Gazelle Mechanical
5481 Ste B Creek Road
Cincinnati, OH 45242
888.991.7447
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SUBMITTAL DATA

Project: City of Cincinnati, City Hall Cooling Tower Upgrade Date: 7/24/24

Specification Section: N/A Original or Rev #: Original

Manufacturer: Daikin

Item Description: Water Cooled Chiller

Mechanical Contractor: Triton Services Inc

- Coordinate startup with Contractor and owner. Startup to occur prior to 2025 cooling season.

- Coordinate that compressor modules to be removable in the field to allow chiller to fit through 7 foot tall door.

FISHBECK SUBMITTAL REVIEW

- ☐ **Reviewed, No Exceptions Noted**
- ☑ **Reviewed with Corrections Noted**
- ☐ **Revise and Resubmit**
- ☐ **Rejected, Resubmit**
- ☐ **Received for Record**

Fishbeck's review and approval of this submittal are expressly limited as provided in the Contract Documents and are only to determine compliance with information given in Contract Documents and conformance with design concept of completed Project as a functioning whole. Contractor is, and Fishbeck is not, responsible for all matters relating to fabrication, shipping, handling, storage, assembly, installation and construction, for all safety aspects of performing the Work and for coordinating the Work.

Bob Stohr — **Reviewer** — 08/01/2024 — **Date**

Jim Rumping — **Reviewer** — 08/02/2024 — **Date**

ELITAIRE
a member of DAIKIN group

Notes:

- 460/3
- R-513 Refrigerant
- Magnetic Bearing Oil Free Compressor
- Unit Mounted Disconnect (35K HSCR)
- VFD with integral 5% Line Reactors
- BACnet Communication Card
- Evaporator & Condenser with Marine water box and side piping grooved connections
- Factory Start Up
- 1st Year Parts, Labor & Refrigerant Warranty
- 5 Year Compressor Parts & Labor Warranty

Job Information	Technical Data Sheet
Job Name	Cincinnati City Hall
Date	7/23/2024
Submitted By	Mike Kirchens
Software Version	20.32
Unit Tag	CH-1
Unit FPA#	AUTO_54
Country of Origin	USA

Unit Overview

Model Number	Net Capacity ton	IPLV.IP kW/ton	Voltage	Starter Type	ASHRAE 90.1	LEED EA Credit 4
WMC048DDSNA	250.0	0.3296	460 V / 60 Hz / 3 Ph	VFD	'07, '10, '13 & '16	Qualifies

Unit

Model/Evap/Cond Number:	WMC048DDSNA-15/E2612-YE2C-2/C2212-JB2C-2/R513-DAA*A*	Vintage:	D
Approval:	AHRI and ETL / cETL		
Vessel Code:	ASME		

Unit Shipping Weight	Unit Operating Weight	Overall Unit Length	Overall Unit Width	Overall Unit Height
9749 lb	11751 lb	184.3 in	50.2 in	84.0 in

Compressor Quantity	Capacity Control	Refrigerant Type	Refrigerant Weight
2	VFD / Inlet Guide Vanes	R513A	951 lb

Evaporator

Input Type	Entering Fluid Temperature	Leaving Fluid Temperature	Fluid Type	Actual Fluid Flow	Minimum Fluid Flow
EWT + LWT	54.00 °F	44.00 °F	Water	598.2 gpm	145.0 gpm

Length	Diameter	Number of Passes	Tube		Fouling Factor
			Material	Wall Thickness	
12 ft	26 in	2	Copper	0.025 in	0.000100 °F.ft².h/Btu

Condenser

Input Type	Entering Fluid Temperature	Leaving Fluid Temperature	Fluid Type	Fluid Flow
EWT + LWT	85.00 °F	94.30 °F	Water	762.8 gpm

Length	Diameter	Number of Passes	Tube		Fouling Factor
			Material	Wall Thickness	
12 ft	22 in	2	Copper	0.025 in	0.000250 °F.ft².h/Btu

Unit Performance (AHRI 550/590)

Design Points Rated with AHRI Condenser Relief – With Water

Net Capacity ton	Input kW	Cooling Efficiency kW/ton	IPLV.IP kW/ton	Part Load Cooling Efficiency			Evaporator Fluid		Condenser Fluid	
				75% kW/ton	50% kW/ton	25% kW/ton	Pressure Drop ft H_2O	Entering Temperature °F	Pressure Drop ft H_2O	Leaving Temperature °F
250.0	155.1	0.6204	0.3296	0.4300	0.2840	0.2628	10.4	54.00	20.6	94.30

Unit Performance (AHRI 550/590)

Performance Points Rated with AHRI Condenser Relief – With Water

Point #	% of Design Load	Net Capacity ton	Input kW	Cooling Efficiency kW/ton	Evaporator Fluid				Condenser Fluid			
					Flow gpm	Temperature		Pressure Drop ft H_2O	Flow gpm	Temperature		Pressure Drop ft H_2O
						Entering °F	Leaving °F			Entering °F	Leaving °F	
1	100.0	250.0	155.1	0.6204	598.2	54.00	44.00	10.4	762.8	85.00	94.30	20.6
2	90.0	225.0	120.8	0.5367	598.2	53.00	44.00	10.4	762.8	81.00	89.20	20.9
3	80.0	200.0	92.77	0.4639	598.2	52.00	44.00	10.4	762.8	77.00	84.17	21.2
4	70.0	175.0	69.59	0.3977	598.2	51.00	44.00	10.4	762.8	73.00	79.17	21.5
5	60.0	150.0	50.68	0.3379	598.2	50.00	44.00	10.4	762.8	69.00	74.21	21.9
6	50.0	125.0	35.50	0.2840	598.2	49.00	44.00	10.4	762.8	65.00	69.28	22.3
7	40.0	100.0	27.70	0.2770	598.2	48.00	44.00	10.4	762.8	65.00	68.42	22.3
8	30.0	75.00	20.22	0.2696	598.2	47.00	44.00	10.4	762.8	65.00	67.55	22.4
9	20.0	50.00	13.13	0.2627	598.2	46.00	44.00	10.4	762.8	65.00	66.70	22.4
10	10.0	Chiller unable to run at requested load point (25 ton). The minimum capacity at the entered design conditions is (30.5 ton). Rating Point not within scope of Chiller - modify Input Conditions.										

Service Data

Service Points Rated with AHRI Condenser Relief

Point #	Superheat Δ °F	Subcooling Δ °F	Evaporator Fluid			Condenser Fluid		
			Temperature °F	Pressure psig	Velocity ft/s	Temperature °F	Pressure psig	Velocity ft/s
1	1.0	9.0	41.5	41.7	5.9	96.6	125.0	7.1
2	1.0	8.2	41.7	41.8	5.9	91.2	114.2	7.1
3	1.0	7.3	41.8	42.0	5.9	85.9	104.3	7.1
4	1.0	6.4	42.0	42.2	5.9	80.7	95.0	7.1
5	1.0	5.5	42.1	42.3	5.9	75.5	86.3	7.1
6	1.0	4.6	42.3	42.5	5.9	70.3	78.2	7.1
7	1.0	3.7	42.4	42.6	5.9	69.3	76.6	7.1
8	1.0	2.8	42.5	42.8	5.9	68.2	75.1	7.1
9	1.0	1.9	42.6	42.9	5.9	67.2	73.6	7.1
10	Chiller unable to run at requested load point (25 ton). The minimum capacity at the entered design conditions is (30.5 ton). Rating Point not within scope of Chiller - modify Input Conditions.							

