



Submittal

Prepared For:
All Bidders

Date: April 23, 2021

Customer P.O. Number:
Customer Project Number:

Sold To:

Job Number:
Job Name:
FUSD Wawona MS Chiller Replacement

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

Product Summary

Qty	Product
1	Air-Cooled Scroll

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The attached information describes the equipment we propose to furnish for this project, and is submitted for your approval.

Product performance and submittal data is valid for a period of 6 months from the date of submittal generation. If six months or more has elapsed between submittal generation and equipment release, the product performance and submittal data will need to be verified. It is the customer's responsibility to obtain such verification.

Table Of Contents

Product Summary	1
Air-Cooled Scroll (Item A1)	
Tag Data	3
Product Data	3
Performance Data	3
Product Data Report-CGAM-1	5
Mechanical Specifications	7
Unit Dimensions	9
Weight, Clearance & Rigging Diagram.....	15
Accessory	18
Field Wiring	20

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

Item	Tag(s)	Qty	Description	Model Number
A1	CGAM-1	1	90 Ton Air-Cooled (CGAM)	CGAM090F2**2AXB2A1A1A1AXXA1C1A4XXAXXXAxA5A1D1X-L-X

Product Data - Air-Cooled Scroll

Item: A1 Qty: 1 Tag(s): CGAM-1

- Air-Cooled Scroll Packaged Chiller
- Startup Included - Trane Service must start equipment for warranty to be honored
- 90 nominal tons
- 60 hertz
- 460 volt 3 phases
- High efficiency/performance
- Full factory refrigerant charge (HFC-410A)
- With factory installed freeze protection
- Refrigerant isolation valves (discharge valve)
- UL listed to US and Canadian safety standard
- ASHRAE 90.1 all versions up to 2016
- AHRI certified
- Factory installed flow switch - set point 60 cm/sec
- Phase reversal protection
- Std cooling (40 to 65F/4.44 to 18C)
- Grooved pipe connection
- Factory insulation 0.75"
- Performance based on water
- High ambient (up to 125F/up to 52C)
- 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
- Programmable relays
- Default A short circuit rating
- With water strainer factory installed
- Comprehensive acoustic package
- Architectural louvered panels
- 1st year labor warranty

Performance Data - Air-Cooled Scroll

Tags	CGAM-1
Refrigeration capacity (tons)	81.03
Total chiller power (kW)	112.84
Cooling efficiency (EER (Btu/W-h))	8.618
NPLV.IP (EER (Btu/W-h))	15.160
IPLV.IP (EER (Btu/W-h))	15.807
Sound power level (dBA)	91
Sound pressure level (dBA)	65
Refrigerant	R410A
Refrigerant charge circuit 1 (lb)	78.0
Refrigerant charge circuit 2 (lb)	78.0
Oil charge circuit 1 (gal)	3.54
Oil charge circuit 2 (gal)	3.54
Entering fluid evap (F)	53.99
Leaving fluid evap (F)	44.00
Flow evap (gpm)	193.82
Min flow evap (gpm)	102.60
Min flow PD evap+strainer (ft H2O)	3.82
Evap fluid freeze point (F)	32.00
Fluid pressure drop evap (ft H2O)	10.14

Tags	CGAM-1
Total PD evap+strainer (ft H2O)	12.80
Evap fouling factor (hr-sq ft-deg F/ Btu)	0.000100
Saturated evap temp circuit 1 (F)	38.73
Saturated evap temp circuit 2 (F)	38.72
Ambient air temperature (F)	105.00
Altitude (ft)	0.00
Saturated cond temp circuit 1 (F)	133.91
Saturated cond temp circuit 2 (F)	133.93
Compressor power input (kW)	105.52
RLA - compressor 1A (A)	33.00
LRA - compressor 1A (A)	215.00
RLA - compressor 1B (A)	41.90
LRA - compressor 1B (A)	260.00
RLA - compressor 2A (A)	41.90
LRA - compressor 2A (A)	260.00
RLA - compressor 2B (A)	33.00
LRA - compressor 2B (A)	215.00
Total airflow (cfm)	56978
Number of fans ()	6
Fan power (kW)	7.03
Total fan FLA (A)	3.20
Single point power MCA (A)	180.90
Single point power MOP (A)	200.00
Short circuit current rating (A)	5000.00
Number of compressors ()	4
Number of circuits ()	2
Refrigeration capacity steps ()	4
Shipping weight (lb)	5859.5
Operating weight (lb)	5961.1
Length (in)	143
Width (in)	89
Height (in)	92
Field Purchased Evaporative Pre-Cooler	No Pre-Cooling

Job Information

20-130 Ton Air-Cooled



Tag	CGAM-1
Model Number	CGAM 90
Quantity	1
Trane Select Assist Version	246
Unit nominal tonnage	90 tons
Unit type	High efficiency



General Information

Sound attenuator package	Comprehensive package	IPLV.IP	15.81 EER (Btu/W-h)
Refrigerant	R410A	NPLV.IP	15.16 EER (Btu/W-h)
Refrigeration capacity	81.03 tons	Sound power level	91 dBA
Full load refrigeration efficiency	8.618 EER (Btu/W-h)	Sound pressure level *	65 dBA

Note: * At 30 feet in free field.

Evaporator Information

Evaporator application	Std cooling	Fouling factor	0.000100 hr-sq ft-deg F/ Btu
Entering temperature	53.99 F	Saturated temperature-ckt 1	38.7 F
Leaving temperature	44.00 F	Saturated temperature-ckt 2	38.7 F
Fluid flow rate	193.8 gpm	Minimum flow rate	102.6 gpm
Pressure drop	10.1 ft H2O	Pressure drop at min flow rate	3.82 ft H2O
Total PD evap+strainer	12.8 ft H2O	Flow switch set point	Flow switch set point 60 cm/sec
Evap fluid type	Water	Freeze protection (factory inst)	With freeze protection
Evap fluid freeze point	32.00 F		

Condenser Information

Unit application	High ambient	Total fan FLA	3.20 A
Ambient air temperature	105.0 F	Total airflow	56978 cfm
Elevation	0.000 ft	Fin material	Lanced aluminum
Number of fans	6.00 Each	Saturated temperature-ckt 1	133.9 F
Fan power	7.030 kW	Saturated temperature-ckt 2	133.9 F

Compressor Information

Number of compressors	4		<u>RLA</u>	<u>LRA</u>
Number of circuits	2	Compressor A	33.00 A	215.00 A
Refrigeration capacity steps	4	Compressor B	41.90 A	260.00 A
Compressor power input	105.5 kW	Compressor D	41.90 A	260.00 A
		Compressor E	33.00 A	215.00 A

