R407C

ECO COOLER

AIR COOLED CHILLER

STANDARD MODEL

50Hz

150 kW – 2000 kW

Scroll

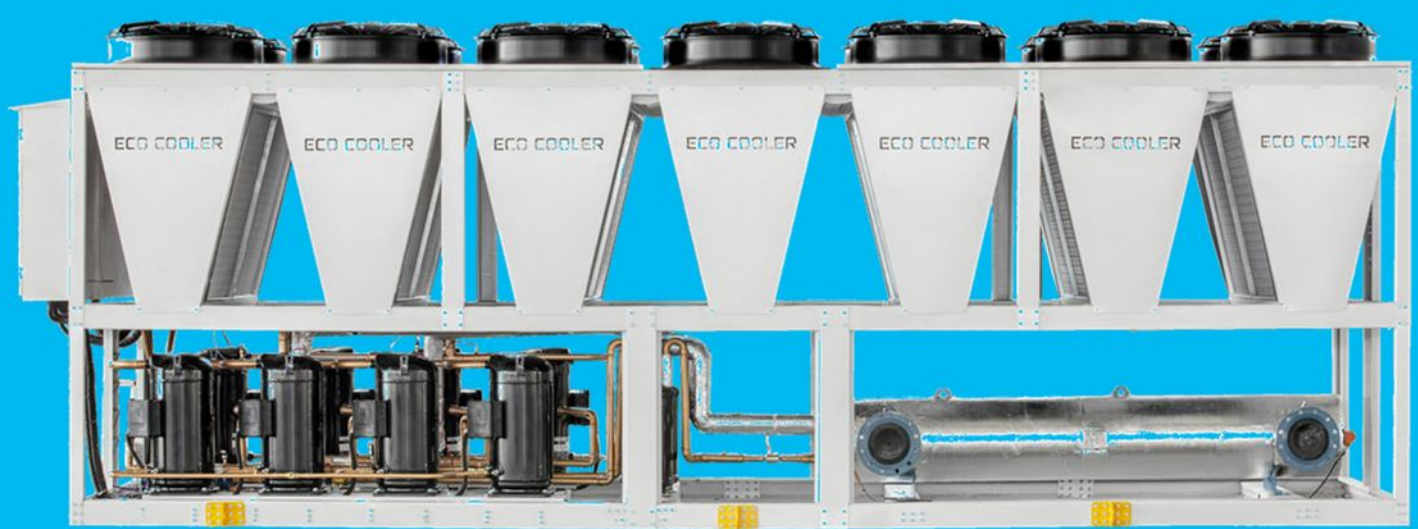
2022

ECO COOLER
AIR CONDITIONER

MULTI STAGE EVAPORATIVE COOLING


Special Public places
Commercial, Office, Hospital, Restaurant
Coffee shop & Etc .

ECO COOLER
AIR CONDITIONER



ECO COOLER

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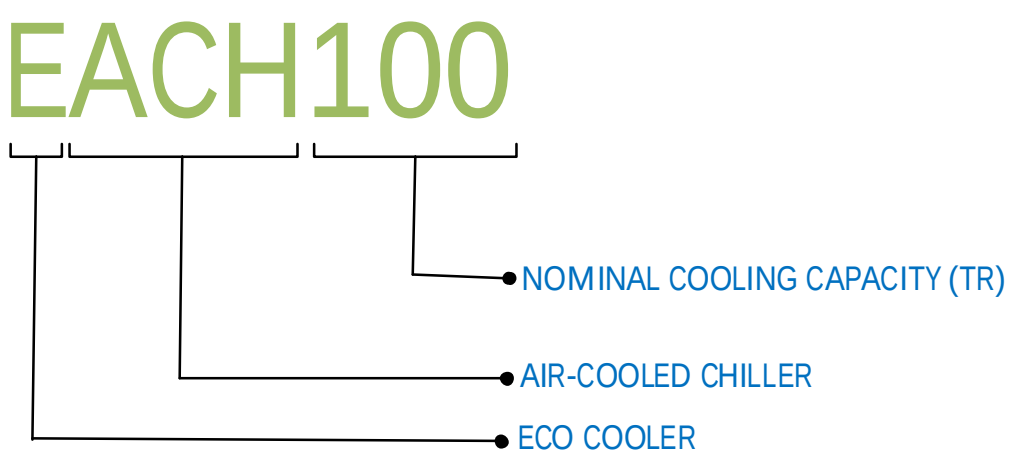
INTRODUCTION

Eco Cooler connection with costumer is permanent and does not lead to sell units. Our motto is making the best environment for people to build a better world to live.