Physical

Evaporator

Inlet Location	Header			Tube Sheet Material	Design Pressure (Waterside)
	Type	Orientation	Material		
Left	Marine Water Box, Grooved	Rear	Carbon Steel	Carbon Steel	150 psig

Condenser

Inlet Location	Header			Tube Sheet Material	Design Pressure (Waterside)
	Type	Orientation	Material		
Left	Marine Water Box, Grooved	Rear	Carbon Steel	Carbon Steel	150 psig

Electrical

Voltage: 460 V / 60 Hz / 3 Ph **Power Connection:** Single Point

Circuit (Compr)	Rated Load Amps (RLA)	Minimum Circuit Ampacity (MCA)	Recommended Overcurrent Protection Size (ROCP)	Maximum Overcurrent Protection Size (MOCP)	Locked Rotor Amps (LRA)*	Lug Connection Size (wires per phase)
1	216 A	243 A	300 A	350 A	119 A	(2) 3/0 AWG - 250 MCM
2					119 A	

** The field wiring must be sized in accordance with the MCA and not the RLA as some selections may be below the minimum required protection.*

Above RLA, MCA & MOCP values are per chiller; LRA values are per compressor.

Drive

Type	Model	Location	Enclosure Type	Motor Protection
VFD	Integral	Terminal Mounted	NEMA 1	Non-fused Disconnect Switch

Line Reactor	Compressor Circuit Breaker	Disconnect Switch	Power Connection	Short Circuit Current Rating	Approval
Standard	Standard	Standard	Single Point	Standard	ETL, ETLc

Sound (without insulation)

Sound Pressure									
Load	Overall	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
100%	81.5	37.5	51.5	59.5	72.0	75.0	72.5	76.5	75.0
75%	78.0	37.0	50.5	62.5	66.5	70.0	69.5	74.0	70.5
50%	75.0	37.5	50.0	60.0	65.0	65.5	66.0	71.5	66.0
25%	73.5	37.5	49.0	59.0	63.0	65.0	66.0	69.5	64.0

Sound Pressure (dB) measured in accordance with ANSI/AHRI Standard 575-2008 ('A' weighted)

Options

Basic Unit	
Packaging:	Bagging only
Knockdown:	Type A; Fully Assembled Bolted Construction
Insulation	
Thermal:	0.75" on Evaporator & Condenser Shells, Suction Piping, Compressor Inlet, Motor Barrel & High Humidity
Head:	Evaporator Return & Connection Heads
Control	
Communication Protocol:	BACnet MS/TP
Drive	
Disconnect / Breaker Type:	Disconnect Switch

Warranty

Unit Startup:	Domestic by Daikin Factory Service (Std.)
Standard Warranty:	Domestic, First Year Standard Warranty (Parts & Labor)
Extended Warranty:	4 Years Compressor only Parts & Labor
Refrigerant Warranty:	1 year R513A Warranty
Delayed Warranty Start:	None (Startup 12-18 months after ship date)

AHRI Certification

Certified in accordance with the AHRI Water-Cooled Water-Chilling and Heat Pump Water-Heating 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.

Coordinate startup with Contractor and owner. Startup to occur prior to 2025 cooling season.

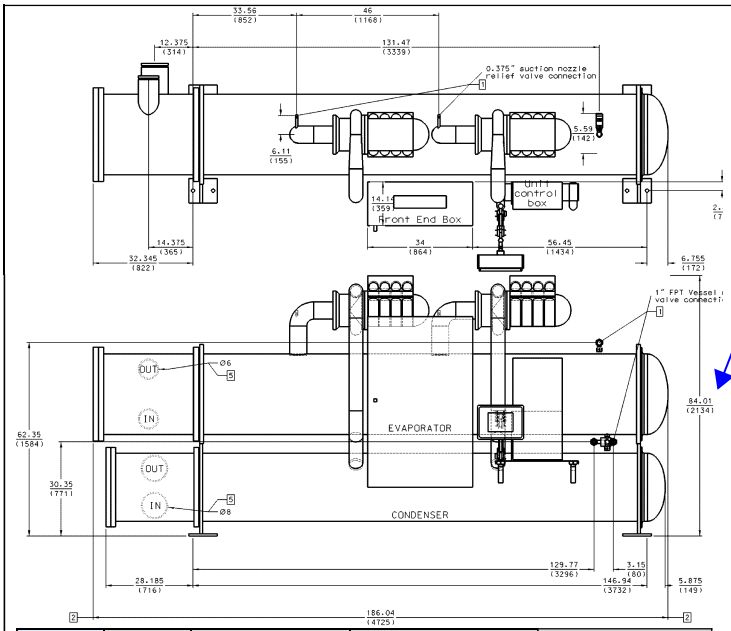
Notes

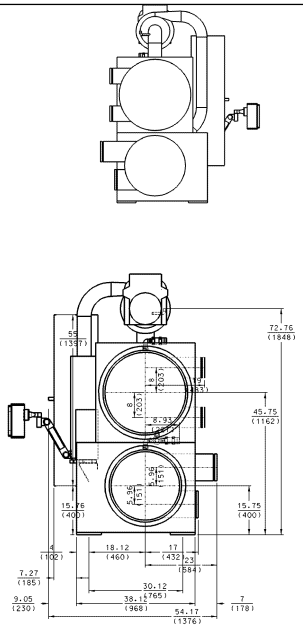
1. Above RLA, MCA & MOCP values are per chiller; LRA values are per compressor..
2. Performance kW & kW/ton values are total values unless noted otherwise.
3. Minimum flow is based upon standard condenser water relief and not increased lift due to constant condenser water temperature.
4. The field wiring must be sized in accordance with the MCA and not the RLA as some selections may be below the minimum required protection.
5. The USGBC bases its LEED EA credit 4 calculations for Enhanced Refrigerant Management on the default values for a water cooled centrifugal chiller with a 25-year life, 10% end of life loss and 2% annual leak rate. The gross AHRI cooling capacity for the unit is at least 10 tons, and the refrigerant charge is 10 lbs.
6. The LEED result above considers the chiller only. When applying this information for credit or prerequisite compliance the entire building must be considered.
7. Use only copper supply wires with ampacity based on 75°C conductor rating. Connections to terminals must be made with copper lugs and copper wire.
8. For orientation purposes, left and right hand vessel connection locations are determined by facing the HMI panel (Human Machine Interface). The unit front is the long dimension side with the HMI panel and rear is the opposite side long dimension.

Accessories

Optional	
Part Number	**Description**
330276202	RS485 pLAN Isolator Kit (contains one isolator)

- Coordinate that compressor modules to be removable in the field to allow chiller to fit through 7 foot tall door.