Electrical Information

Unit voltage	460. volt 3 phases		<u>MCA</u>	<u>MOP</u>
Unit hertz	60. hertz	Single point power	181 A	200 A
Short circuit	Default	Incoming power line connection	Single point	
Short circuit current rating	5000 A	Starter type	Across the line	
Total power input	112.8 kW			

Note: Unit power includes: compressors, condenser fans, and control kW

Job Information

20-130 Ton Air-Cooled



Tag	CGAM-1
Model Number	CGAM 90
Quantity	1
Trane Select Assist Version	246
Unit nominal tonnage	90 tons
Unit type	High efficiency



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



Physical Information

Length	143 in	Water connection (inlet)	4.000 in
Width	89 in	Refrigerant charge circuit 1	78.0 lb
Height	92 in	Refrigerant charge circuit 2	78.0 lb
Operating weight	5961 lb	Oil charge circuit 1	3.54 gal
Shipping weight	5860 lb	Oil charge circuit 2	3.54 gal

Information for LEED Projects

ASHRAE 90.1/CSA compliance	ASHRAE all to 2016	IPLV	15.81 EER (Btu/W-h)
Refrigerant charge circuit 1	78.0 lb	Rated refrigeration capacity (AHRI)	87.38 tons
Refrigerant charge circuit 2	78.0 lb	Rated cooling efficiency	10.18 EER (Btu/W-h)

Note: 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.

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.

Mechanical Specifications - Air-Cooled Scroll**Item: A1 Qty: 1 Tag(s): CGAM-1****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). Once in place, the unit must be level within 1/4" 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 four 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 heaters (if used for freeze protection) as well as the programmable relays.

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 (29.6 bars) and a waterside working pressure of 150 psig (10.5 bars). 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 (-29°C).

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 (44.8 bars). Condensers are factory proof tested at 650 psig (44.8 bars).

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.

The unit starts and operates from 32.0 F to 125.0 F.

Refrigerant Circuits

The unit has dual refrigerant circuits. Each refrigerant 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 four 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.

Programmable Relays

Predefined, factory-installed, programmable relays allow the user to select four relay outputs. Available outputs are: Alarm-Latching, Alarm-Auto Reset, General Alarm, Warning, Chiller Limit Mode, Compressor Running, and Tracer Control.

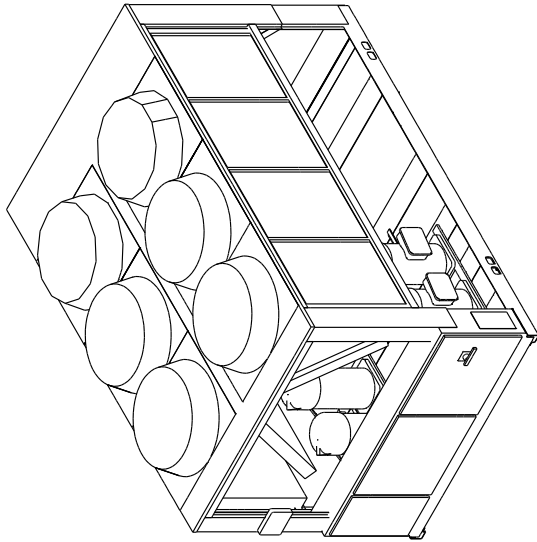
Note: An additional 115V, 20 amp field provided power connection is required to power the programmable relays.

Comprehensive Acoustic Package

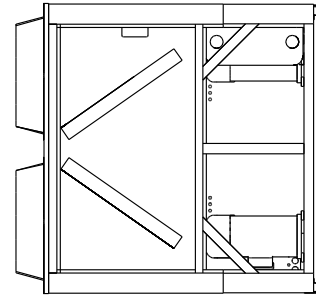
Acoustical treatment for compressors is factory installed.

Architectural Louvered Panels

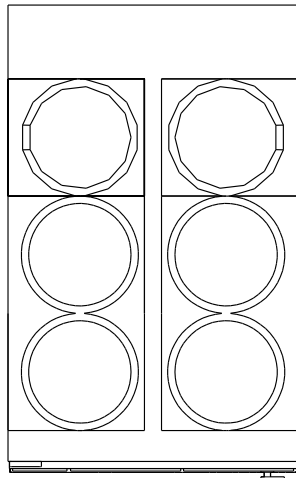
Louvered panels cover the complete condensing coil and service area beneath the condenser.



