIZE IS 25A. GROUND ALL CUSTOMER SUPPLIED POWER SUPPLIES AS REQUIRED BY APPLICABLE CODES. GREEN GROUND SCREWS ARE PROVIDED IN UNIT CONTROL PANEL.
11. REFER TO CGAM ELECTRICAL SCHEMATIC FOR SPECIFIC ELECTRICAL CONNECTION INFORMATION AND NOTES PERTAINING TO WIRING INSTALLATION.
- 12 ALL UNIT POWER WIRING MUST BE 600 VOLT COPPER CONDUCTORS ONLY AND HAVE A MINIMUM TEMPERATURE INSULATION RATING OF 90 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. REFER TO WIRE RANGE TABLE FOR LUG SIZES.
13. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE AND LOCAL REQUIREMENTS.
14. 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 A WIRE RANGE OF 14 TO 18 AWG OR DIN RAIL MOUNTED SPRING FORCE TERMINALS.
- 15 UNIT PROVIDED DRY CONTACTS FOR THE CONDENSER/CHILLED WATER PUMP CONTROL. RELAYS ARE RATED FOR 7.2 AMPS RESISTIVE, 2.88 AMPS PILOT DUTY, OR 1/3 HP, 7.2 FLA AT 120 VOLTS 60 HZ, CONTACTS ARE RATED FOR 5 AMPS GENERAL PURPOSE DUTY 240 VOLTS.
- 16 CUSTOMER SUPPLIED CONTACTS FOR ALL LOW VOLTAGE CONNECTIONS MUST BE COMPATIBLE WITH DRY CIRCUIT 24 VOLTS DC FOR A 12 mA RESISTIVE LOAD. SILVER OR GOLD PLATED CONTACTS RECOMMENDED.
- 17 FIELD CONNECTIONS ARE ONLY MADE IN A CUSTOMER PROVIDED PUMP. THESE CONNECTIONS WILL BE MADE BY THE FACTORY WHEN THE PUMP IS PROVIDED BY THE FACTORY. CUSTOMER SUPPLIED POWER 115V, 60Hz, 1PH.
- 18 CUSTOMER SUPPLIED 3 PHASE POWER.
- 19 OPTIONAL FIELD ASSIGNED PROGRAMMABLE RELAYS (STAT=PRLY). CLASS 1 FIELD WIRED MODULE, RELAY AT 120V: 7.2A RESISTIVE 2.88A PILOT DUTY, 1/2HP 7.2FLA; AT 240VAC: 5 AMPS GENERAL PURPOSE.
- 20 WIRED TO CUSTOMER 0-10 VDC PUMP SPEED SIGNAL.
- 21 WHEN FACTORY PROVIDED PUMP IS NOT SELECTED. CUSTOMER MUST SUPPLY SUITABLE PUMP SYSTEM. REFER TO PUMP MANUFACTURER FOR WIRING REQUIREMENTS.
- 22 THE CONTACTS FOR AUTO STOP AND EMERGENCY STOP SWITCHES ARE JUMPERED AT THE FACTORY BY JUMPERS W2 & W3 TO ENABLE UNIT OPERATION. IF REMOTE CONTROL IS DESIRED, REMOVE THE JUMPERS AND CONNECT TO THE DESIRED CONTROL CIRCUIT.
- 23 1A15, LCI MODULE USED WHEN (COMM = LCI).
- 24 1A41, BACNET INTERFACE MODULE USED WHEN (COMM = BCNT).