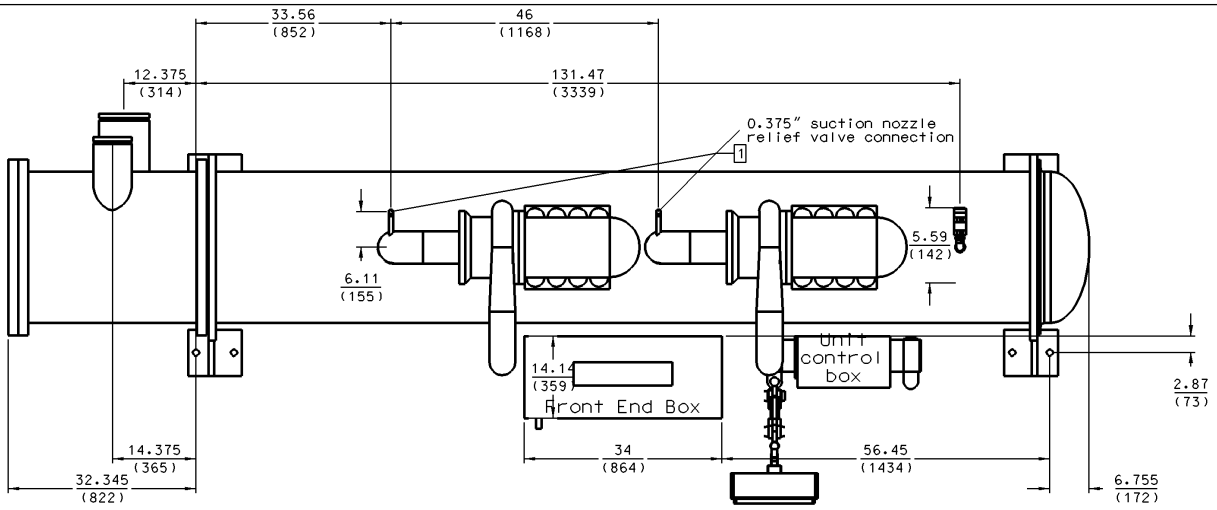


	Refrigerant lbs (kg)	Total Weight (inc. Refrigerant) lbs (kg)	Water Volume gal (l) Evap	Water Volume gal (l) Cond	Center of Gravity ins (mm) X	Y	Z
Operating	951 (431)	11751 (5330)	135 (510)	105 (398)	56 (1428)	35 (881)	17 (422)
Shipping		9749 (4422)	- (-)	- (-)	61 (1555)	34 (874)	16 (414)

1. 1 in. (25 mm) FPT evaporator and condenser relief valves must be piped per ANSI/ASHRAE 15.
2. At a minimum, length of tube sheet to tube sheet dimensions is required at either end for tube removal, 36 in. (914 mm) is required at other end and each side and top for service
3. Final connections must allow for 0.5 in. (12.7 mm) manufacturing tolerance.
4. 2.5 in. (64 mm) diameter lifting holes are provided. See installation manual for lifting instructions.
5. All water connections are given in standard U.S. pipe sizes. Standard connections are suitable for welding or grooved couplings. All grooved coupling are OGS (Original Grooved System).
6. Vibration isolator pads are provided for field installation (0.25 in (6 mm) thick when loaded).
7. If main power wiring is brought up through the floor, this wiring must be outside the envelope of the unit.
8. The shipping skid adds 4 in. (105 mm) to the overall unit height.
9. Dimensions shown are for units with standard 150 psig (1 MPa) design water side pressure. Check factory for unit dimensions with higher pressures.

Product Drawing	Unit Tag: CH-1			Sales Office: ElitAire, Inc.		
Product: Magnitude™ Chiller	Project Name: Cincinnati City Hall			Sales Engineer: Brian Turner		
Model: WMC048DDSNA/E2612-YE2CL2V/C2212-JB2CL2V	Date: 23/07/2024	Ver/Rev:	Sheet: 1 of 6	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in (mm)

WMC048DDSN1500460H6DGE2612YE2CDKL2VHNC4440F00598CCNEC2212JB2CDWNNNNNL2VHND40943F00763CCNNNNEA025050951S33LENBA01080TDNNSNNBN52B15AXNAFNNEAANJNNNUYNAAHSSUA01551NNNNNNNNNNNWVWNNNNN000000N



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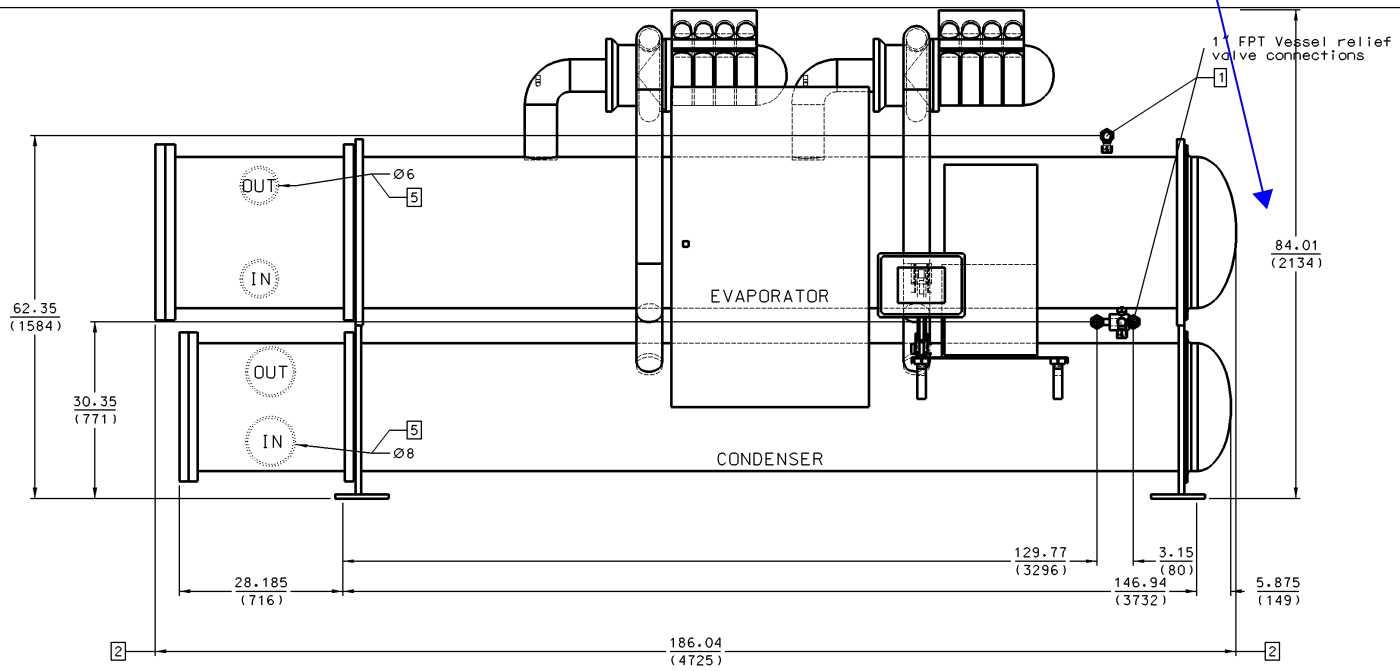
Model: WMC048DDSNA/E2612-YE2CL2V/C2212-JB2CL2V	Date: 23/07/2024	Ver/Rev:	Sheet: 2 of 6	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in (mm)

WMC048DDSN1500460H6DGE2612YE2CDKL2VHNC4440F00598CCNEC2212JB2CDWNNNNNL2VHND40943F00763CCNNNNEA0250509515S33LENBA01080TDNNSNNBN52B15AXNAFNNEAANJNNNUYNAAHSSUA01551NNNNNNNNNNNNWVWNNNNN000000N

- Coordinate that compressor modules to be removable in the field to allow chiller to fit through 7 foot tall door.