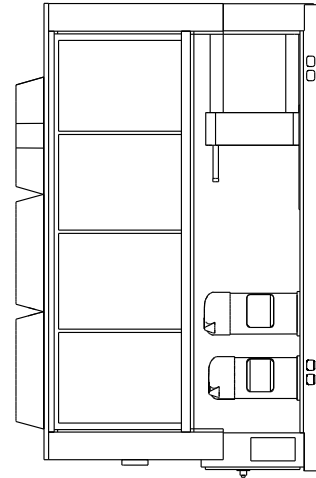
ISOMETRIC VIEW



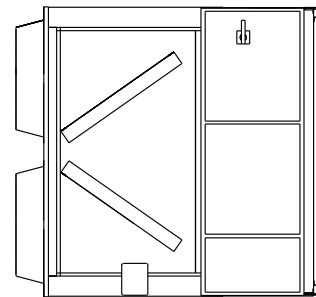
BACK VIEW



TOP VIEW



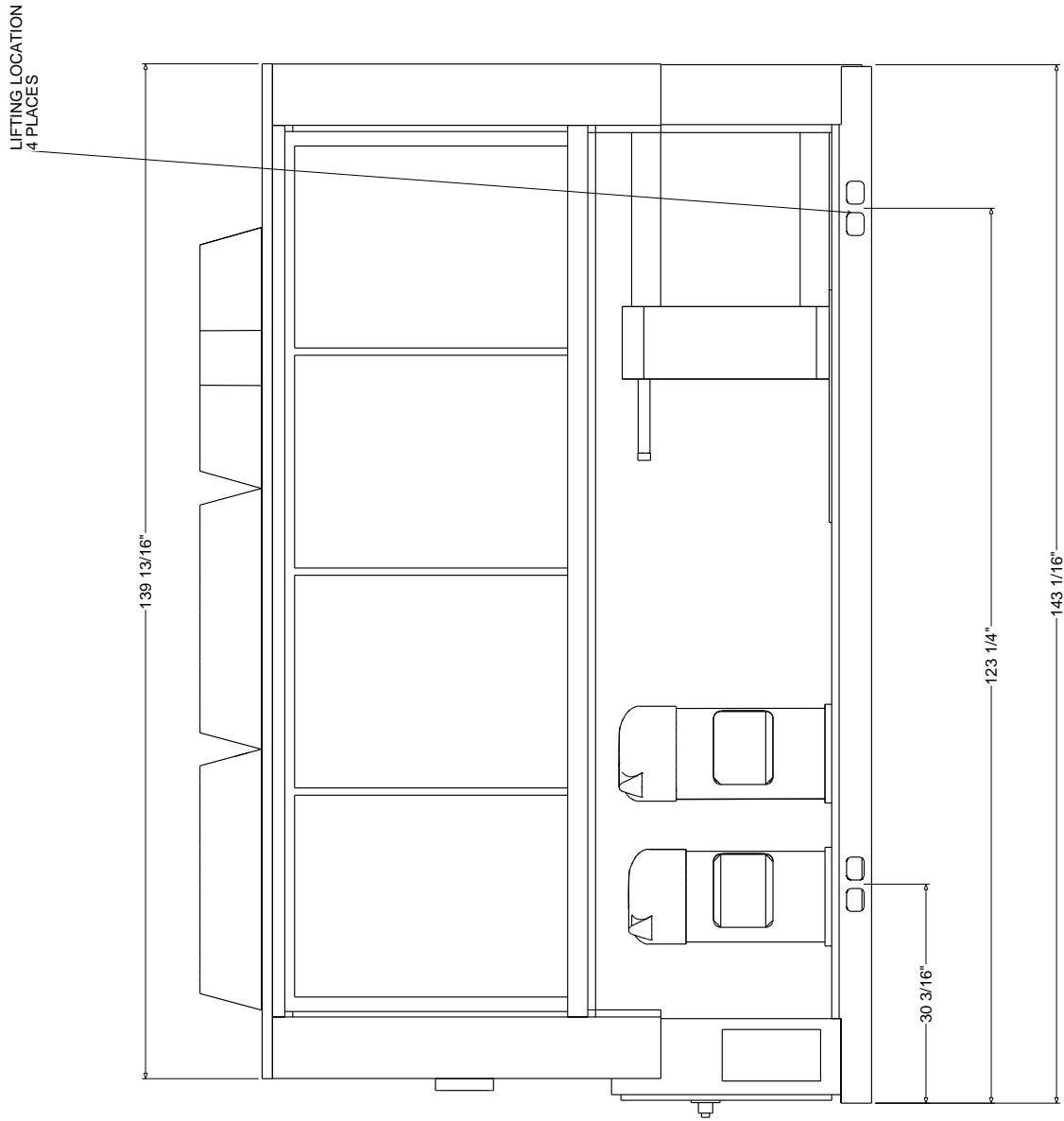
RIGHT SIDE VIEW



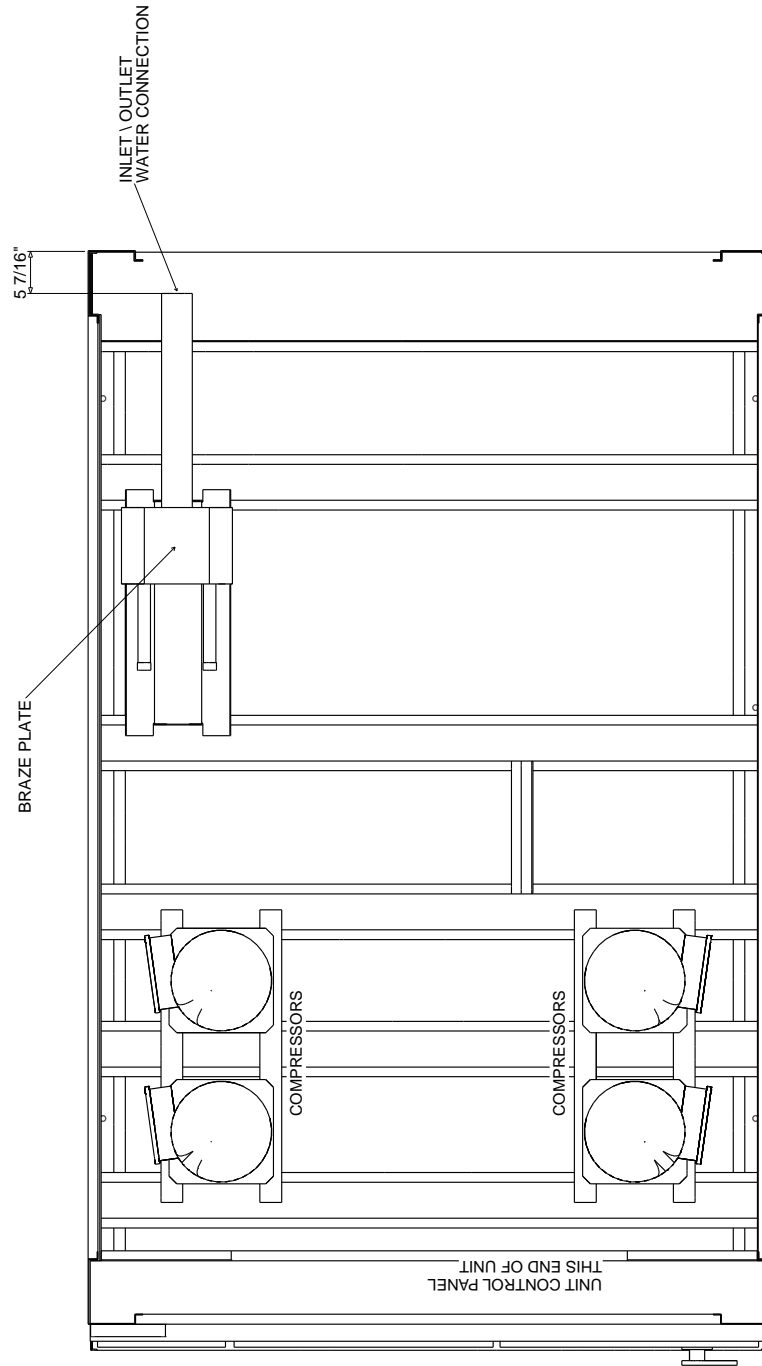
FRONT VIEW

INLET/OUTLET WATER CONNECTION SIZE
 4" (100mm)