Eco Cooler Air cooled water chillers **EACH** series designed to be suitable for all weather conditions, from cold to moderate to hot climates, the various environment, from residential building to industrial sites with polluted environment. Optimum performance, high efficiency, low power consumption, easy installation and low noise operations are the features of the EACH chillers.
EACH series cooling capacities are available from 45 TR (158 kW) to 430 TR (1512 kW). Models are in two categories of STANDARD (for cold and moderate climates) and HIGH EFFICIENT (for hot and tropical climates) conditions.

NOMENCLATURE



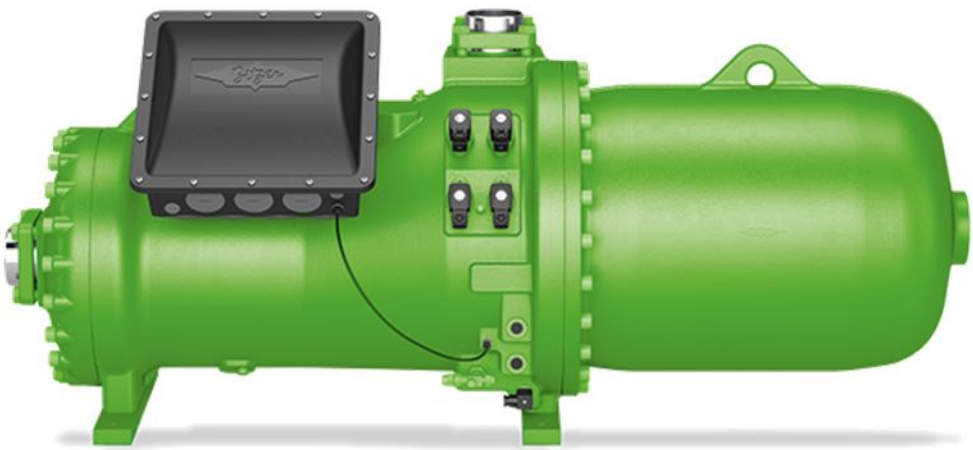
FEATURES AND BENEFITS

- Optimized energy efficiency both at full and part load conditions
- Low operating sound levels are achieved by the latest compressor and fan design
- Stepped and Stepless screw compressor with professional control system to minimize energy consumption and optimize the unit performance.
- Compact design for minimized installation space and small footprint
- One, two, three or four truly independent refrigerant circuits for outstanding reliability
- Using microchannel technology for condenser with higher corrosion resistance and longer life and 30% refrigerant charge compared to traditional solutions.
- Structure and base in hot-dip galvanized steel with electrostatic powder painting.
- Electrical expansion valve: quickly and precisely adapts to the effective load required.
- Connectable to Building Management Systems (BMS) via MODBUS, BACNet and CANBUS protocols.

STANDARD SPECIFICATIONS

SEMI HERMETIC SCREW COMPRESSOR

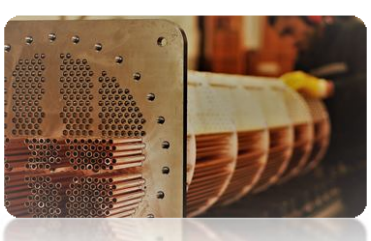
EACH compressors features mechanical capacity control, which enables very good efficiency and simple system integration. It features mechanical capacity control, which enables very good efficiency and simple system integration. Screw Compressors are equipped to solenoid valve for stepped or stepless capacity control, suction and discharge shut-off valve, oil sight glass, check valve in discharge gas outlet, oil fill/drain service valve, directly flanged on three stage oil separator, robust axial bearings in tandem configuration, internal pressure relief valve as a burst protection and manual lock-out electronic protection system for thermal motor winding temperature, phase reversal, discharge gas temperature protection controls.



