



Request for *proposal*

CHILLER REPLACEMENT AT WILLIAM CHRISMAN HIGH SCHOOL RFP# 2024-PUR-020

PROPOSALS MUST BE RECEIVED BY:
11:00 AM (CST) ON FRIDAY, JULY 26, 2024

Please mark your sealed envelope “**RFP #2024-PUR-020 Chiller Replacement at William Chrisman High School Proposal**” and deliver to the following address and person:

Lisa Patrick
Purchasing Supervisor
Lisa_Patrick@idschools.org

201 N. Forest Avenue
Independence, MO 64050
816-521-5599 extension 10610

*All questions, requests for information or clarification pertaining to this bid must be submitted in writing to the Purchasing Supervisor at the email address listed above. The deadline for questions is **Monday, July 15, 2024 at 2:00 PM (CST)***

It is the responsibility of interested firms to check the website:
<http://sites.ids.schools.org/purchasing/bids-and-rfps> for any addendums or notices of information prior to the opening date and time of this RFP. All addendums must be signed and included with your submitted Proposal.



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Facilities & Purchasing
201 N. Forest Avenue
Independence, MO 64050
(816) 521-5599 ext. 10610

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Chiller Replacement at William Chrisman High School
Request for Proposal
2024-PUR-020

Proposal Due:

July 26, 2024

11:00 am

1. Background

1.1. *Notice*

1.1.1. Independence School District (the “District”) seeks a contractor (“Contractor”) to perform the install of the Chiller at William Chrisman High School. If your firm is interested, please submit the information requested in this Request for Proposal (RFP) to the Independence School District office by 11:00 a.m. on July 26, 2024. All information necessary for the submittal is contained in this RFP.

1.2. *RFP Schedule:* The timeline listed below is the District’s estimation of time required to complete the RFP process. All efforts shall be made to abide by this schedule; however, it is subject to change due to different circumstances.

1.2.1. Issue RFP: Wednesday, June 26, 2024

1.2.2. Pre-bid Meeting and inspection of property held at site (1223 N. Noland Road, Independence, MO 64050): July 11, 2024, 9:00 a.m.

1.2.3. Deadline to submit written questions: 2:00 p.m., Monday, July 15, 2024.

1.2.4. Deadline for RFP: Friday, July 26, 2024 at 11:00 a.m.

1.2.5. Vendor selection date: 6:00 p.m., August 13, 2024 ISD Board of Education Meeting.

2. Description of Services

2.1. *Type*

2.1.1. Install the replacement Chiller at William Chrisman High School. See attachment A with Specifications.

2.2. *Location*

2.2.1. William Chrisman High School at 1223 N. Noland Road, Independence MO 64050

2.3. *Equipment*



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- 2.3.1. Two Trane 410 Chillers (RTAF410E). The successful bidder shall furnish all materials, tools, and equipment necessary to accomplish the relocate and installation service.

2.4. Inspection

- 2.4.1. Contractor must attend Pre-bid Meeting to visit the site before submitting their proposal and be responsible for all measurements on the project.

2.5. Project Schedule

- 2.5.1. Vendor selection date: 6:00 p.m., Tuesday, August 13, 2024
- 2.5.2. Issue Contract date: August 14, 2024
- 2.5.3. Planned commencement of service: The date is based on when the manufacturer can produce the Chiller.
- 2.5.4. Planned substantial completion of service: The date is based on when the manufacturer can produce the Chiller.
- 2.5.5. Planned final completion of service: The date is based on when the manufacturer can produce the Chiller.

3. Scope of Services

3.1. Hours of service

- 3.1.1. Contractor will have access from 7:00 a.m. till 4:00 p.m. Monday thru Friday excluding District days off.

3.2. Terms and conditions

- 3.2.1. Contractor is to install to factory specifications.

3.3.

Exclusions

3.4. Term

- 3.4.1. Contract Issued: August 14, 2024
- 3.4.2. Start date: The date is based on when the manufacturer can produce the Chiller.
- 3.4.3. Date of final completion: The date is based on when the manufacturer can produce the Chiller.



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4. Required Insurance

4.1. *Liability*

4.1.1. \$100,000 per incident

4.1.2. \$300,000 per year

4.2. *Workers Compensation*

4.2.1. Statutory limits

4.3. *Bond*

4.3.1. Payment: Amount of Agreement

4.3.2. Performance: Amount of Agreement

5. Disclosures and Notifications

5.1. *Conflicts of interest*

5.1.1. Proposal must state whether proposer has any professional, business, or familial relationship with any current member of the Board of Education of the District or with any administrator of the District.

5.2. *Cooperative Procurement*

5.2.1. Indicate whether, if the District accepted your Proposal, you would provide the same products and services under the same prices and terms to any public-school district or any other non-profit organization having membership in the Mid-America Council of Public Purchasing (MACPP), Mid-America Regional Counsel (MARC) or Greater Suburban Kansas City Joint Purchasing Cooperative and/or located within the greater Kansas City metropolitan trade area.

5.2.1.1. YES _____ NO _____ (mark one with X)

5.2.2. The prices, terms, and conditions of this RFP and any subsequent term agreement would control the terms of any subsequent agreement.

5.2.3. Organizations represented by MACPP, MARC or GSKCJPC have no obligation under the cooperative procurement agreement to use the RFP, Proposal, or agreement unless they are specifically named in the RFP as a joint respondent.

5.2.4. The ordering jurisdiction will issue purchase orders and be responsible for all receiving, inspection, payments and other agreement administration.



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- 5.2.5. Each jurisdiction that is a party to the joint Proposal may act as Administrative Contracting Officer with responsibility to issue purchase orders, inspect and receive goods, make payments, and handle disputes involving shipment to the jurisdiction.

6. Contract Terms

6.1. *E-Verify*

- 6.1.1. Missouri law requires all companies doing business under contracts greater than \$5,000 with government entities to attest that all their employees and subcontractor's employees are "lawfully present in the United States."

6.2. *Prevailing Wage*

- 6.2.1. Missouri law requires agreements to contain the following prevailing wage terms: "A wage of no less than the prevailing hourly rates of wages for work of a similar character in the locality in which the work is performed shall be paid to all workmen employed by or on behalf of any public body engaged in public works exclusive of maintenance work" (§ 290.220) and "Not less than the prevailing hourly rate of wages specified in wage determination as requested from the State shall be paid to all workers performing work under this contract" (§ 290.250). The contractor shall forfeit as a penalty to the State, County, City, and County, City, Town, District or other political sub-division on whose behalf the contract is made or awarded. Ten (\$10.00) Dollars for each worker employed, for each calendar day, or portion thereof such worker is paid less than the said stipulated rates for any work done under this contract by him or by any sub-contractor under him. § 290.250. All payroll records of the contractor are to be submitted to the School District, with the approved Prevailing Wage Statement, prior to final acceptance of the project.

6.3. *Liquidated Damages*

- 6.3.1. The District may assess liquidated damages for work not completed as agreed upon for up to \$50 per day.

6.4. *Applicable law*

- 6.4.1. Missouri law will govern contracts entered into pursuant to this RFP.

6.5. *Termination*

- 6.5.1. The District may terminate contracts entered into pursuant to this RFP without cause upon 30 days' notice.

6.6. *Compliance with laws and policies*

- 6.6.1. Proposer must comply with all federal and state anti-discrimination laws.



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- 6.6.2. All work shall be done in strict accordance with the provisions of the current edition of the building codes adopted by the City of Independence, Missouri and all city ordinances in effect during performance of this contract.
- 6.6.3. Contractor must be licensed to do business in the City of Independence.
- 6.6.4. All work shall meet or exceed the American with Disabilities Guidelines.
- 6.6.5. *A-133 Compliance Supplement:* The contractor must certify that they and their principals are not debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any Federal Department or Agency.
- 6.6.6. *Excessive Unemployment:* The Missouri Department of Labor and Industrial Relations has determined that a period of "Excessive Unemployment" remains in effect and will remain in effect if the unemployment rate exceeds 5% in the state of Missouri. Only Missouri laborers and laborers from nonrestrictive states are allowed by law to be employed on Missouri's public works projects. (See Sections 290.550 through 290.580 RSMo).
- 6.6.7. *AHERA Notification:* the District has completed the removal of friable asbestos in all District school buildings. In addition, all facilities have now been inspected by a certified asbestos inspector as required under the ASBESTOS HAZARD EMERGENCY RESPONSE ACT OF 1986 (AHERA). A copy of the AHERA Plan has been filed with the State of Missouri and a copy is on file with each building administrator. The AHERA Plan is available for inspection during regular school hours.
- 6.6.8. *OSHA Training:* As a condition of the Contract entered pursuant to this RFP, a Contractor must provide a 10-hour Occupational Safety and Health Administration (OSHA) Construction Safety Program ("Program") for Contractor's on-site employees as mandated by RSMo 292.675. Said Program must include a course in construction safety and health approved by OSHA or a similar program approved by the Missouri Department of Labor and Industrial Relations. This requirement includes the following: All of Contractors' on-site employees must complete the Program within 60 days of beginning work on the Project; Any employee found on the work site subject to this requirement without documentation of the successful completion of the Program will be given 20 days to produce such documentation before being subject to removal from the Project; Contractor's failure to comply with these requirements will subject it to penalties. Contractor shall forfeit as a penalty to the Owner \$2,500.00 plus \$100.00 for each employee employed by Contractor or Contractor's Subcontractor, for each calendar day, or portion thereof, such employee is employed to work under this Contract without the required training. Said penalty shall not accrue until the period in subsections 1 and 2 have elapsed. Contractor will be subject to said penalties notwithstanding any other provision to the contrary in this Construction Contract. Contractor shall require its contracts with all Subcontractors to contain these provisions.