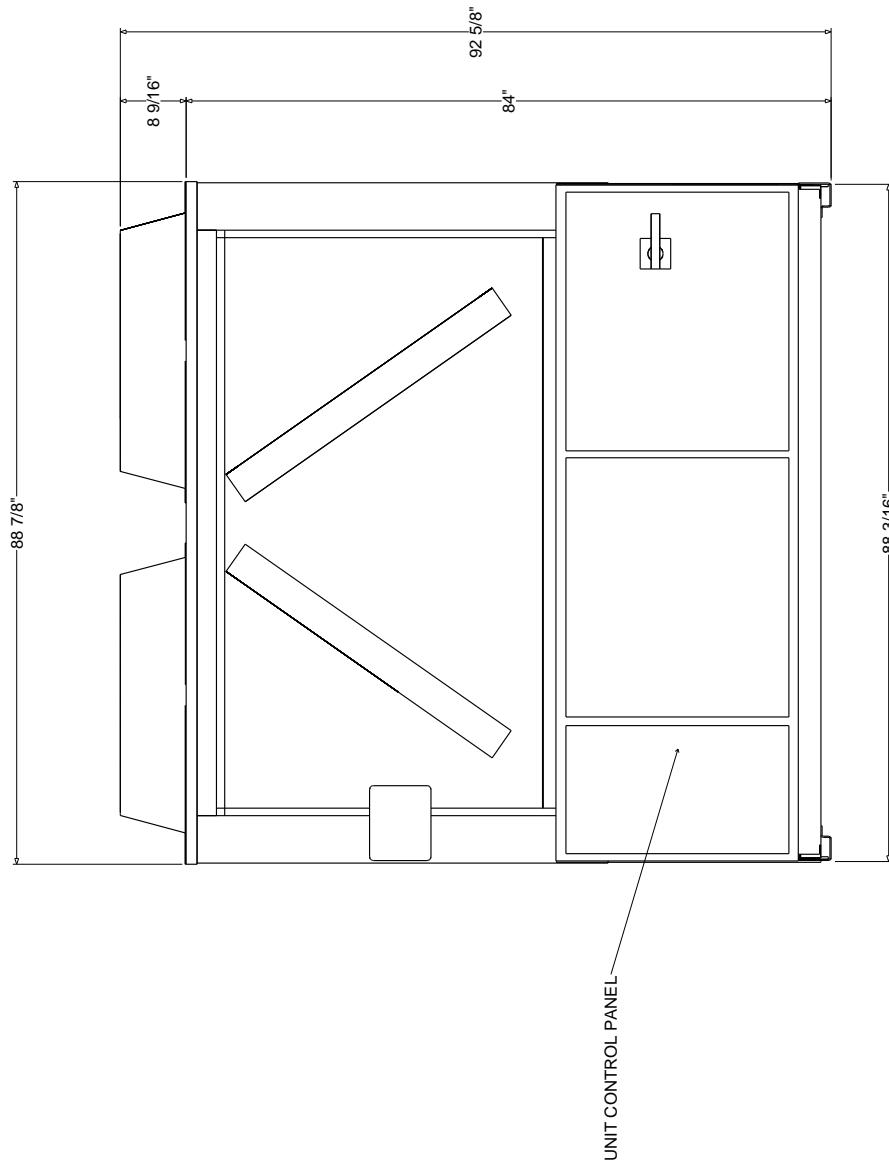
BRAZE PLATE WATER VOLUME/STORAGE
 9.0 GAL (34.1 LITERS)