STANDARD SPECIFICATIONS

SHELL AND TUBE EVAPORATOR

The evaporator is a high efficiency DX shell & tube heat exchanger design with inner grooved copper tubes roller expanded into the tube sheet. evaporators are tested with a refrigerant side of 30 bars and a water side of 10 bars. Helium leak test is a standard test for evaporators. A guarantee is offered against coolant leak for up to 2 gr/year. Tests are performed at various pressure levels for multi circuit evaporator and prevention of leakage between circuits is guaranteed. Water connections are grooved pipe. Each shell includes a vent, a drain and fittings for temperature control sensors and is insulated with 3/4 inch equal insulation. Evaporator heaters with thermostat are provided to help protect the evaporator from freezing at ambient temperatures down to -29°C.

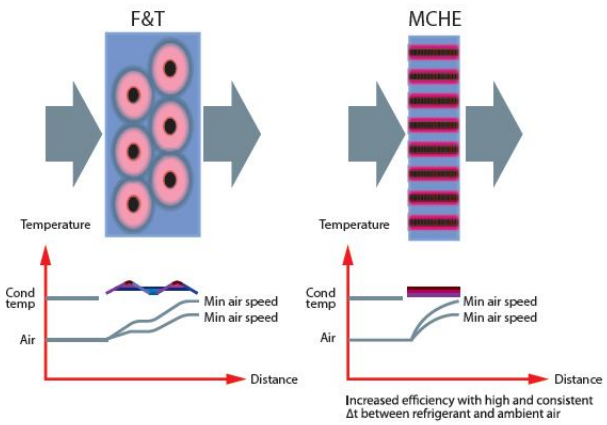


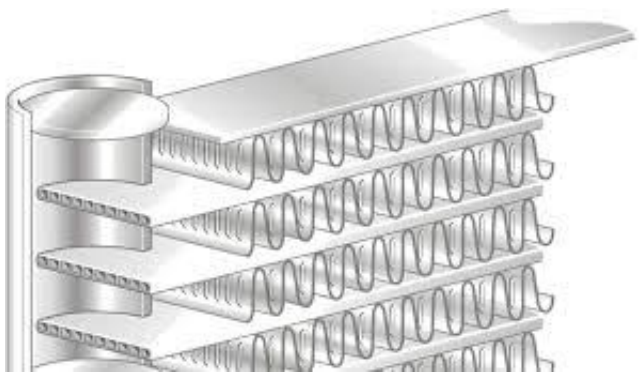
STANDARD SPECIFICATIONS

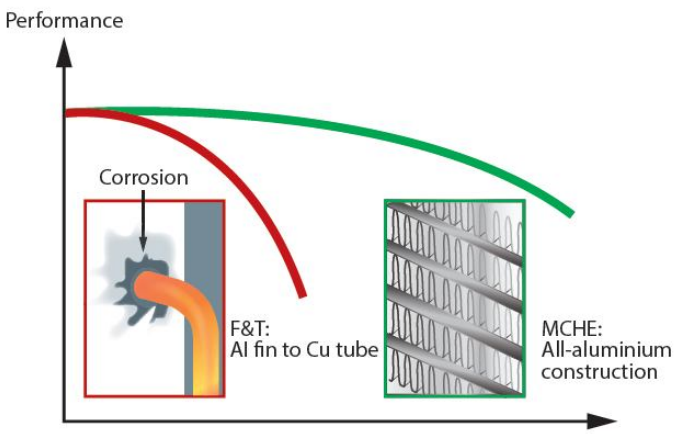
CONDENSERS COIL

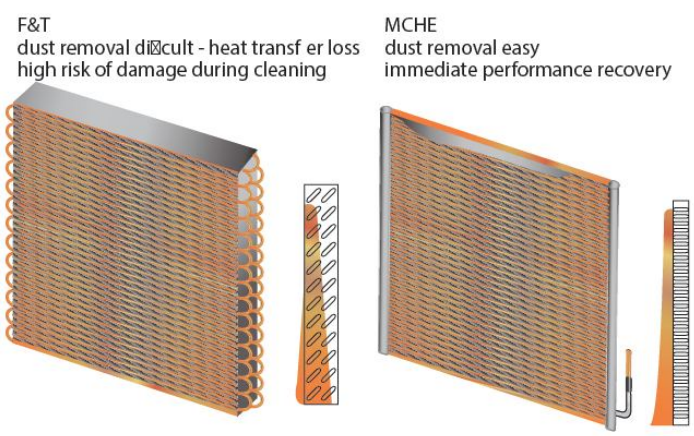
The condenser coils are built up microchannel technology. Integral NOCOLOK brazing low contact resistance improve the heat transfer performance perfectly. AL-AL structure without electric potential difference makes high corrosion resistance. The advantages of microchannel condensers over finned-tube coil are:

- Smaller diameter, more tube holes and larger internal surface intensify unit capacity as per volume.
- Small cross sectional area makes low air flow resistance, small eddy area and low noise.
- Parallel arrangement of flat tubes enlarge refrigerant circulation area.
- Adjusting the position and quantity of baffles to adapt to refrigerant phase transition and optimize heat transfer and pressure drop.
- The structure effectively breaks air thermal boundary layer, reducing heat exchanging resistance.
- Waving path makes the contacts longer to intensify heat exchanging.









STANDARD SPECIFICATIONS

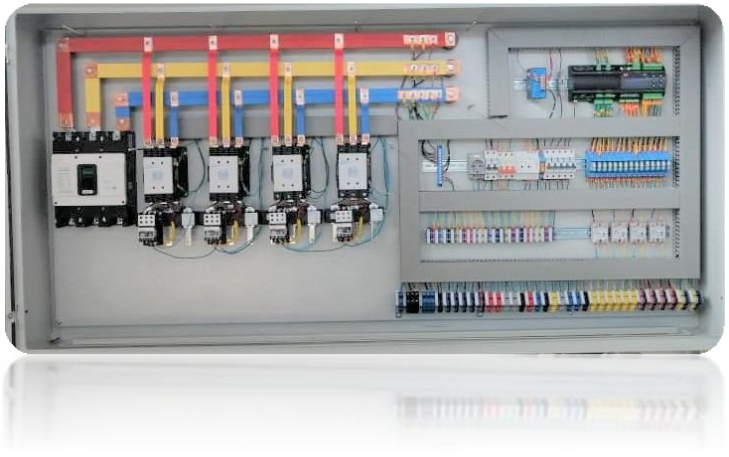
CONDENSER FAN

Direct drive vertical discharge condenser fans are dynamically balanced. Totally enclosed air over motors completely seal the motor windings to prevent exposure to ambient conditions. Three-phase condenser fan motors with permanently lubricated ball bearings and internal thermal overload protection are provided. improved acoustic performance due to an optimized blade-design external rotor motors comply with protection class IP54. The winding insulation corresponds to insulation class F. Through the use of deep groove ball bearings, closed on both sides, with specially paired grease lubricant, maintenance-free and low-noise operation is guaranteed.

CONTROL PANEL

Chillers are equipped with a latest version of controller designed to ensure energy saving and unit efficiency. Available functions :

- Monitoring operating parameters including water inlet and outlet temperature, suction and discharge temperature, suction and discharge pressure
- Protecting the system from frosting water
- Stepped or stepless Capacity control
- Controlling Fan start/stop with pressure
- Adjusting Fan speed through controlling inverter (as per request)
- Connection to building Management System (BMS) via MODBUS protocol
- keeping all the faults in the alarm history
- Compressors hour equalization



STANDARD SPECIFICATIONS

REFRIGERATION PIPE LINE

• INDEPENDENT REFRIGERATION CIRCUIT PER COMPRESSOR

• ELECTRONIC EXPANSION VALVE: Used to regulate the refrigerant flow to the evaporator and maintain a constant superheat and provide capacity required.

• LIQUID LINE REPLACEABLE CORE TYPE FILTER DRIER: Refrigerant circuits are kept free of harmful moisture, sludge, acids and oil contaminating particles by the filter drier.

• LIQUID LINE MOISTURE INDICATOR SIGHT GLASS: Installed in the liquid line. An easy-to-read color indicator shows moisture contents and provides a mean for checking the system refrigerant charge.

• LIQUID,DISCHARGE AND SUCTION LINES SHUT OFF VALVE

• DISCHARGE, SUCTION AND LIQUID LINE PIPES: All pipelines are sized to minimize pressure drop and keep proper velocity ensuring oil return.

• LIQUID INJECTION KIT: For cooling the compressor in high compressor discharge temperature.

STANDARD SPECIFICATIONS

ELECTRICAL PANEL

• COMPRESSOR PART WINDING START
• COMPRESSOR IN-BUILT PROTECTION DEVICE
• STARTER: The starter is operated by the control circuit and provides power to the compressor motors. These devices are rated to handle safely both RLA and LRA of motors.