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Product: Magnitude™ Chiller	Project Name: Cincinnati City Hall			Sales Engineer: Brian Turner			
Model: WMC048DDSNA/E2612-YE2CL2V/C2212-JB2CL2V	Date: 23/07/2024	Ver/Rev:	Sheet: 3 of 6	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in (mm)	

WMC048DDSN1500460H6DGE2612YE2CDKL2VHNC4440F00598CCNEC2212JB2CDWNNNNNL2VHND40943F00763CCNNNNEA0250509515S33LENBA01080TDNNSNNBN52B15AXNAFNNEAANJNNNUYNAAHSSUA01551NNNNNNNNNNNNWVWNNNNN000000N

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Cincinnati City Hall

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CH-1

Certified

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Cincinnati City Hall

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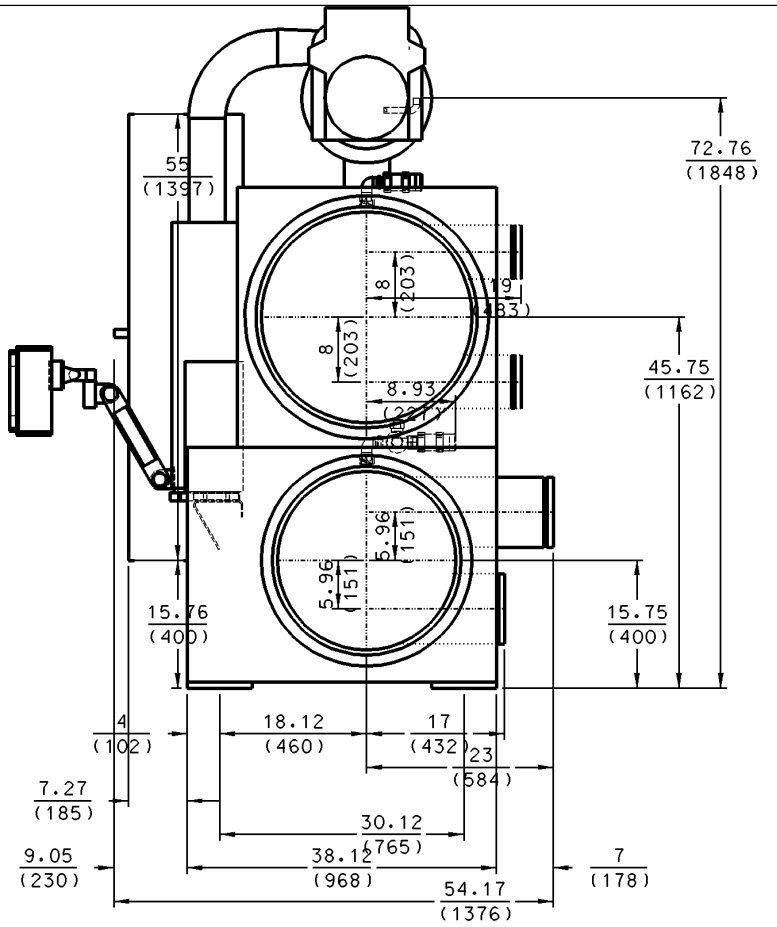
7/23/2024

CH-1

Certified



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Product: Magnitude™ Chiller	Project Name: Cincinnati City Hall			Sales Engineer: Brian Turner		
Model: WMC048DDSNA/E2612-YE2CL2V/C2212-JB2CL2V	Date: 23/07/2024	Ver/Rev:	Sheet: 4 of 6	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in (mm)

WMC048DDSN1500460H6DGE2612YE2CDKL2VHNC4440F00598CCNEC2212JB2CDWNNNNNL2VHND40943F00763CCNNNNEA025050951S33LENBA01080TDNNSNNBN52B15AXNAFNNEAANJNNNUYNAAHSSUA01551NNNNNNNNNNNWVWNNNNN000000N

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Cincinnati City Hall

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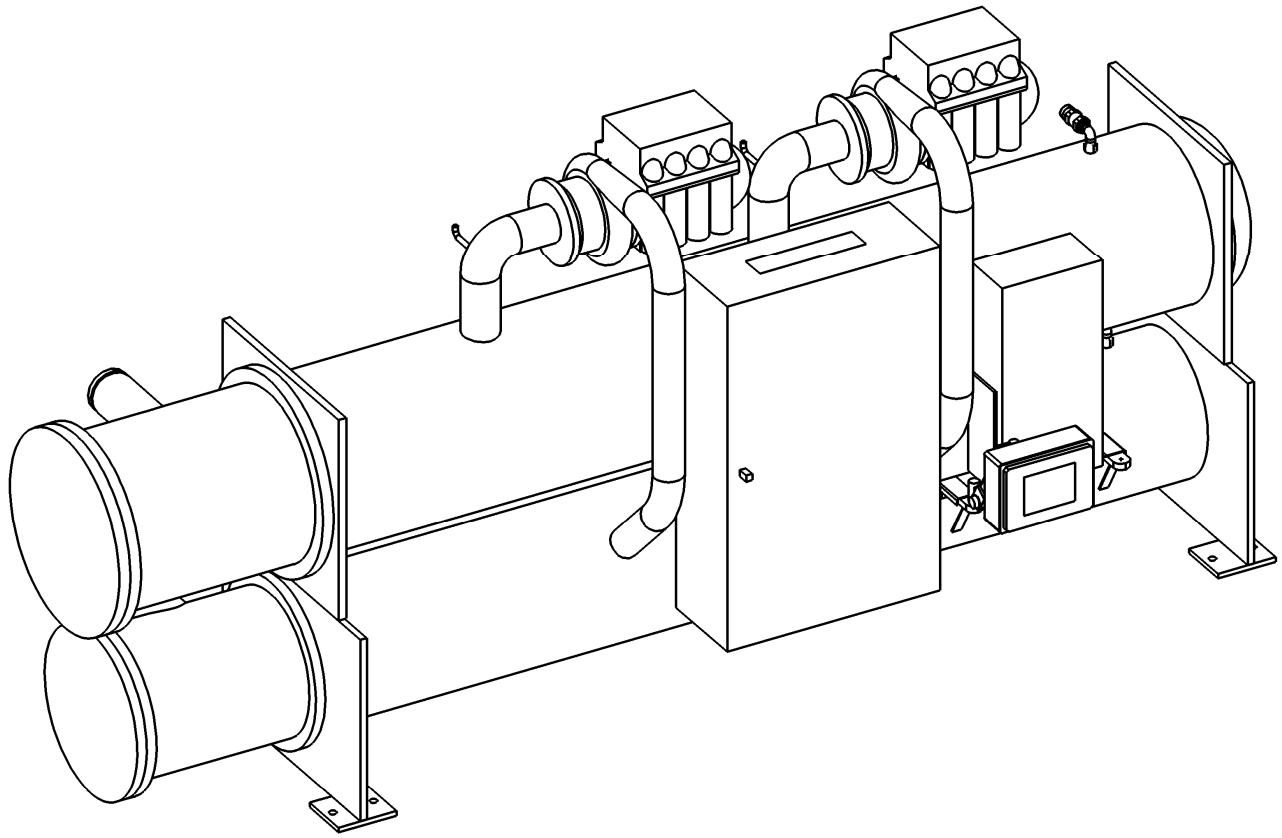
7/23/2024

CH-1

Certified



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Product: Magnitude™ Chiller	Project Name: Cincinnati City Hall			Sales Engineer: Brian Turner		
Model: WMC048DDSNA/E2612-YE2CL2V/C2212-JB2CL2V	Date: 23/07/2024	Ver/Rev:	Sheet: 5 of 6	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in (mm)