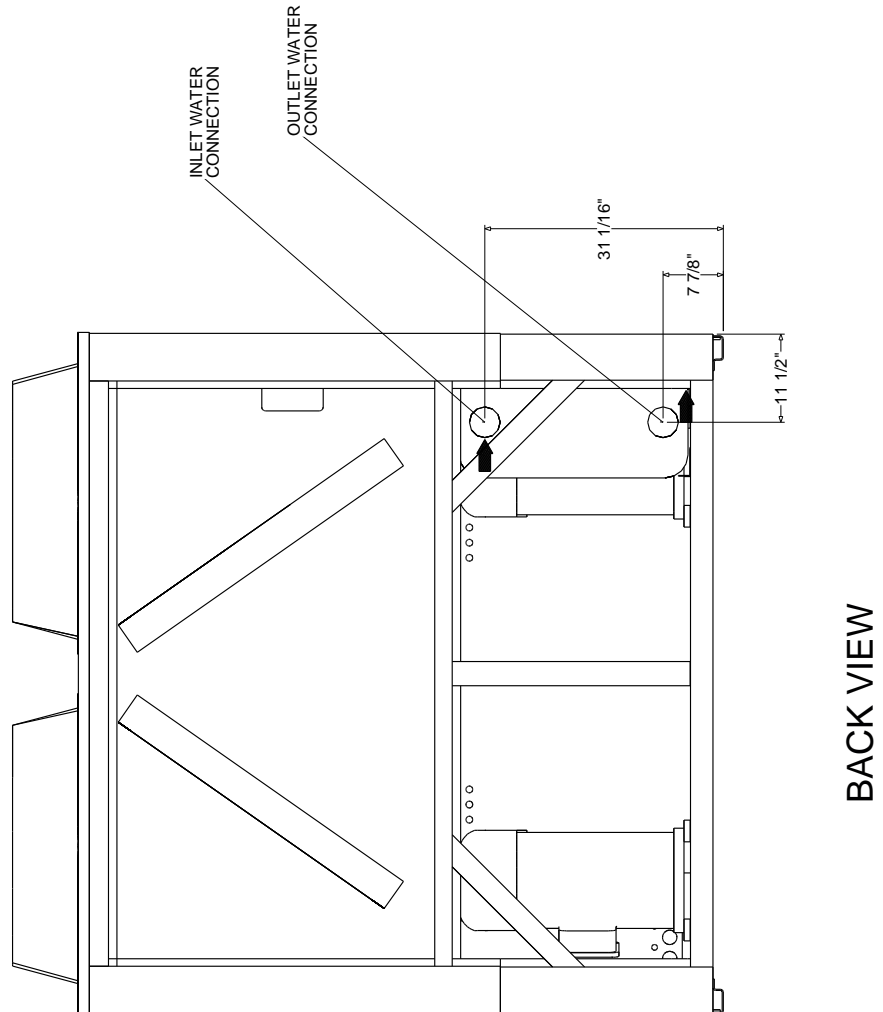


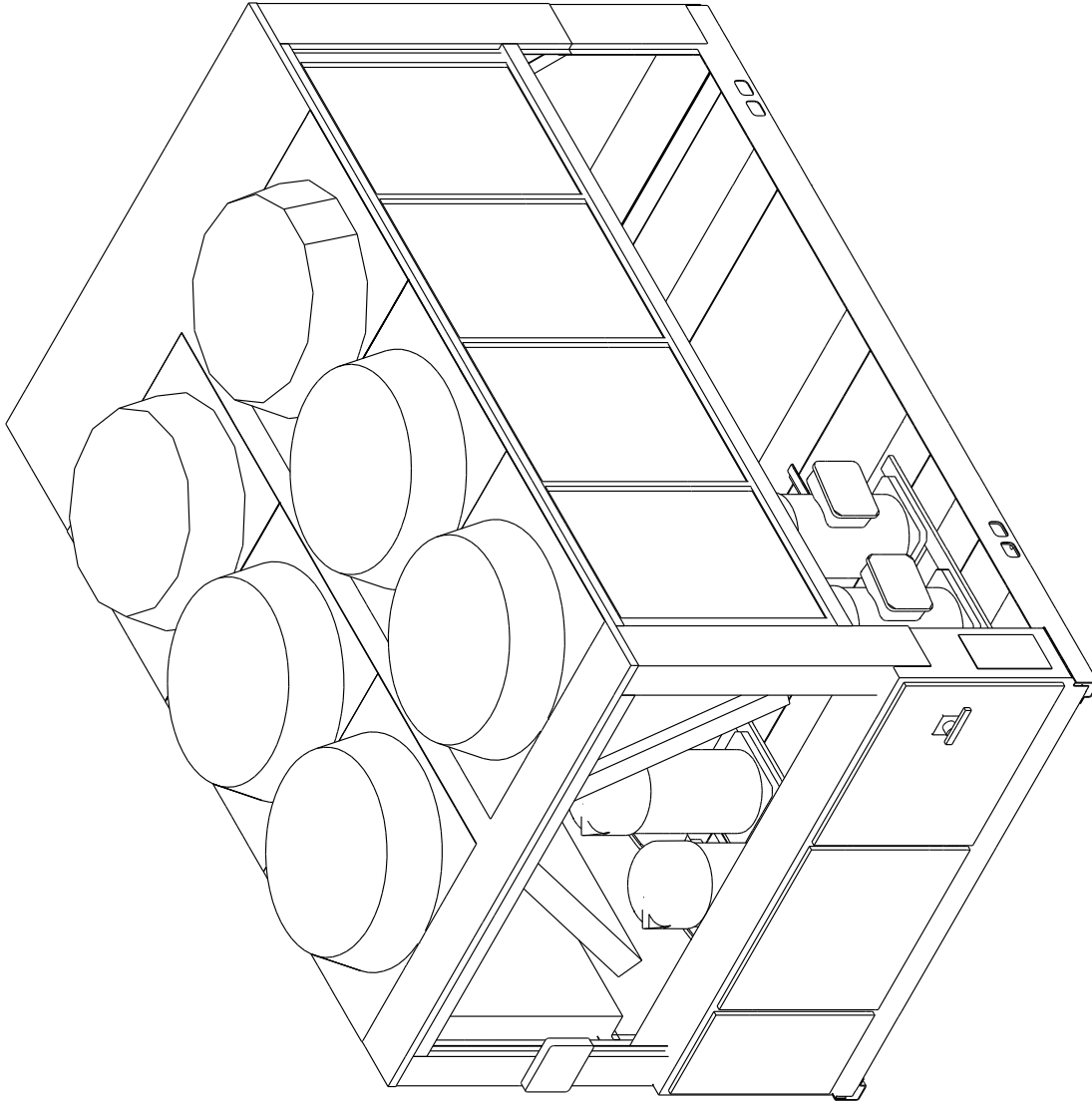
RIGHT SIDE VIEW



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







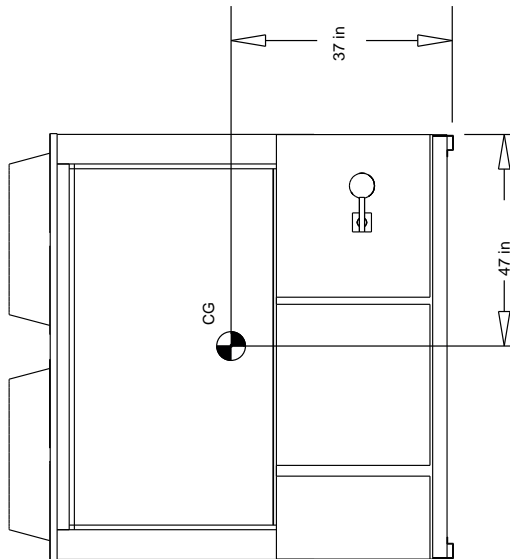
ISOMETRIC VIEW
LOUVERED PANELS NOT SHOWN
OVER CONTROL PANEL FOR CLARITY

Weight, Clearance & Rigging Diagram - Air-Cooled Scroll

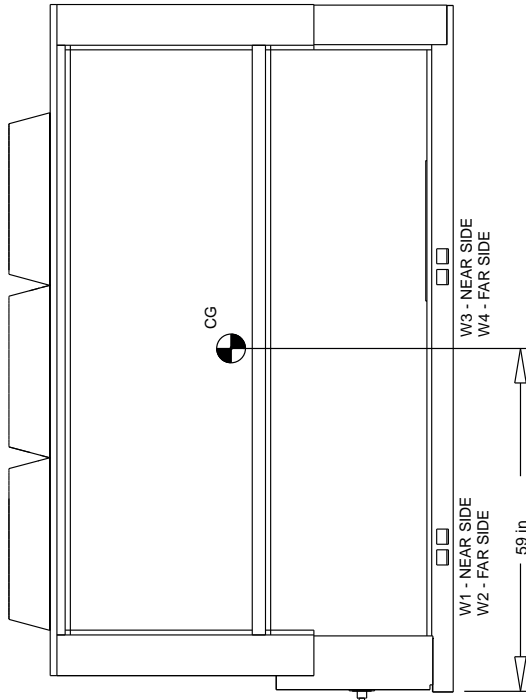
Item: A1 Qty: 1 Tag(s): CGAM-1

UNIT CENTER OF GRAVITY

LIFTING WEIGHTS				
W1	W2	W3	W4	SHIPPING WEIGHT
1899 lb	2078 lb	855 lb	936 lb	5859.5 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.