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Contractor shall be responsible for penalties to Owner due to any Subcontractor's employees' failure to produce documentary evidence of training in the required Program. Contractor may withhold all sums necessary to cover any penalty from Subcontractor by suing in the circuit court of the county in which the project is located. Contractor shall have no right of recovery against Owner

6.6.9. *Lead Paint Guidelines:* After April 22, 2010, contractors and their individual crew members working in pre-1978 school buildings that are child occupied and residential properties will be required to obtain their Renovator Certification by an accredited EPA Training Provider.

6.7. Background Checks

6.7.1. Contracts entered pursuant to this RFP must require that all employees who will have unsupervised interaction with students will be fingerprinted and background checked under the background checks required by the District's Board Policies. Results of background checks of employees working directly with students must be provided to District. District reserves the right to refuse to allow any employee access to students if the employee completes no background check acceptable to the District.

6.8. Indemnity

6.8.1. The District will not agree to indemnify any contractor for its own negligence, for injuries or damages that do not arise from acts or omission of the District, or for injuries or damages for which the District has sovereign immunity.

6.9. Change orders

6.9.1. Change orders that exceed the greater of \$15,000 or 5% of the total originally contracted amount are subject to Board approval prior to performance of the work and are subject to re-bid. (See Board Policy 7210.)

6.10. Proposed contract

6.10.1. Proposals must include a copy of proposed contracts or service agreements if available or disclose terms required by the proposer of this RFP.

7. Interpretation, Questions, Withdrawal

7.1. Interpretation

7.1.1. The District will make no oral interpretations for proposers of meaning of the terms in this RFP.

7.1.2. Requests for interpretations to the meaning of this RFP must also be made in writing to Independence School District no later than 2:00 p.m., July 15, 2024 and failure by the



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successful proposer to do so shall not relieve the proposer of the obligations to execute such services under a later interpretation by the school district.

- 7.1.3. All interpretations made to the proposers will be issued in addenda to the RFP and will be sent to all proposers.

7.2. Questions

- 7.2.1. Submit written questions via e-mail to the following person:

Lisa Patrick
Purchasing Supervisor
lisa_patrick@idschools.org
201 N. Forest Avenue
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7.3. Withdrawal

- 7.3.1. Any Contractor may withdraw his Proposal prior to the scheduled closing time for receipt of Proposals.
- 7.3.2. No Proposal shall be withdrawn for thirty (30) days after the scheduled closing time for receipt of Proposals.

8. Quote

8.1. Amount – U.S. Dollars

8.2. Rate – U.S. Dollars

9. Proposal Submission and Opening

9.1. Submission

- 9.1.1. Submit complete proposals with all forms filled out, Appendix A, B, C & D in a sealed envelope marked “**RFP# 2024-PUR-020 Chiller Replacement at William Chrisman High School**” and deliver to the following address and person:

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Purchasing Supervisor
201 N. Forest Avenue
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9.2. Opening

9.2.1. The Proposal will be opened publicly at the following location on the following date and time:

Date: July 26, 2024
Time: 11:00 a.m.
Location: Facilities Office
201 N. Forest Avenue
Independence, MO 64050

10. Reservation of Rights

10.1. INDEPENDENCE SCHOOL DISTRICT RESERVES THE RIGHT TO ACCEPT OR REJECT ANY OR ALL PROPOSALS AND WAIVE ANY INFORMALITY IN THE PROPOSAL OR REQUEST FOR PROPOSAL.

11. Proposal Evaluation

11.1. Award

11.1.1. The contract will be awarded to the firm submitting the best responsible Proposal complying with this RFP if the Proposal is reasonable and in the best interest of the District to accept. The firm selected will be notified at the earliest practical date. The decision regarding acceptability of any firm’s qualifications/proposal shall remain entirely with the District, at the District’s sole discretion. The criteria for making this judgment will include but not limited to price, demonstrated capability, past work completed and general responsiveness to the RFP.

11.1.2. The District notifies all qualifiers that minority business enterprises will be afforded full opportunity to submit Proposals in response to this Request and will not be discriminated against on the grounds of race, color, or national origin in consideration of an award. Qualifier agrees that, should qualifier be awarded this contract, qualifier will not discriminate against any person who performs work under it because of race, religion, color, sex, national origin or ancestry.

11.1.3. The District reserves the right to reject any or all Proposals, to waive any informalities or technical defects in Proposals, and unless otherwise specified by the District, to accept any item or groups of items in the Proposal, as in the best interest of the District.

11.2. Acceptance Period

11.2.1. All Proposal offers must be firm for 90 days.



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Appendix A
FEDERAL WORK AUTHORIZATION PROGRAM AFFIDAVIT

I, _____, being of legal age and having been duly sworn upon my oath, state the following facts are true:

1. I am over twenty-one years of age; and know of the matters set forth.
2. I am employed by _____ (“Company”) and have authority to issue this affidavit on its behalf.
3. Company is enrolled in and participating in the United States E-Verify federal work authorization program regarding Company’s employees working in connection with the services Company is providing to, or will provide to, the District, to the extent allowed by E-Verify.
4. Company does not knowingly employ any person who is an unauthorized alien in connection with the services the Company is providing to, or will provide to, the District.

FURTHER AFFIANT SAYETH NOT.

By: _____
(individual signature)

For _____
(company name)

Title: _____

Subscribed and sworn to before me on this ____ day of _____, 202__.

NOTARY PUBLIC

My commission expires:



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Appendix B

REFERENCES AND EXPERIENCE

How many years has your firm been in business? _____ years

List references and prior experience; preferably with other school districts or governmental agencies, in the last 3 – 5 year period; work or services in the same type and size to the project being proposed.

School District/Business _____
Address _____
Contact Person _____ Phone# _____
Description of services performed and completion date _____

School District/Business _____
Address _____
Contact Person _____ Phone# _____
Description of services performed and completion date _____

School District/Business _____
Address _____
Contact Person _____ Phone# _____
Description of services performed and completion date _____



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Appendix C

PERSONNEL QUALIFICATIONS

<p>Bidders are REQUIRED to provide the information below in FULL DETAIL.</p> <p>Indicate the person who will be supervising project and years of experience in similar work.</p> <p>Name: _____ Number of Years: _____</p> <p>Type of Experience: _____</p>		
<p>Complete the following for employees that would be working on this project. List any previous work directly relating to the scope of this project for other school districts and/or governmental agencies or private companies in the last five years. Attach a separate sheet of paper if needed.</p>		
EMPLOYEE NAME	QUALIFICATIONS	EXPERIENCE/TRAINING



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Appendix D

BID PROPOSAL SUBMISSION FORM – Chiller Replacement at William Chrisman High School

Proposal of _____ (hereinafter called
"Bidder"), organized and existing under the laws of the State of _____, doing business as
a corporation, a partnership, an individual (circle one) to the Board of Education, School District
of Independence, Missouri (hereinafter called "Owner").

1. In compliance with your Advertisement for Bids, Bidder hereby proposes to perform all work for the
INDEPENDENCE SCHOOL DISTRICT – Chiller Replacement at William Chrisman High School. In strict
accordance with the Contract Documents, within the time set forth herein and at the prices stated below,
bidder should propose on individual base bids for specific project locations as noted below. Owner will
award contract per individual base bid.
2. By submission of this Bid, each Bidder certifies, and in the case of a joint Bid each party thereto certifies
as to its own organization, that this Bid has been arrived at independently, without consultation,
communication, or agreement as to any matter relating to this Bid with any other Bidder or with any
competitor.
3. Bidder acknowledges receipt of the following ADDENDA: _____.
4. The undersigned, having familiarized itself with local conditions affecting the cost of the work at the place
where the work is to be done and with all Bidding Documents, including the Instructions to Bidders, Plans
and Specifications, General and Supplementary Conditions, the Standard Form of Agreement and the
other Contract Documents, and having examined the location of the proposed work and considered the
availability of labor and materials, hereby proposes and agrees to perform everything required to be
performed, and to provide and furnish any and all labor, materials, supervision, necessary tools,
equipment, and all utility and transportation service necessary to perform and complete in a workmanlike
and timely manner all of the work required for the project, all in strict conformance with the Instructions to
Bidders and other Contract Documents (including Addenda noted above, the receipt of which is hereby



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Appendix D (continue)

acknowledged), for the lump sums hereinafter specified.