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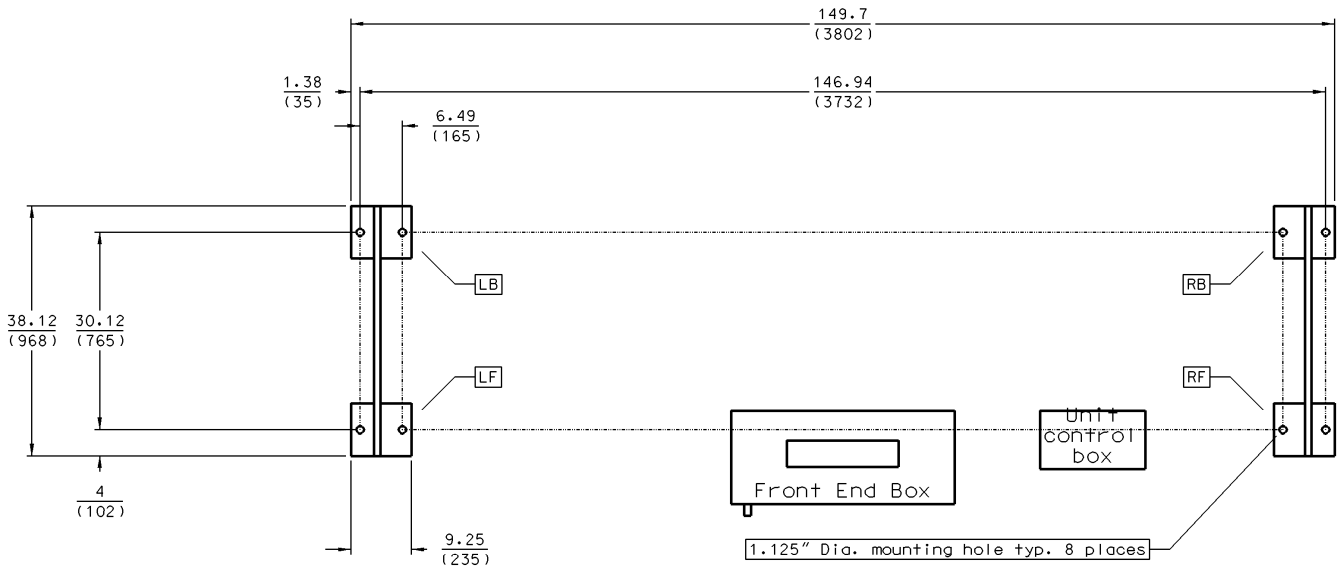

Operating Corner Weight lbs (kg)			
Left Back (LB)	Left Front (LF)	Right Back (RB)	Right Front (RF)
3978 (1804)	3232 (1466)	2506 (1137)	2036 (923)

Product Drawing	Unit Tag: CH-1			Sales Office: ElitAire, Inc.		
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Model: WMC048DDSNA/E2612-YE2CL2V/C2212-JB2CL2V	Date: 23/07/2024	Ver/Rev:	Sheet: 6 of 6	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in (mm)

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Job Information	*Technical Data Sheet*
Job Name	Cincinnati City Hall
Date	7/23/2024
Submitted By	Mike Kirchens
Software Version	20.32
Unit Tag	CH-2
Unit FPA#	AUTO_54
Country of Origin	USA

Unit Overview

Model Number	Net Capacity ton	IPLV.IP kW/ton	Voltage	Starter Type	ASHRAE 90.1	LEED EA Credit 4
WMC048DDSNA	250.0	0.3296	460 V / 60 Hz / 3 Ph	VFD	'07, '10, '13 & '16	Qualifies

Unit

Model/Evap/Cond Number:	WMC048DDSNA-15/E2612-YE2C-2/C2212-JB2C-2/R513-DAA*A*	**Vintage:**	D
Approval:	AHRI and ETL / cETL		
Vessel Code:	ASME		

Unit Shipping Weight	Unit Operating Weight	Overall Unit Length	Overall Unit Width	Overall Unit Height
9749 lb	11751 lb	184.3 in	47.2 in	84.0 in

Compressor Quantity	Capacity Control	Refrigerant Type	Refrigerant Weight
2	VFD / Inlet Guide Vanes	R513A	951 lb

Evaporator

Input Type	Entering Fluid Temperature	Leaving Fluid Temperature	Fluid Type	Actual Fluid Flow	Minimum Fluid Flow
EWT + LWT	54.00 °F	44.00 °F	Water	598.2 gpm	145.0 gpm

Length	Diameter	Number of Passes	Tube		Fouling Factor
			Material	Wall Thickness	
12 ft	26 in	2	Copper	0.025 in	0.000100 °F.ft².h/Btu

Condenser

Input Type	Entering Fluid Temperature	Leaving Fluid Temperature	Fluid Type	Fluid Flow
EWT + LWT	85.00 °F	94.30 °F	Water	762.8 gpm

Length	Diameter	Number of Passes	Tube		Fouling Factor
			Material	Wall Thickness	
12 ft	22 in	2	Copper	0.025 in	0.000250 °F.ft².h/Btu

Unit Performance (AHRI 550/590)

Design Points Rated with AHRI Condenser Relief – With Water

Net Capacity ton	Input kW	Cooling Efficiency kW/ton	IPLV.IP kW/ton	Part Load Cooling Efficiency			Evaporator Fluid		Condenser Fluid	
				75% kW/ton	50% kW/ton	25% kW/ton	Pressure Drop ft H_2O	Entering Temperature °F	Pressure Drop ft H_2O	Leaving Temperature °F
250.0	155.1	0.6204	0.3296	0.4300	0.2840	0.2628	10.4	54.00	20.6	94.30

Performance Points Rated with AHRI Condenser Relief – With Water

Point #	% of Design Load	Net Capacity ton	Input kW	Cooling Efficiency kW/ton	Evaporator Fluid				Condenser Fluid			
					Flow gpm	Temperature		Pressure Drop ft H_2O	Flow gpm	Temperature		Pressure Drop ft H_2O
						Entering °F	Leaving °F			Entering °F	Leaving °F	
1	100.0	250.0	155.1	0.6204	598.2	54.00	44.00	10.4	762.8	85.00	94.30	20.6
2	75.0	187.5	80.63	0.4300	598.2	51.50	44.00	10.4	762.8	75.00	81.67	21.3
3	50.0	125.0	35.50	0.2840	598.2	49.00	44.00	10.4	762.8	65.00	69.28	22.3
4	25.0	62.50	16.43	0.2628	598.2	46.50	44.00	10.4	762.8	65.00	67.12	22.4

Service Data

Service Points Rated with AHRI Condenser Relief

Point #	Superheat Δ °F	Subcooling Δ °F	Evaporator Fluid			Condenser Fluid		
			Temperature °F	Pressure psig	Velocity ft/s	Temperature °F	Pressure psig	Velocity ft/s
1	1.0	9.0	41.5	41.7	5.9	96.6	125.0	7.1
2	1.0	6.9	41.9	42.1	5.9	83.3	99.5	7.1
3	1.0	4.6	42.3	42.5	5.9	70.3	78.2	7.1
4	1.0	2.3	42.6	42.8	5.9	67.7	74.4	7.1

Physical

Evaporator

Inlet Location	Header			Tube Sheet Material	Design Pressure (Waterside)
	Type	Orientation	Material		
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Condenser