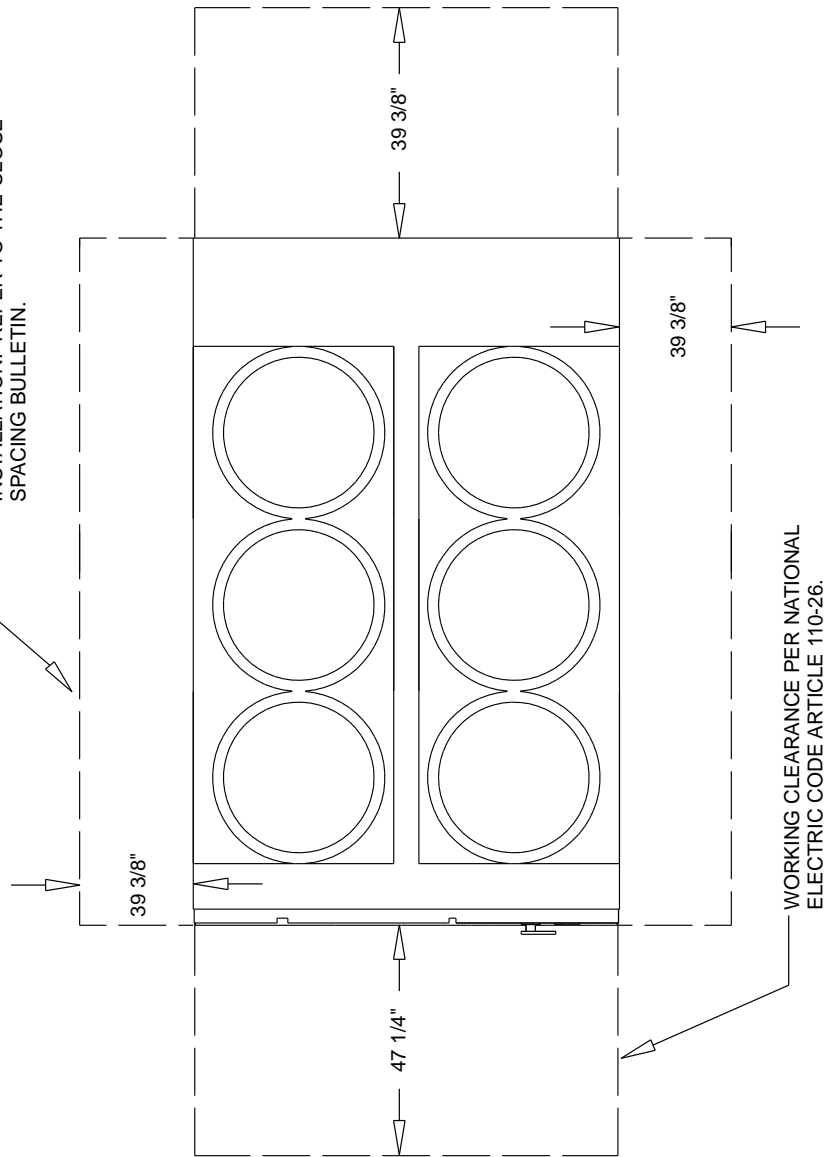
Weight, Clearance & Rigging Diagram - Air-Cooled Scroll

Item: A1 Qty: 1 Tag(s): CGAM-1

UNIT CLEARANCE

NO OBSTRUCTIONS ABOVE THE CONDENSER

- 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 Diagram - Air-Cooled Scroll

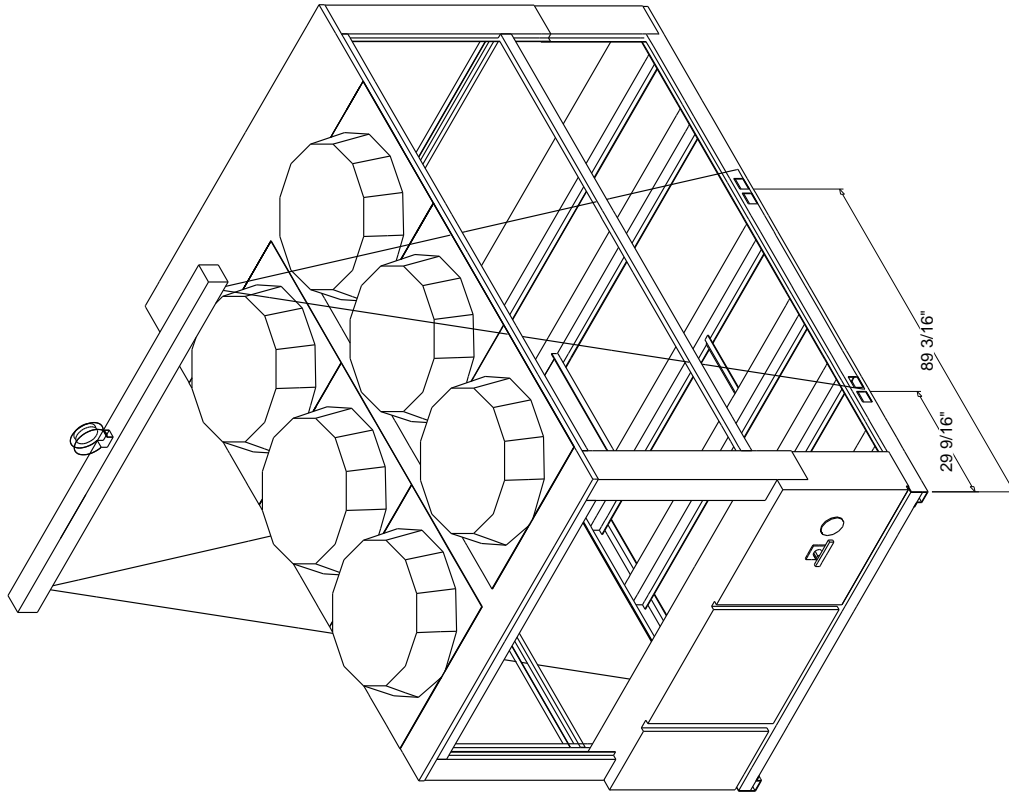
Item: A1 Qty: 1 Tag(s): CGAM-1

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!