RESPECTFULLY SUBMITTED:

_____ Signature	_____ Title	
_____ Name (Please type or write clearly)	_____ Date	
_____ Company Name	_____ Telephone Number	_____ Fax Number
_____ Street	_____ Email address	
_____ City, State, Zip Code	_____ License number (if applicable)	

By signing, he/she certifies that they are an authorized agent of said company and has the authority to legally enter into a binding Service Agreement.

SEAL – (If BID is by a corporation)



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Appendix D (continue)

BID SHEET	
Project: Chiller Replacement at William Chrisman High School	Date: July 26, 2024
Owner: INDEPENDENCE SCHOOL DISTRICT	201 N Forest Ave, Independence, MO 64050
Equipment/Installation	Total Bid
Replacement Chiller	\$

*The above price includes installation of equipment in Attachment A and any other warranty agreements.
 Include dumpster if needed for project.

Company Name: _____

Printed Name: _____

Signature: _____

Date: _____

Project: Chiller Replacement at William Chrisman High School

Below is a scope to replace the Two Trane 350 Ton Air cooled Chillers.

- Reclaim refrigerant from existing chillers; owner will keep all reclaimed refrigerant.
- Disconnect and remove and existing (2) Trane Chillers, (2) primary chilled water pumps and (2) secondary chilled water pumps
- Furnish and install Two new Trane RTAF350E Trane Chillers.
 - o Provide communication card to integrate to ALC
 - o Dual point electrical connection
 - o Efficiency ratings equal to the selections attached
 - o Acoustic ratings equal to or better than attached
 - o Chiller must be able to deliver chilled water with +/- 0.5 chilled water set point accuracy
- Make all necessary piping modifications for new chillers.
- Make all necessary electrical modifications for new chillers.
- Furnish and install new like Primary and secondary pumps.
 - o Provide new Triple duty valve, isolation valves and suction diffusers.
 - o Provide (2) Primary pumps ABB VFDs
 - o Provide (2) Secondary Pumps ABB VFDs
- Make all necessary piping modifications for new Pumps.
- Make all necessary electrical modifications for new pumps.
- Furnish and install new Heat Trace on outdoor piping.
- Insulate all new piping to match existing.
- Test and balance Hydronic system.
- Provide Complete operational startup and system checkout.

Project Notes:

- Owner will keep existing R22 refrigerant
- Contractor must coordinate with Controls Services.

Unit Overview	
Chiller Model	RTAF air-cooled screw chiller
Unit Nominal Tonnage	350 nominal tons
Unit efficiency	High efficiency
Refrigeration Capacity	299.5 tons
Cooling Efficiency	8.521 EER (Btu/W-h)
IPLV.IP	16.24 EER (Btu/W-h)
NPLV.IP	15.98 EER (Btu/W-h)
Unit Voltage	460.V/60.Hz/3 phase
Refrigerant Type	Refrigerant charge R-513A
Agency Listing	UL listed
Pressure Vessel Code	ASME pressure vessel code
ASHRAE 90.1 Compliance	ASHRAE 90.1 - all versions up to 2016
Model Number	RTAF350EUAHHXUA1N11X2NLN CCV1CAPBX*XAA1X**X*



Evaporator Information					
Evaporator Application					
Standard cooling					
Fluid Temperatures		Flow Rate		Construction Features	
Evaporator Leaving	42.00 F	Design Flow	143.82 m3/hr	Configuration	1 pass evaporator
Evaporator Entering	53.30 F	Min Flow	367.0 gpm	Fouling Factor	
Fluid Properties		Fluid Pressure Drop		0.000100 hr-sq ft-deg F/ Btu	
Fluid Type	Water	Design PD	8.64 ft H2O		
Freeze Point	32.00 F	Min PD	2.91 ft H2O		

Condenser Information					
Unit Application	Low ambient	Condenser Coil Option	Microchannel coil	Fan Type	Variable speed fans
Ambient Air Temp.	105.0 F	Auxiliary Items	Oil cooler	Number of Fans	20

Unit Electrical		RLA	
Unit Voltage	460.V/60.Hz/3 phase	Condenser Fan RLA (each)	2.50 A
Frequency	60 hertz	RLA/AFD input - Compressor 1A	164.00 A
Compressor Starter	Variable speed compressors	RLA - Compressor 1B	202.00 A
Total Power	421.8 kW	RLA/AFD input - Compressor 2A	198.00 A
Compressor Power	395.6 kW	LRA	
Fan Power	25.01 kW	Compressor 1B Y-delta	346.00 A
Incoming Power Line Conn. Type	Single point unit power	Compressor 1B X-line	1065.00 A
Power Line Conn. Type	Circuit breaker	MCA	
Short Circuit Current Option	Default amp rating	Single Point Power MCA	675 A
Short Circuit Current Rating	10000 A	MOP	
		Single Point Power MOP	800 A

Physical Information							
Dimensions		Weights		Refrigerant Charge		Oil Charge	
Length	458 in	Operating Weight	19048 lb	Circuit 1	276.5 lb	4.28 gal	
Width	87 in	Shipping Weight	18911 lb	Circuit 2	121.5 lb	2.17 gal	
Height	94 in						



Unit Acoustics

A-Weighted	Sound Power	Sound Pressure*	Unit Sound Package
100%	105 dBA	77 dBA	Standard noise
75%	101 dBA	73 dBA	
50%	98 dBA	71 dBA	
25%	93 dBA	66 dBA	

Note: In Accordance with AHRI 370

*Note: at 30 feet in free field

Warranty

Standard Warranty

Information for LEED Projects

Refrigerant (R-513A) - ckt 1	276.5 lb	ASHRAE 90.1 - all versions up to 2016 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.
Refrigerant (R-513A) - ckt 2	121.5 lb	
Rated Capacity (AHRI)	335.3 tons	
Rated Efficiency (AHRI)	10.01 EER (Btu/W-h)	
IPLV	16.24 EER (Btu/W-h)	
Refrigeration Capacity	299.5 tons	
Cooling Efficiency	8.521 EER (Btu/W-h)	
Compress Power	395.6 kW	
Fan Motor Power	25.01 kW	

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.

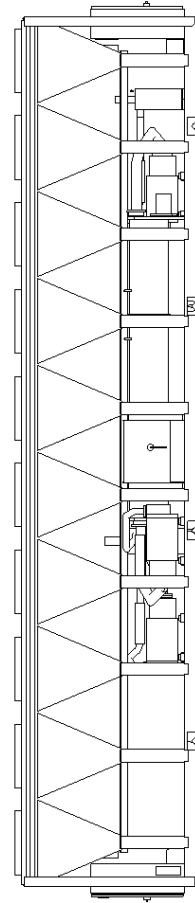
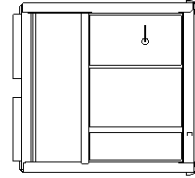
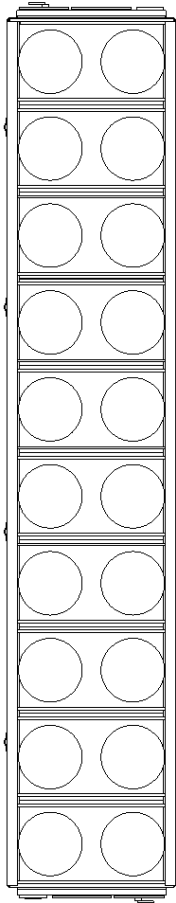