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Electrical

Voltage:	460 V / 60 Hz / 3 Ph	Power Connection:	Single Point

Circuit (Compr)	Rated Load Amps (RLA)	Minimum Circuit Ampacity (MCA)	Recommended Overcurrent Protection Size (ROCP)	Maximum Overcurrent Protection Size (MOCP)	Locked Rotor Amps (LRA)*	Lug Connection Size (wires per phase)
1	216 A	243 A	300 A	350 A	119 A	(2) 3/0 AWG - 250 MCM
2					119 A	

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Drive

Type	Model	Location	Enclosure Type	Motor Protection
VFD	Integral	Terminal Mounted	NEMA 1	Non-fused Disconnect Switch

Line Reactor	Compressor Circuit Breaker	Disconnect Switch	Power Connection	Short Circuit Current Rating	Approval
Standard	Standard	Standard	Single Point	Standard	ETL, ETLc

Sound (without insulation)

Sound Pressure

Load	Overall	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
100%	81.5	37.5	51.5	59.5	72.0	75.0	72.5	76.5	75.0
75%	78.0	37.0	50.5	62.5	66.5	70.0	69.5	74.0	70.5
50%	75.0	37.5	50.0	60.0	65.0	65.5	66.0	71.5	66.0
25%	73.5	37.5	49.0	59.0	63.0	65.0	66.0	69.5	64.0

Sound Pressure (dB) measured in accordance with ANSI/AHRI Standard 575-2008 ('A' weighted)

Options

Basic Unit	
Packaging:	Bagging only
Knockdown:	Type A; Fully Assembled Bolted Construction
Insulation	
Thermal:	0.75" on Evaporator & Condenser Shells, Suction Piping, Compressor Inlet, Motor Barrel & High Humidity
Head:	Evaporator Return & Connection Heads
Control	
Communication Protocol:	BACnet MS/TP
Drive	
Disconnect / Breaker Type:	Disconnect Switch

Warranty

Unit Startup:	Domestic by Daikin Factory Service (Std.)
Standard Warranty:	Domestic, First Year Standard Warranty (Parts & Labor)
Extended Warranty:	4 Years Compressor only Parts & Labor
Refrigerant Warranty:	1 year R513A Warranty
Delayed Warranty Start:	None (Startup 12-18 months after ship date)

AHRI Certification

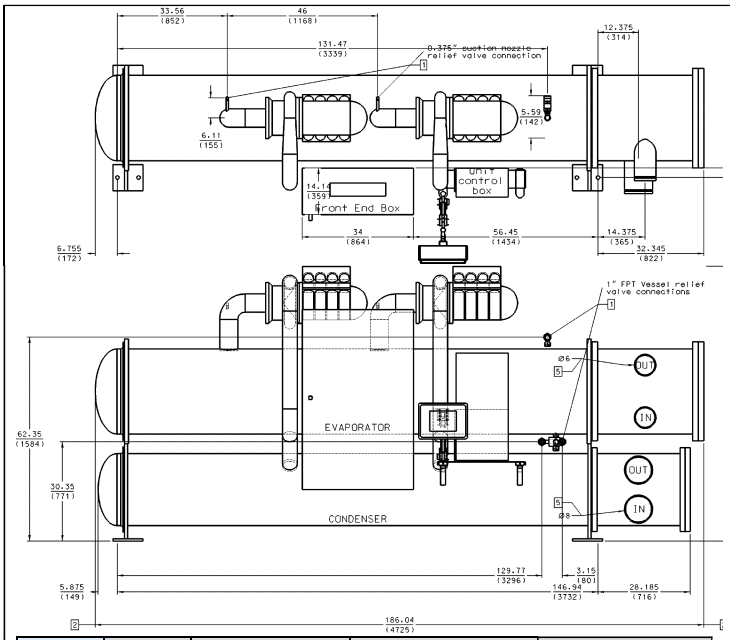
Certified in accordance with the AHRI Water-Cooled Water-Chilling and Heat Pump Water-Heating Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found in the AHRI Directory at www.ahridirectory.org.

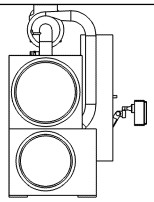
Notes

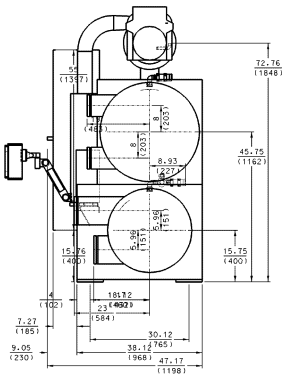
1. Above RLA, MCA & MOCP values are per chiller; LRA values are per compressor..
2. Performance kW & kW/ton values are total values unless noted otherwise.
3. Minimum flow is based upon standard condenser water relief and not increased lift due to constant condenser water temperature.
4. The field wiring must be sized in accordance with the MCA and not the RLA as some selections may be below the minimum required protection.
5. The USGBC bases its LEED EA credit 4 calculations for Enhanced Refrigerant Management on the default values for a water cooled centrifugal chiller with a 25-year life, 10% end of life loss and 2% annual leak rate. The gross AHRI cooling capacity for the unit is at least 10 tons, and the refrigerant charge is 10 lbs.
6. The LEED result above considers the chiller only. When applying this information for credit or prerequisite compliance the entire building must be considered.
7. Use only copper supply wires with ampacity based on 75°C conductor rating. Connections to terminals must be made with copper lugs and copper wire.
8. For orientation purposes, left and right hand vessel connection locations are determined by facing the HMI panel (Human Machine Interface). The unit front is the long dimension side with the HMI panel and rear is the opposite side long dimension.

Accessories

Optional	
Part Number	**Description**
330276202	RS485 pLAN Isolator Kit (contains one isolator)







	Refrigerant lbs (kg)	Total Weight (inc. Refrigerant) lbs (kg)	Water Volume gal (l)		Center of Gravity ins (mm)		
			Evap	Cond	X	Y	Z
Operating	951 (431)	11751 (5330)	135 (510)	105 (398)	94 (2384)	35 (881)	17 (422)
Shipping		9749 (4422)	- (-)	- (-)	89 (2273)	34 (874)	16 (414)

1. 1 in. (25 mm) FPT evaporator and condenser relief valves must be piped per ANSI/ASHRAE 15.
2. At a minimum, length of tube sheet to tube sheet dimensions is required at either end for tube removal, 36 in. (914 mm) is required at other end and each side and top for service
3. Final connections must allow for 0.5 in. (12.7 mm) manufacturing tolerance.
4. 2.5 in. (64 mm) diameter lifting holes are provided. See installation manual for lifting instructions.
5. All water connections are given in standard U.S. pipe sizes. Standard connections are suitable for welding or grooved couplings. All grooved coupling are OGS (Original Grooved System).
6. Vibration isolator pads are provided for field installation (0.25 in (6 mm) thick when loaded).
7. If main power wiring is brought up through the floor, this wiring must be outside the envelope of the unit.
8. The shipping skid adds 4 in. (105 mm) to the overall unit height.
9. Dimensions shown are for units with standard 150 psig (1 MPa) design water side pressure. Check factory for unit dimensions with higher pressures.