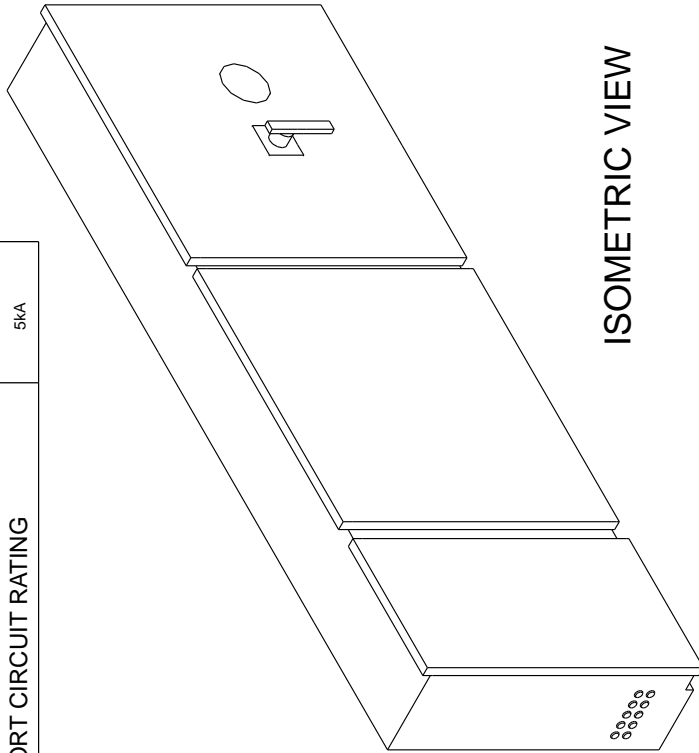
ISOMETRIC VIEW

Accessory - Air-Cooled Scroll

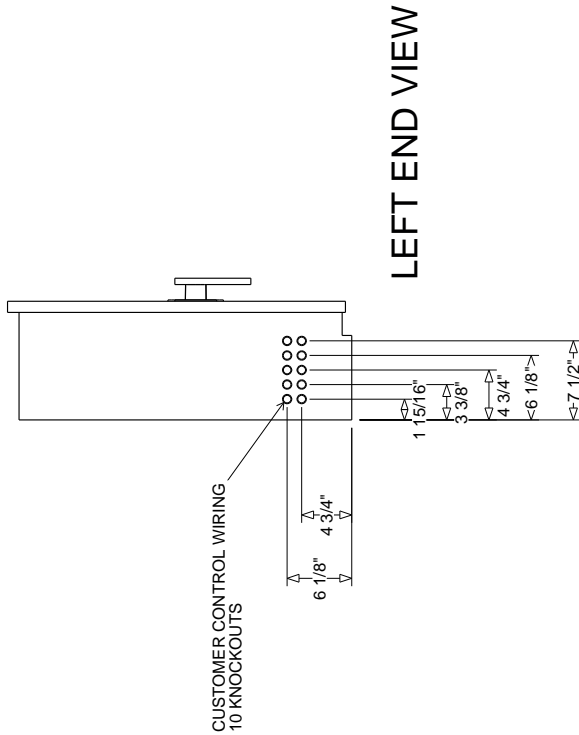
Item: A1 Qty: 1 Tag(s): CGAM-1

SHORT CIRCUIT RATING 5KA

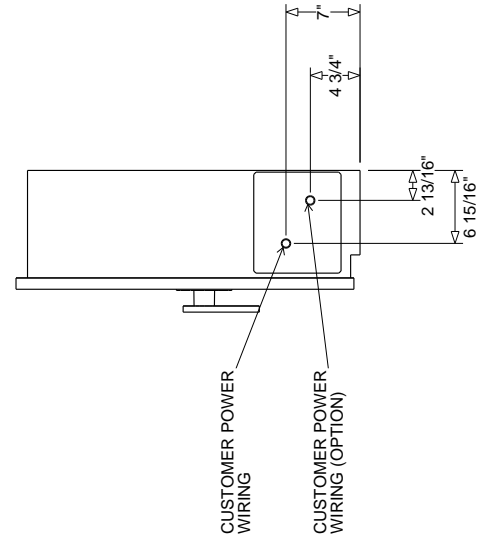
CUSTOMER WIRE SELECTION TABLE			
POWER WIRE CONNECTION TO CIRCUIT BREAKER (10:1)			
UNIT SIZE	UNIT EFF	VOLTAGE	CIR 1 & 2 (SINGLE POINT POWER) LUG WIRE SIZE RANGE (PER PHASE)
090	HIGH	460	(1 MAX Conductor per phase) 3/0-350MCM



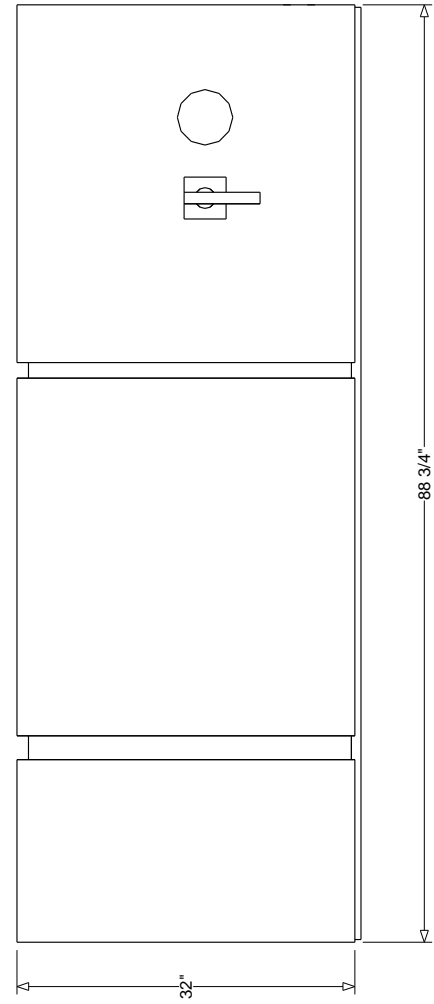
ISOMETRIC VIEW



LEFT END VIEW



RIGHT END VIEW



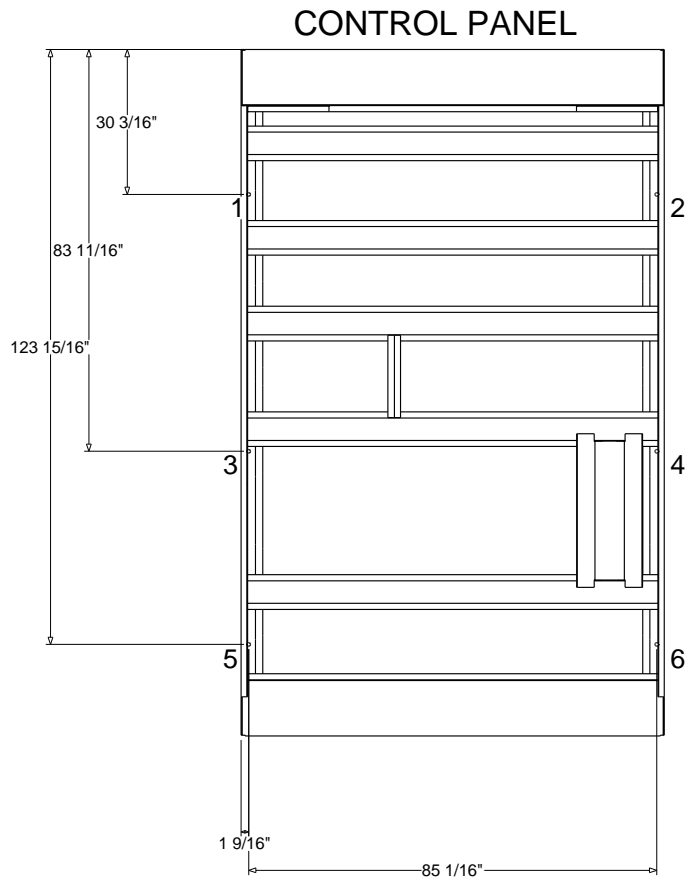
FRONT VIEW

Accessory - Air-Cooled Scroll

Item: A1 Qty: 1 Tag(s): CGAM-1

UNIT SIZE	MOUNTING LOCATIONS & POINT LOAD WEIGHTS								TOTAL OPERATING WEIGHT
	1	2	3	4	5	6	7	8	
090	1507 lb	1763 lb	802 lb	927 lb	406 lb	466 lb	N/A	N/A	5961.1 lb