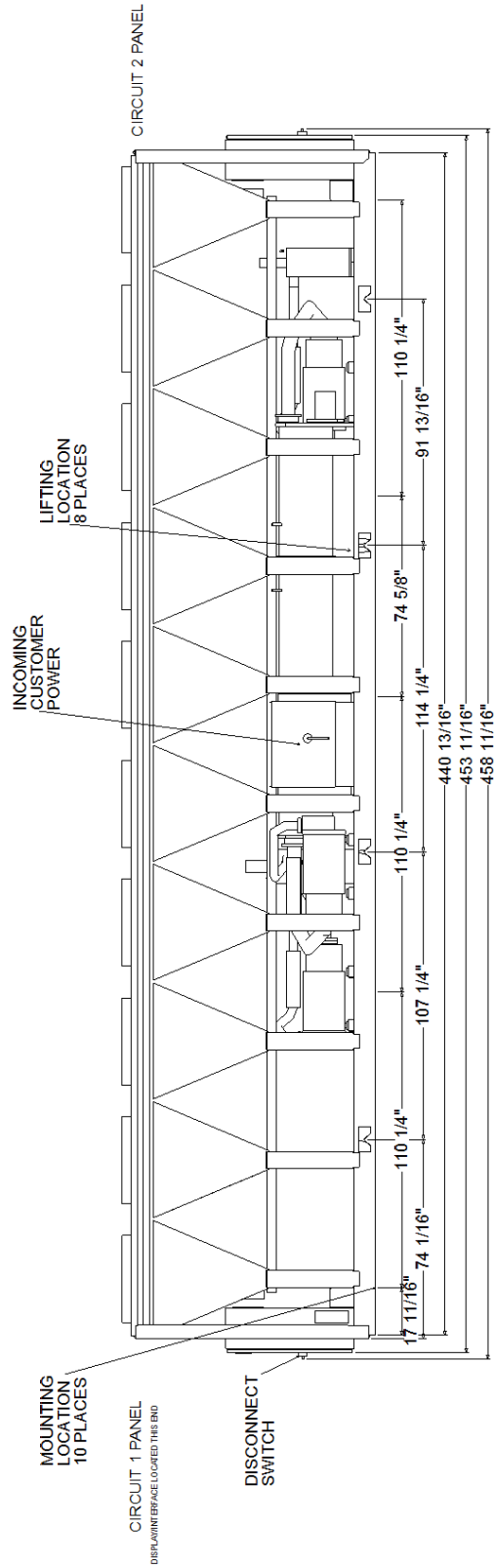
Trane Select Assist Version Number: 274
Data Generation Date: 10/31/2023

NOMINAL TONS	350
WATER CONNECTION DIAMETER (INLET/OUTLET)	8" (200mm)/8" (200mm)
EVAPORATOR WATER VOLUME	8263 in3

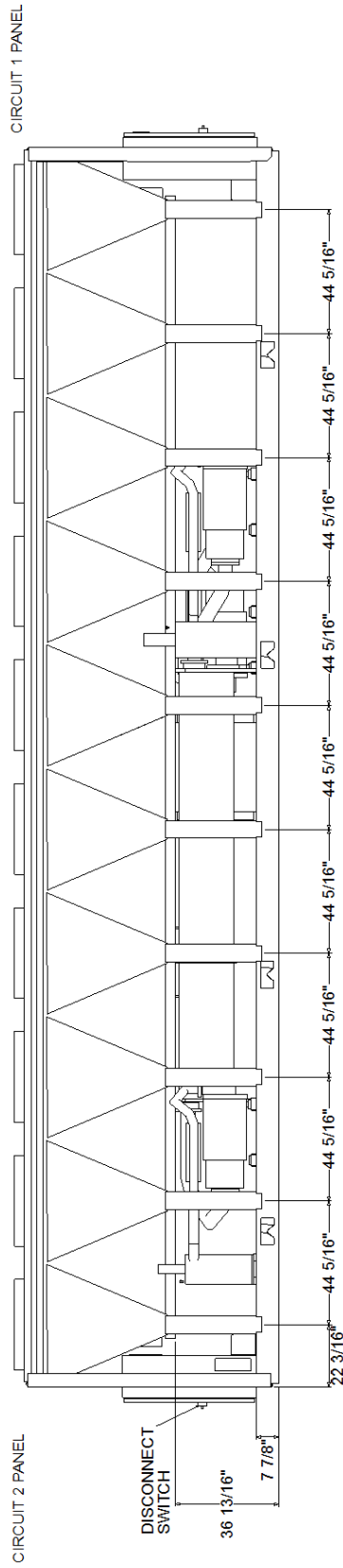
DIMENSION TOLERANCE FOR ISOLATOR LOCATIONS +/- .1"

TOPSS VERSION 274



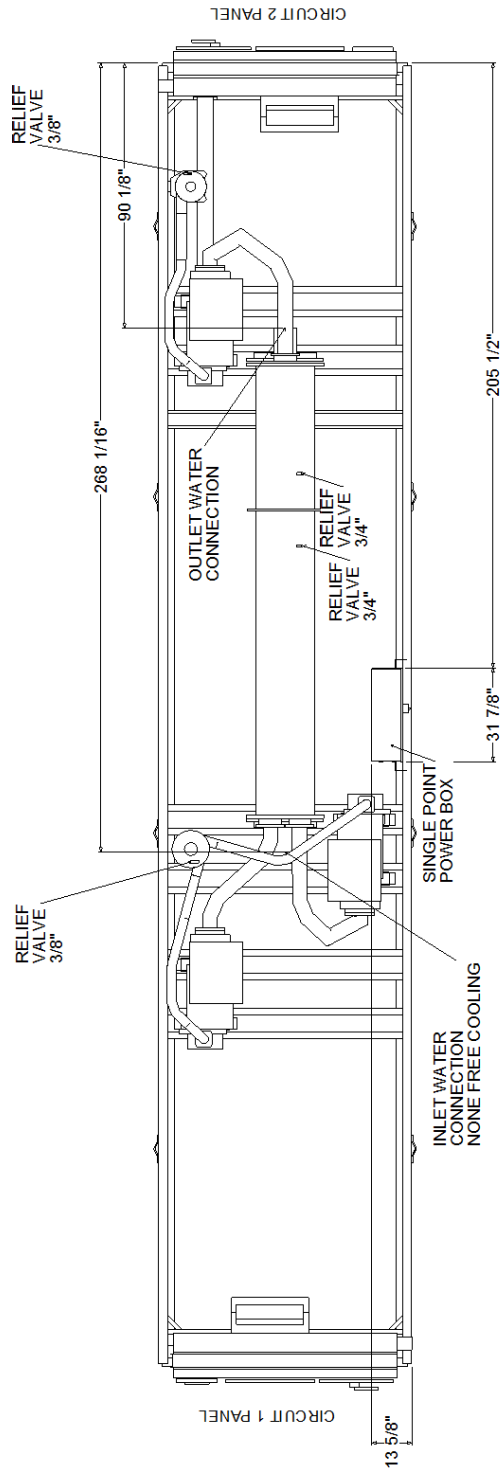


RIGHT SIDE

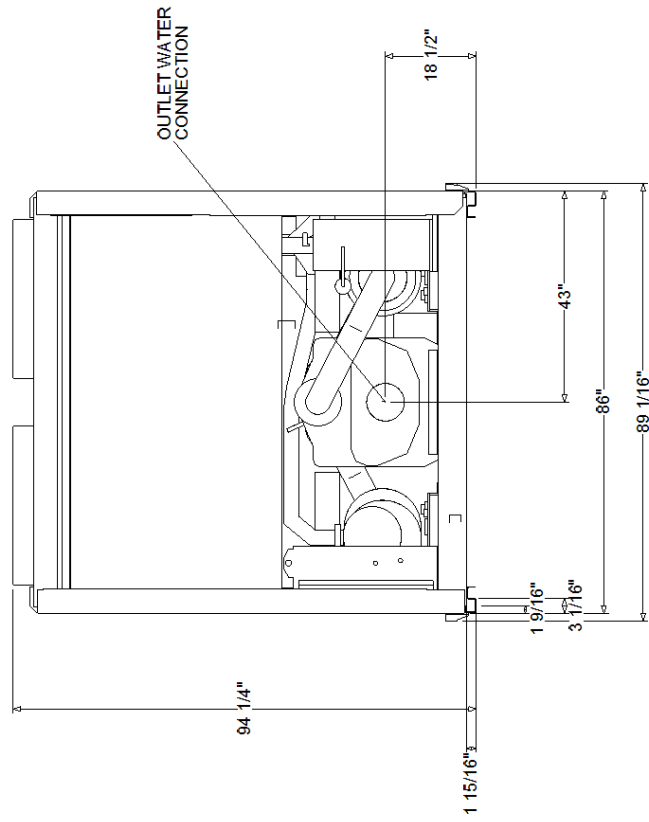


LEFT SIDE

NOTE: COIL BOX SUPPORTS ARE 6 3/8" WIDE.