Product Drawing	Unit Tag: CH-2			Sales Office: ElitAire, Inc.		
Product: Magnitude™ Chiller	Project Name: Cincinnati City Hall			Sales Engineer: Brian Turner		
Model: WMC048DDSNA/E2612-YE2CR2V/C2212-JB2CR2V	Date: 23/07/2024	Ver/Rev:	Sheet: 1 of 6	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in (mm)

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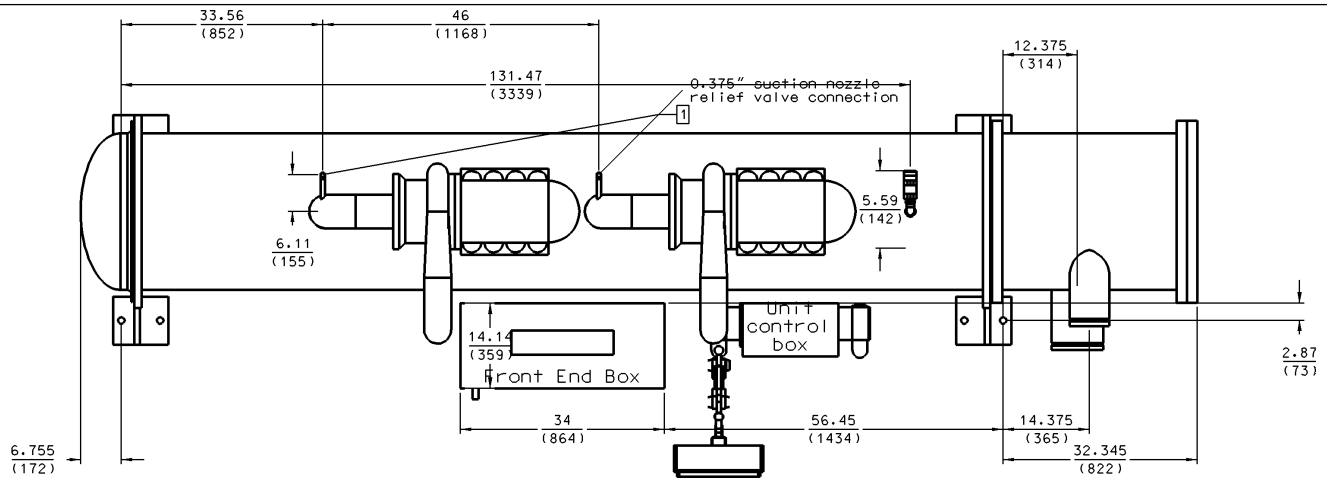

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Model: WMC048DDSNA/E2612-YE2CR2V/C2212-JB2CR2V	Date: 23/07/2024	Ver/Rev:	Sheet: 2 of 6	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in (mm)

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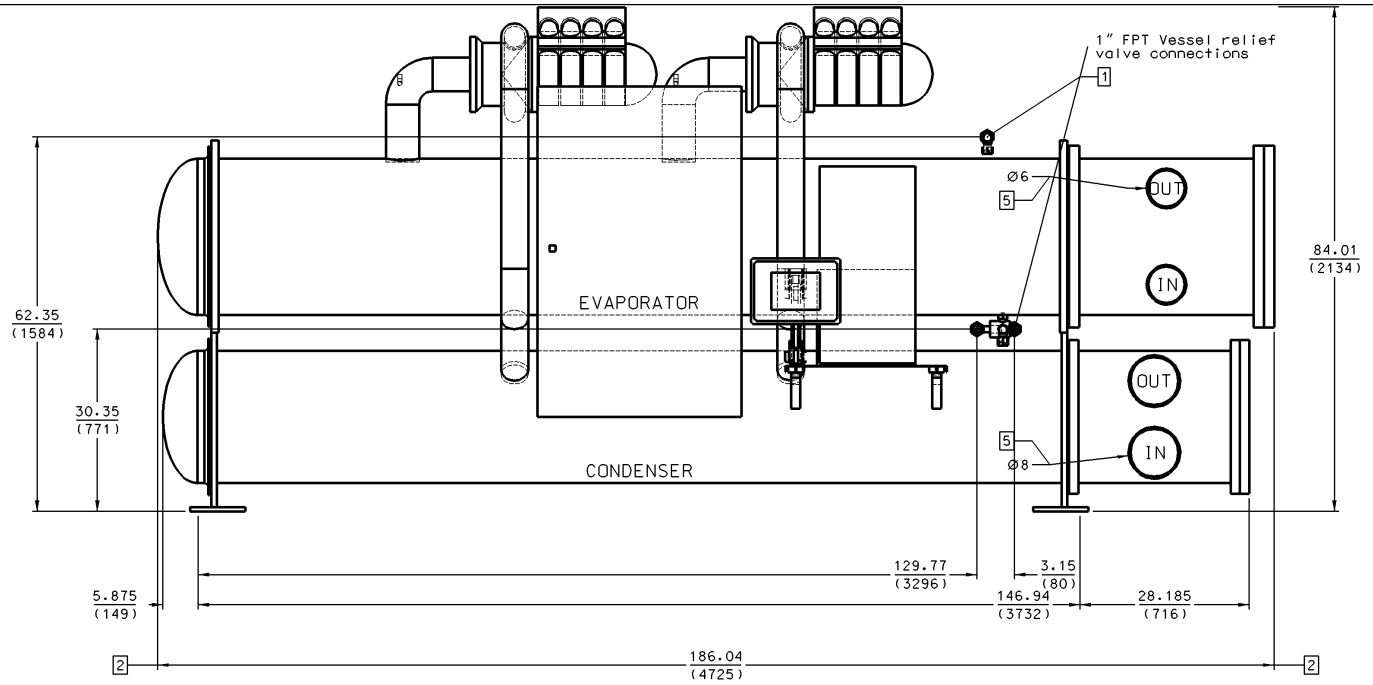
CH-2

Certified



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Model: WMC048DDSNA/E2612-YE2CR2V/C2212-JB2CR2V	Date: 23/07/2024	Ver/Rev:	Sheet: 3 of 6	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in (mm)

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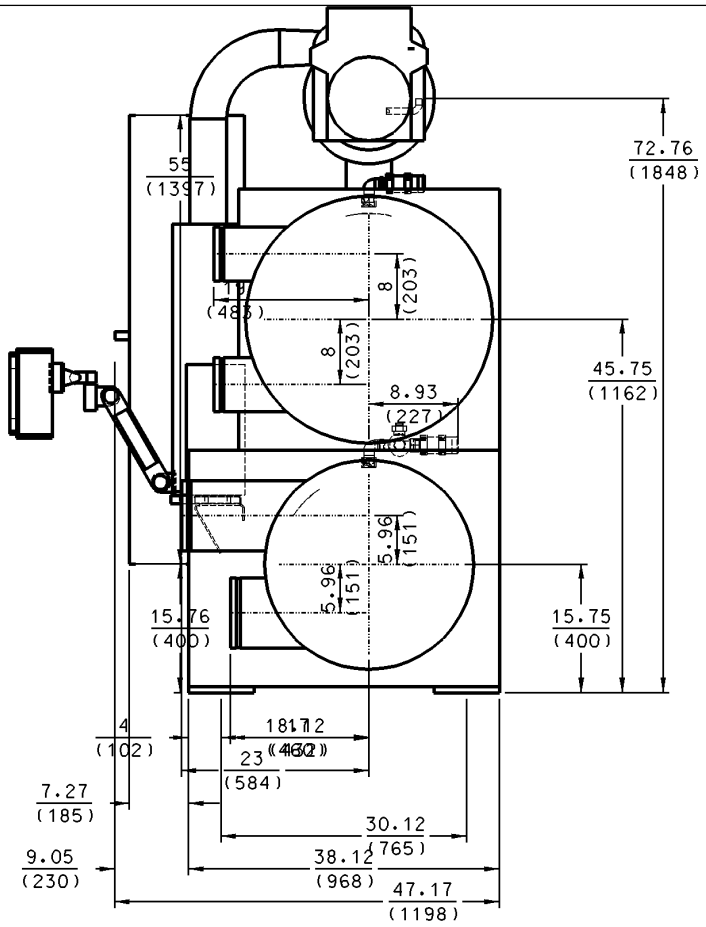
CH-2