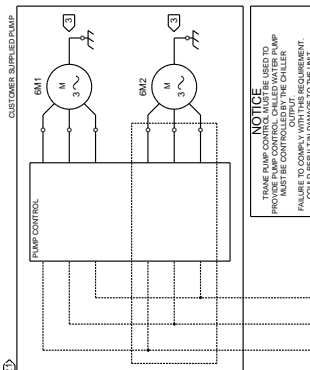
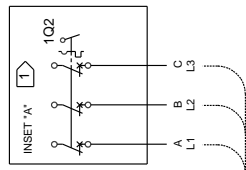
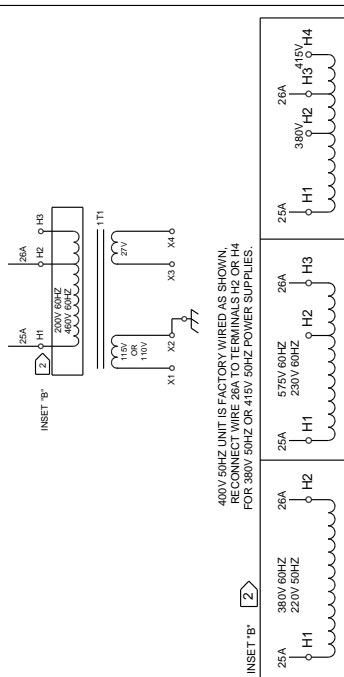
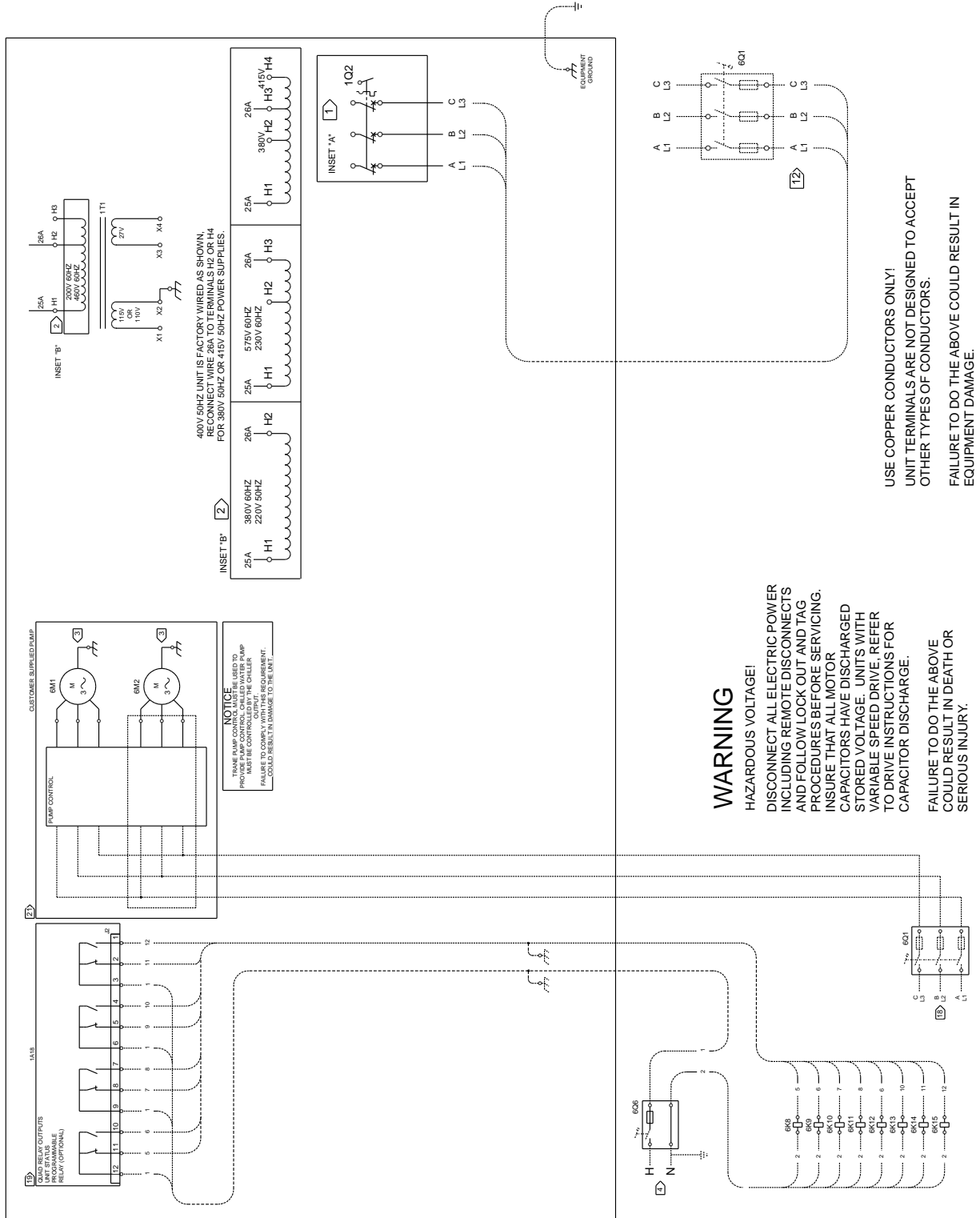
MOUNTING HOLE DIAMETER 3/4"



TOP VIEW

DIMENSIONS ARE REFERENCED FROM THE END AND SIDE OF THE UNIT BASE

CONTROL PANEL
PAGE 1 OF 2



WARNING

HAZARDOUS VOLTAGE!

DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT 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.

USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
FAILURE TO DO THE ABOVE COULD RESULT IN EQUIPMENT DAMAGE.

Field Wiring - Air-Cooled Scroll

Item: A1 Qty: 1 Tag(s): CGAM-1

- 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 WIRED TO TRACER OR OTHER REMOTE DEVICE.
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 1/2 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, 1/2 HP 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, REMOVED 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).