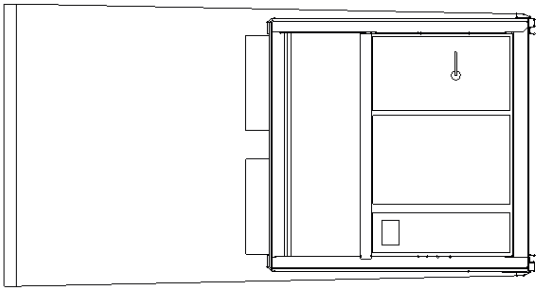
TOP VIEW
 (CONDENSER REMOVED FOR CLARITY)



**END VIEW
(CIRCUIT 2 END)**
 INLET WATER CONNECTION
 ON THE OPPOSITE END
 OF EVAPORATOR WILL
 HAVE THE SAME DIMENSIONS.

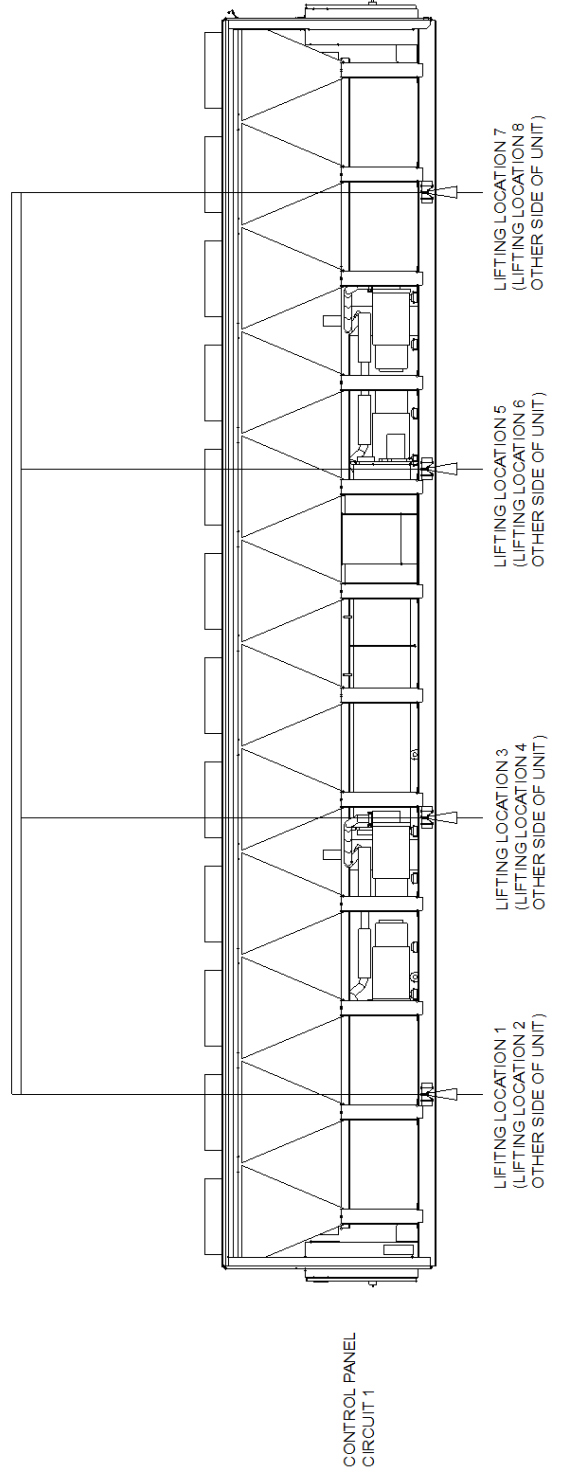
WARNING
LIFTING AND MOVING INSTRUCTIONS
Use the spreader bar as shown in the diagram. Refer to installation instructions located inside control panel for further rigging information.
Other lifting arrangements could result in death, serious injury or equipment damage.

96" SPREADER BAR



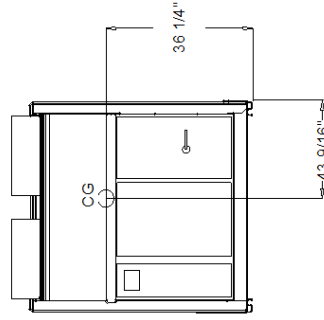
- NOTES:**
1. DO NOT FORKLIFT UNIT.
 2. KEEP UNIT LEVEL WHEN LIFTING.
 3. THE MAXIMUM RIGGING ANGLE AT EACH CHILLER LIFT POINT IS 30 DEGREE FROM VERTICAL.
 4. LIFTING DIAGRAM IS A GENERIC REPRESENTATION FOR ALL UNITS. IT MAY NOT REPRESENT SIZE OF UNIT SELECTED.
 5. DO NOT ALLOW LIFTING STRAPS TO CONTACT UNIT THE UNIT DURING LIFTING.

TOTAL SHIPPING WEIGHT
18,911 lb WEIGHT TOLERANCE IS +/- 10%

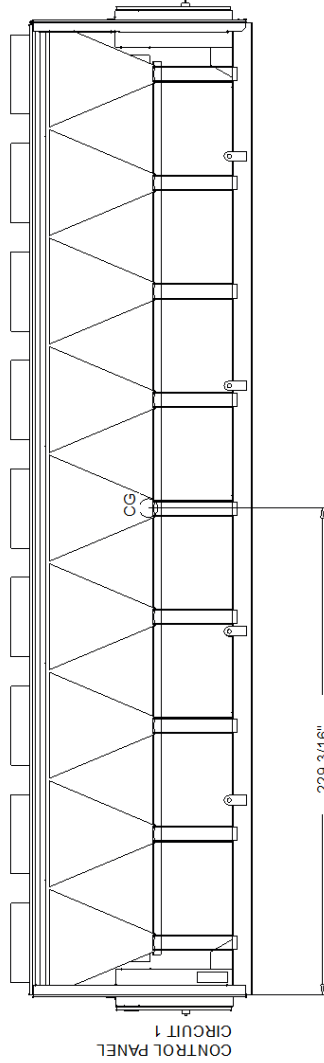


CENTER OF GRAVITY

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.



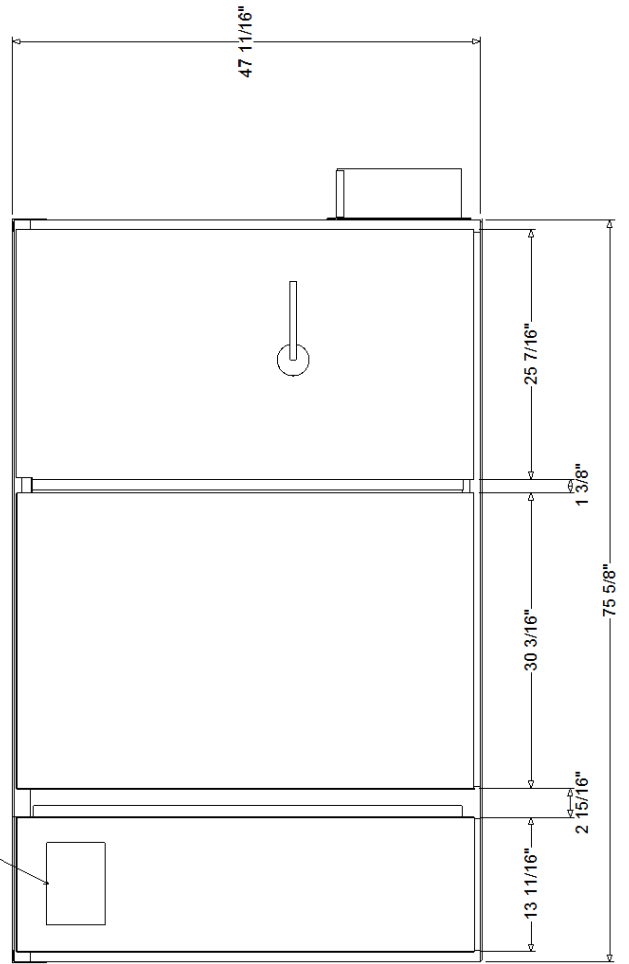
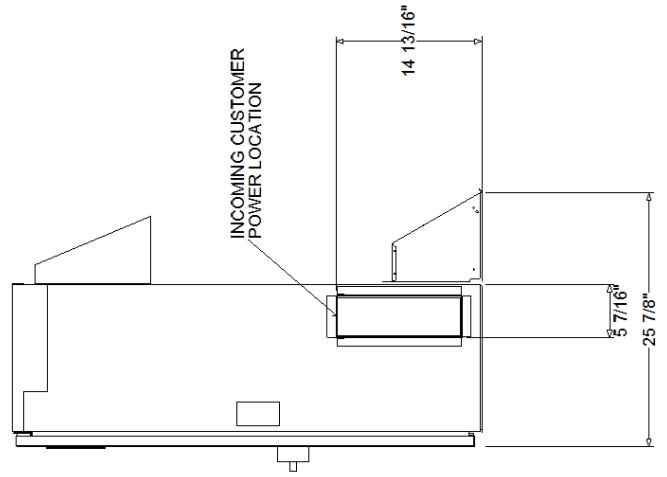
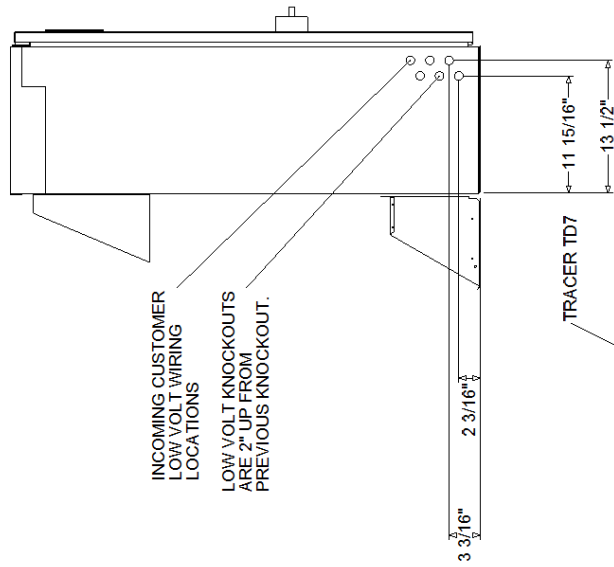
CONTROL PANEL
END VIEW