Certified



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Model: WMC048DDSNA/E2612-YE2CR2V/C2212-JB2CR2V	Date: 23/07/2024	Ver/Rev:	Sheet: 4 of 6	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in (mm)

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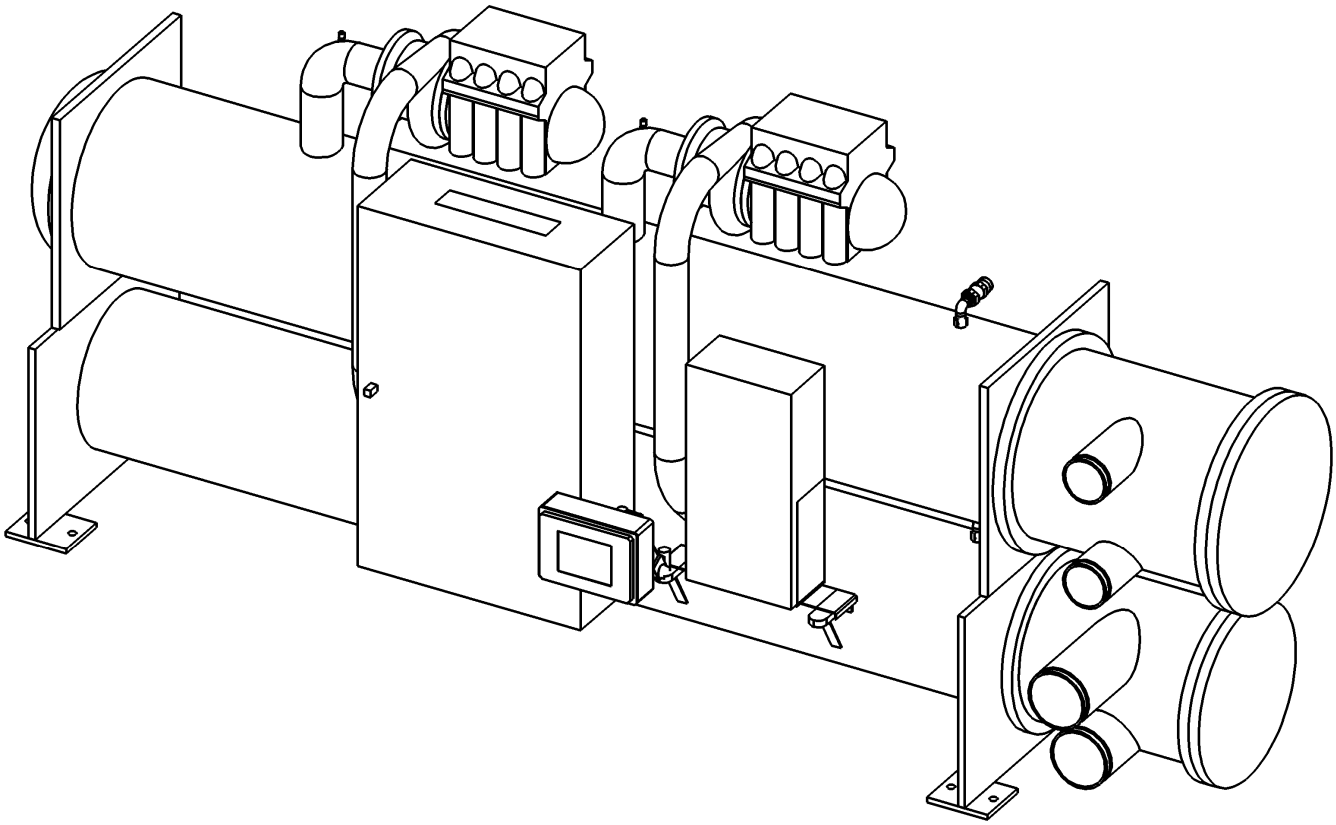
CH-2

Certified



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Product: Magnitude™ Chiller	Project Name: Cincinnati City Hall			Sales Engineer: Brian Turner		
Model: WMC048DDSNA/E2612-YE2CR2V/C2212-JB2CR2V	Date: 23/07/2024	Ver/Rev:	Sheet: 5 of 6	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in (mm)

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Cincinnati City Hall

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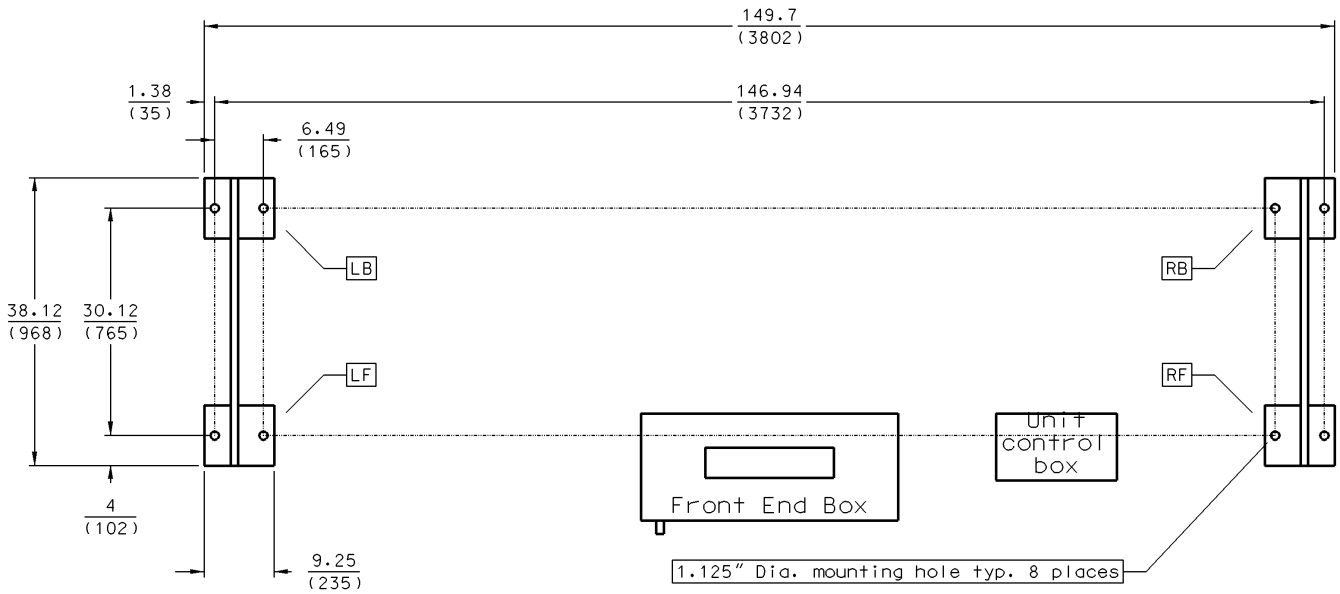
7/23/2024

CH-2

Certified



Operating Corner Weight lbs (kg)			
Left Back (LB)	Left Front (LF)	Right Back (RB)	Right Front (RF)
2300 (1043)	1868 (847)	4184 (1898)	3399 (1542)

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