RIGHT SIDE

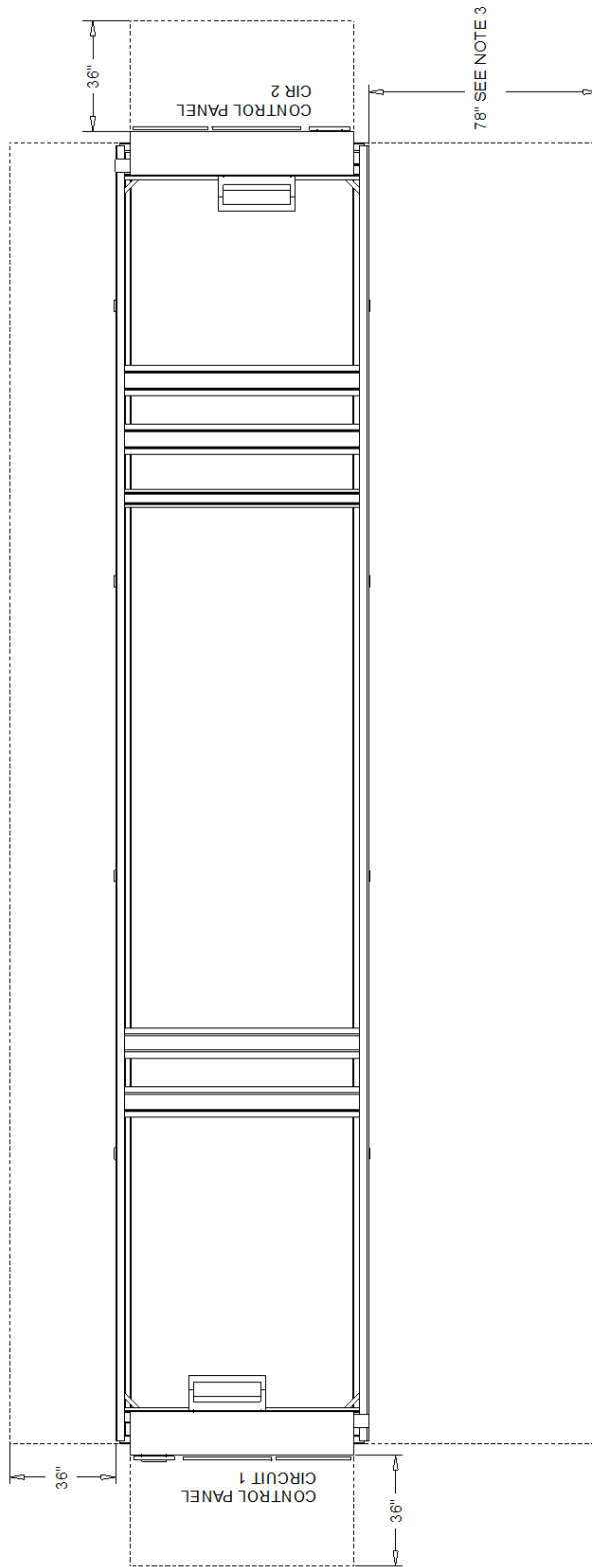
NOTE: UNIT PICTURED IS A REPRESENTATION OF THE ENTIRE PRODUCT AND MAY NOT SHOW ACTUAL UNIT SIZE OR OPTIONS SELECTED. HOWEVER, CENTER OF GRAVITY DIMENSIONS DO REPRESENT UNIT AND OPTIONS SELECTED.

CUSTOMER WIRE SELECTION TABLE
Power Wire Connection to Circuit Breaker
CIR 1 & CIR 2 Single Point Power
Lug Wire Size Range (Per Phase) (3) 500 kcmil - 3/0
Short Circuit Rating 10,000 A



UNIT CLEARANCE

NO OBSTRUCTIONS ABOVE UNIT



- NOTES:
1. AREA ABOVE UNIT REQUIRED FOR OPERATION, MAINTENANCE, ACCESS PANEL AND AIRFLOW. NO OBSTRUCTIONS ABOVE UNIT.
 2. FOR OBSTRUCTIONS OR MULTIPLE UNITS, REFER TO THE CLOSE SPACING BULLETIN.
 3. CLEARANCE OF 78" ON THE SIDE OF THE UNIT IS REQUIRED FOR COIL REPLACEMENT. IF SUFFICIENT SIDE CLEARANCE IS NOT POSSIBLE, COIL MUST BE REPLACED FROM TOP OF UNIT.

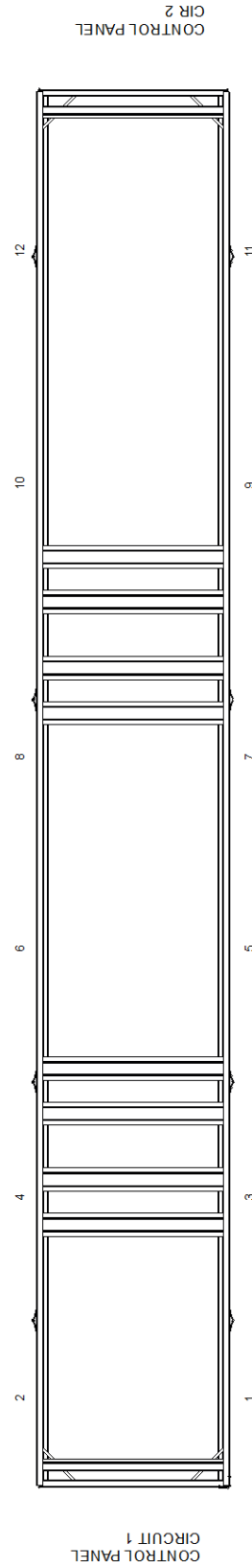
MOUNTING LOCATIONS AND POINT LOAD WEIGHTS

	POINT 1	POINT 2	POINT 3	POINT 4	POINT 5	POINT 6	POINT 7	POINT 8	POINT 9	POINT 10	POINT 11	POINT 12
LOAD	1795.0 lb	1749.0 lb	1687.0 lb	1642.0 lb	1580.0 lb	2045.0 lb	2009.0 lb	1948.0 lb	1865.0 lb	1805.0 lb	N/A	N/A
TISOLATOR SELECTION MAX LOAD	RDP-4 LIME 3000.0 lb	RDP-4 LIME 3000.0 lb	RDP-4 LIME 3000.0 lb	RDP-4 LIME 3000.0 lb	RDP-4 LIME 3000.0 lb	RDP-4 LIME 3000.0 lb	RDP-4 LIME 3000.0 lb	RDP-4 LIME 3000.0 lb	RDP-4 LIME 3000.0 lb	RDP-4 LIME 3000.0 lb	N/A	N/A

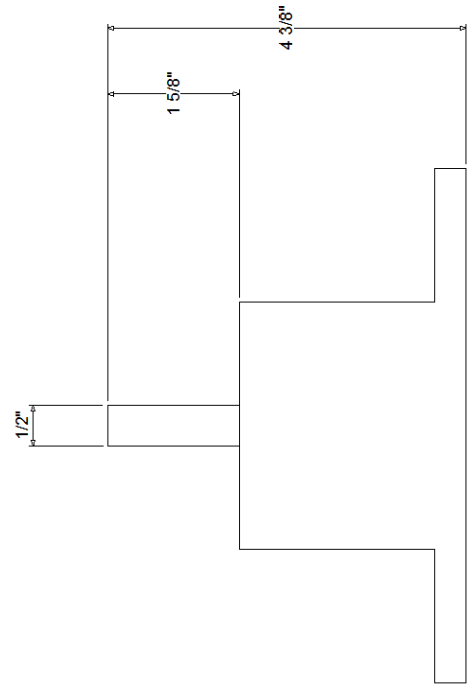
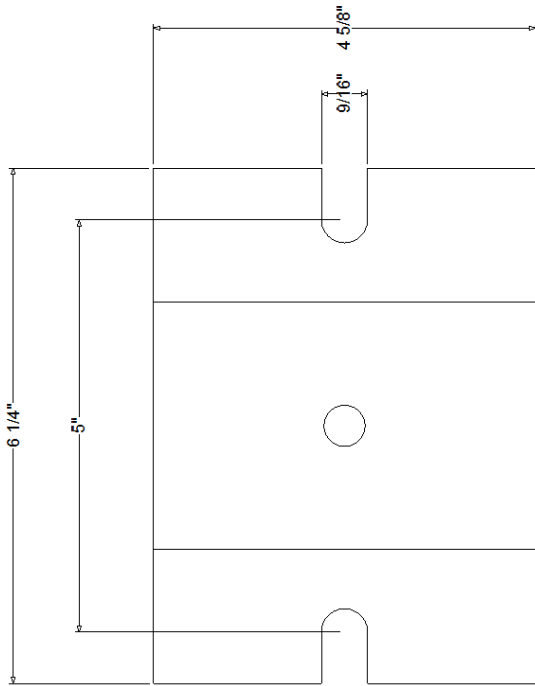
TOTAL OPERATING WEIGHT 19,048 lb
INDIVIDUAL WEIGHTS DO NOT ADD UP TO TOTAL WEIGHT.
WEIGHT TOLERANCE +/- 10%

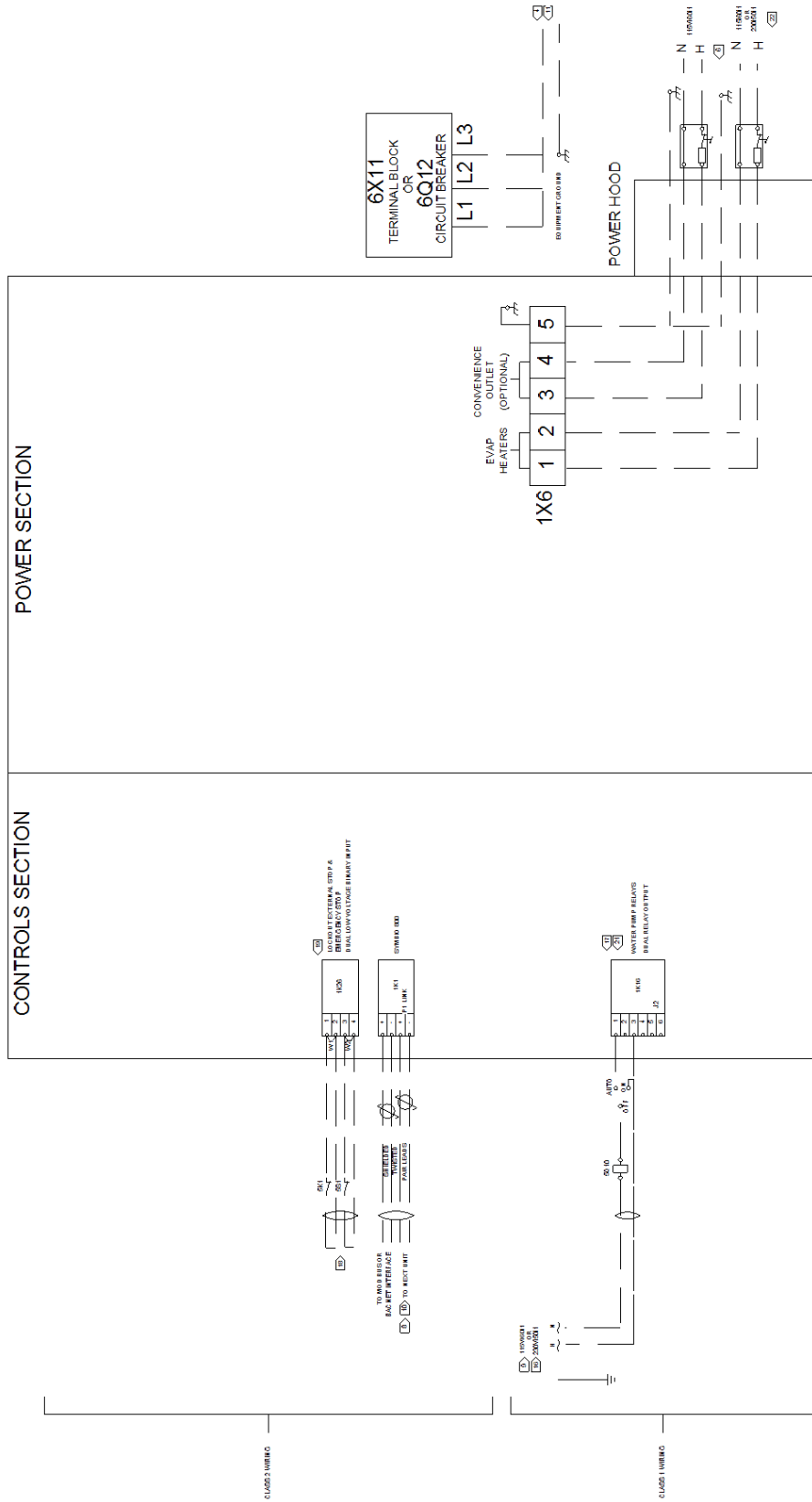
MOUNTING HOLE DIAMETER 9/16"

DIAGRAM IS A GENERIC REPRESENTATION
FOR ALL UNITS. IT MAY NOT REPRESENT SIZE
OF UNIT SELECTED.



NEOPRENE ISOLATOR DIMENSIONS







GENERAL NOTES

1. CAUTION-DO NOT ENERGIZE THE UNIT UNTIL CHECK OUT AND STARTUP PROCEDURES HAVE BEEN COMPLETED.
2. ALL MOTORS ARE PROTECTED FROM PRIMARY SINGLE PHASE FAILURES.
3. CAUTION-TRANE PUMP CONTROL MUST BE USED TO PROVIDE PUMP CONTROL. EVAPORATOR CHILLED WATER PUMP MUST BE CONTROLLED BY THE CHILLER OUTPUT. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY RESULT IN DAMAGE TO THE UNIT.

4. FOR DUAL POINT POWER OPTION ON 280T-500T UNITS FIELD CONNECTIONS ARE MADE TO 1Q1/1X2 ON PANEL 1 AND 2Q1/2X2 IN PANEL 2. FOR SINGLE POINT POWER OPTION ON 280T-500T UNITS FIELD CONNECTIONS ARE MADE TO 6X11 OR 6Q12 IN SINGLE POINT POWER BOX.

WIRING REQUIREMENTS

5. RECOMMENDED FIELD WIRING CONNECTIONS ARE SHOWN BY DOTTED LINES.
6. POWER FOR THE EVAPORATOR HEATER AND/OR OPTIONAL CONVENIENCE OUTLET IS SUPPLIED BY A CUSTOMER SUPPLIED POWER SUPPLY. MAX FUSE SIZE IS 30A WHEN HEATER POWER DRAW IS 2440VA. MAX FUSE FOR OPTIONAL CONVENIENCE OUTLET IS 15 AMPS.
7. DO NOT RUN LOW VOLTAGE CONTROL WIRING (30 VOLTS OR LESS) IN CONDUIT WITH 110 VOLT OR HIGHER WIRING. DO NOT EXCEED THE FOLLOWING MAXIMUM RUN LENGTHS FOR A GIVEN SIZE: 14AWG, 5000FT; 16AWG, 2000FT; 18AWG, 1000FT.
8. SHIELDED TWISTED PAIR LEADS ARE REQUIRED FOR CONNECTIONS TO THE COMMUNICATIONS INTERFACE MODULE (1K1 AND 1K2). THE SHIELD SHOULD BE GROUNDED AT THE RTAF CONTROL PANEL END.
9. CUSTOMER SUPPLIED POWER 115/60/1PH, 220/60/1PH OR 230/50/1PH TO POWER RELAYS. MAX FUSE IS 20 AMPS. GROUND ALL CUSTOMER SUPPLIED POWER SUPPLIES AS REQUIRED BY APPLICABLE CODES. GREEN GROUND SCREWS ARE PROVIDED UN UNIT CONTROL PANEL.
10. 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 4500FT. CONNECTION TOPOLOGY SHOULD BE DAISY CHAIN. REFER TO BUILDING AUTOMATION SYSTEM (BAS) COMMUNICATION INSTALLATION LITERATURE FOR END OF LINE TERMINATION RESISTOR REQUIREMENTS.
11. 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 WIRERANGE TABLE FOR LUG SIZES.
12. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE AND LOCAL REQUIREMENTS.

CONTACT RATINGS AND REQUIREMENTS

16. 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.
17. UNIT PROVIDED DRY CONTACTS FOR THE CONDENSER/CHILLED WATER PUMP CONTROL. RELAYS ARE RATED FOR 7.2 AWPS RESISTIVE, 2.88 AMPS PILOT DUTY OR 1/3HP, 7.2 FLA AT 120 VOLTS 60HZ. CONTACTS ARE RATED FOR 5 AMPS GENERAL PURPOSE DUTY 240 VOLTS.
18. CUSTOMER SUPPLIED CONTACTS FOR ALL LOW VOLTAGE CONNECTIONS MUST BE COMPATIBLE WITH DRY CIRCUIT 24 VOLTS DC FOR A 12mA RESISTIVE LOAD. SILVER OR GOLD PLATED CONTACTS RECOMMENDED.
19. THE CONTACTS FOR AUTO STOP AND EMERGENCY STOP SWITCHES ARE JUMPERED AT THE FACTORY BY JUMPERS 1W1 & 1W2 TO ENABLE UNIT OPERATION. IF REMOTE CONTROL IS DESIRED, REMOVE THE JUMPERS AND CONNECT TO THE DESIRED CONTROL CIRCUIT.
20. SOLID OVALS REPRESENT MAX NUMBER OF CONDUITS AND/OR CABLE GLANDS USED.
21. FIELD WIRING REQUIRED ONLY WITH FIELD INSTALLED PUMP OPTION.
22. 400V, 50 HZ UNITS WILL BE FACTORY WIRED TO UTILIZE 230V ACROSS THE EVAP HEATERS.

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 leak and pressure tested at 385 psig (2655 kPa) high side, 220 psig (1517 kPa) low side, then evacuated and charged.

Unit panels, structural elements and control boxes are constructed of galvanized steel and mounted on a bolted galvanized steel base. Unit panels, control boxes and the structural base are finished with a baked on powder paint.

Anytime water only is present in the evaporator, the Trane Symbio(TM) 800 controller must have flow control of the chilled water system. Flow control can be done either directly or through an input to a building automation system to conduct an action resulting in minimum flow through the chiller evaporator barrel to avoid potentially catastrophic damage to the evaporator due to freezing. If the system has sufficient glycol to protect down to the lowest expected ambient, flow control is optional.

A control power transformer shall be factory-installed and factory-wired to provide unit control power.

Chiller is built and certified to UL2014 US and Canadian safety standard.

Power Requirements

Unit is provided with single-point electrical unit power connection. Standard power connection includes main three phase power to the compressors, condenser fans and control power transformer.

Note: A separate field supplied low voltage power source is required to power the evaporator freeze protection.

Note: An additional separate field supplied low voltage power source is required to power the Convenience Outlet.

Factory Refrigerant Charge (R-513A)

Packaged units ship with a full operating charge of oil and R-513A refrigerant.

Evaporator

The evaporator is a tube-in-shell heat exchanger design with internally and externally finned copper tubes roller expanded into the tube sheets. All tubes can be individually replaced. The evaporator is designed, tested and stamped in accordance with ASME Pressure Vessel Code Section VIII for a refrigerant side working pressure of 200 psig (1379 kPa). The evaporator is designed for a water side working pressure of 150 psig (1034 kPa). Each shell includes a vent, a drain, and fittings for temperature control sensors.

Evaporator water connections are grooved pipe.

Heaters, with thermostat, are provided to help protect the evaporator from freezing at ambient temperatures down to -20 F (-29 C), depending on application.

Note: A separate field supplied low voltage power source is required to power the evaporator freeze protection.

Evaporator is insulated with UV resistant 0.75 inch Armaflex II or equal insulation (K=0.28). Insulation also covers the liquid and suction line and evaporator heads.

Operating Temperature

Unit is designed for operation in standard leaving evaporator temperature (equal to or greater than 40.0 F).

Pressure Vessel Code

Chiller complies with ASME Pressure Vessel Code Section VIII. ASME nameplates are attached to applicable pressure vessels, including oil separators.

Condenser and Fans

Air-cooled microchannel condenser coils use all Long Life Alloy aluminum brazed fin construction. The condenser coil will have an integral subcooling circuit. The maximum allowable working pressure of the condenser is 350 psig. Condensers are factory proof and leak tested at 525 psig. Coils can be cleaned with high pressure water.

Direct-drive, vertical-discharge condenser fans are used. The condenser fan motors are permanent magnet motors with integrated drive to provide variable speed fan control for all fans. Units are equipped with EC condenser fan motors with permanently lubricated ball bearings and internal overload and over-current protection. Fans are insulation IP54 compliant.

Low Ambient Operation

Low ambient units will start and operate between -4°F to 115°F (-20°C to 46°C) ambient temperatures.

Standard Noise Sound Package

Unit will be built with low noise condenser fans.

Compressor and Lube Oil System

The rotary screw compressor is semi-hermetic, direct drive with capacity control via an adaptive frequency drive, rolling element bearings, differential refrigerant pressure oil pump and oil heater. For maximum efficiency units use both fixed speed and variable speed compressors staged in the same circuit. The motor is a suction gas cooled, hermetically sealed two pole squirrel cage induction motor.

Oil separation is provided to separate oil and refrigerant prior to entrance into condenser to preserve the integrity of heat transfer in the condenser. Oil filtration is provided internal to the compressor. Check valves in the compressor discharge and lube oil system are also provided.

Refrigeration Circuits

Each unit has two refrigerant circuits, with one or two rotary screw compressors per circuit. Each refrigerant circuit includes a compressor suction and discharge service valve, liquid line shutoff valve, removable core filter, liquid line sight glass with moisture indicator, charging port and an electronic expansion valve. Fully modulating compressors and electronic expansion valves provide variable capacity modulation over the entire operating range.

Adaptive Frequency Drive Compressor Starter

Trane's Adaptive Frequency Drive (AFD) technology is specifically designed for Trane air-cooled chillers. The AFD incorporates the Trane communication protocol enabling seamless integration with the unit controller. The AFD data such as drive status, temperature modes, and diagnostic information are accessible to the unit controller and through the Tracer TU service tool.

The AFD contains technology that enables operation on various power systems including alternative energy sources. AFD will protect itself and the compressor motor from over current, low or high line voltage, phase loss, incoming phase imbalance, and over temperature due to loss of panel ventilation.

The AFD incorporates improved serviceability and troubleshooting tools. All AFD control circuits are powered with class 2 low voltage.

Drive Cooling

The drive is air-cooled with a ventilation fan in the panel.

Unit Controls

All unit controls are housed in an outdoor rated weather tight enclosure per UL2014 with removable plates to allow for customer connection of power wiring and remote interlocks. All controls, including sensors, are factory mounted and tested prior to shipment.

Microcomputer controls provide all control functions including startup and shut down, leaving chilled water temperature control, evaporator flow proving, compressor staging and speed control, electronic expansion valve modulation, condenser fan sequencing and speed control, anti-recycle logic, automatic lead/lag compressor starting, load limiting and chilled water pump control.

The UC-800 unit control module with Rapid Restart (TM), utilizing Adaptive Control (TM) microprocessor, automatically takes action to avoid unit shutdown due to abnormal operating conditions associated with low refrigerant pressure, high condensing pressure and motor current overload. Should the abnormal operating condition continue until a protective limit is violated, the unit will be shut down.

Unit protective functions of the UC-800 include: low evaporator refrigerant pressure, high condenser refrigerant pressure, low oil flow, critical sensor or detection circuit faults, current overload, high compressor discharge temperature, communications lost between modules, electrical distribution faults, phase loss, phase imbalance, phase reversal, external and emergency stop, momentary power loss, under/over voltage, and loss of evaporator water flow.

Unit Display

A full color TD-7 AdaptiView touch screen display indicates all important unit and circuit parameters, in logical groupings on various screens. The parameters including chilled water set point, leaving chilled water temperature, demand limit set point, evaporator and condenser refrigerant temperatures and pressures, compressor and fan speeds, and all pertinent electrical information. The display also provides on screen trending graphs of predefined parameters as well as customizable trend graphs based on user defined parameters from a list of all available parameters. The display also provides indication of the chiller and circuits top level operating modes with detailed sub-mode reports available with a single key press, as well as diagnostics annunciation and date and time stamped diagnostic history. The standard color display is fully outdoor rated, and can be viewed in full daylight without opening any control panel doors.

The display is outdoor capable including an UV resistant touchscreen with an operating range between -40.0°F to 158.2°F operating temperature.

Chilled Water Reset

This provides the control logic and factory installed sensors to reset leaving chilled water temperature. The set point can be reset based on ambient temperature or return evaporator water temperature.

Factory Mounted Flow Proving

The factory installed evaporator water flow switch is provided with the control logic and relays to turn the chilled water flow on and off as the chiller requires for operation and protection. The flow switch installed on this chiller is designed for use with glycol in the evaporator with a set point of 35 cm/s.



Circuit Breaker

A molded case circuit breaker (UL approved) is available. The circuit breaker can also be used to disconnect the chiller from main power with a through the door handle and comes wired from the factory with terminal block power connections. The external operator handle is lockable.

Short Circuit Current Rating (SCCR)

A short circuit current rating offers a measure of safety for what the starter panel enclosure is able to withstand in the event of an explosion caused by a short circuit.

BACnet (BCI-C) Communication Interface

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

Convenience Outlet

Provides a 15 amp, 115 volt (60 Hz) convenience outlet on the unit.

Note: An additional field supplied power connection must be provided to power the convenience outlet.

Elastomeric Isolators

Isolators provide isolation between chiller and structure to help eliminate vibration transmission. Elastomeric isolators are more effective and recommended over spring isolators.