• CRANKCASE HEATERS: Each compressor has immersion type crankcase heater. The compressor crankcase heater is always on when the compressors are de-energized. This protects the system against refrigerant Migration, oil dilution and potential compressor failure.
• HIGH PRESSURE SWITCH: This switch provides an additional safety protection in case of excessive discharge pressure.

• LOW PRESSURE SWITCH: This switch provides an additional safety protection in case of very low suction pressure to avoid water freezing.

• UNIT ON-OFF SWITCH: On Off Switch is provided for manually switching the unit control circuit.

• INDICATOR LIGHTS: LED lights indicates power ON to the units, MENU adjustment and FAULT indications due to trip on safety devices.

• UNDER VOLTAGE AND PHASE PROTECTION: This feature protects the chiller against low incoming voltage as well as single phasing , phase reversal and phase imbalance by de-energizing the control circuit.
• FAN MOTOR CIRCUIT BREAKER: For each pair of condenser fan motor.
• COMPRESSOR CIRCUIT BREAKERS: Protects compressor against overload and short circuit. When tripped, the breaker opens the power supply to the compressor and control circuit through auxiliary contacts. These circuit breakers are provided with thermal adjustable switch for precise overload setting.

• EXTERNAL OVERLOAD RELAY FOR EACH COMPRESSOR
• CONTROL FUSED FOR SHORT CIRCUIT PROTECTION

OPTIONAL FEATURES

• WATER FLOW SWITCH: Paddle type field adjustable flow switch for water cooler circuits, Interlock into safety circuits so that the unit will remain off unit water flow is determine.
• UNIT MOUNTING SPRING ISOLATORS: This housed spring assemblies have a neoprene friction pad on the bottom to prevent vibration transmission.
• COMPRESSOR SILENCER BOX: reduces the compressor operating noise and keeps the compressor clean.
• COPPER FINS/TUBES CONDENSER COILS: For seashore salty corrosive environments.
• PRE-COATED ALUMINUM FINS CONDENSER COILS (MHG): For seashore or acid corrosive environments.
• BUILDING MANAGEMENT SYSTEM (BMS): MODBUS, BACNET, and CANBUS protocol
• NON-FUSED MAIN DISCONNECT SWITCHES: De-energize power supply during servicing/repair works as well as with door interlock.
• EVAORATOR HEATER TAPE: Prevent freezing up of water on low ambient.
• GROUND CURRENT PROTECTION: Additional protection for compressor in the case of abnormal current leakage.

TECHNICAL DATA

UNIT MODEL (EACH)		3	4	5	7	10	12	15	20	25	30	35	40
COOLING CAPACITY*	RT	0.0	0.0	0.0	6.7	10.1	11.8	15.9	18.8	28.5	30.5	34.4	39.7
	kW	0.0	0.0	0.0	23.4	35.4	41.4	55.8	65.8	99.9	106.8	120.3	138.8
POWER INPUT (kW)		0.0	0.0	0.0	7.0	9.9	12.1	16.9	22.8	28.2	32.1	39.6	42.0
TOTAL EER (W/W)		0.0	0.0	0.0	3.1	3.0	3.0	3.0	2.7	3.4	3.0	2.8	3.2
COMPRESSOR		Scroll											
QUANTITY (No.)		1	1	1	1	1	1	2	2	3	3	3	4
OIL GRADE		POE RL32-3MAF											
OIL CHARGE PER COMPRESSOR (Liter)		3.38	14	14	3.38	3.25	3.38	3.38	3.25	3.25	3.25	3.38	3.25
CAPACITY CONTROL (STEPPED)		1						2			3		4
CONDENSER TYPE		MICRO CHANNEL											
CONDENSER QTY (No.)		1	1	1	1	2	2	2	2	4	4	4	6
TOTAL FACE AREA (m^2)		2	2	2	2	2	2	2	2	4	4	4	6
CONDENSER FAN		Propeller Direct Driven , 800mm dia , 920 rpm											
FAN QTY (No.)		1	1	1	1	1	1	1	1	2	2	2	3
AIR FLOW RATE (m^3/h)		5100	5100	9860	9860	22500	22500	22500	22500	45000	45000	45000	67500
MOTOR POWER FAN (kW)		1.9	1.9	1.9	0.5	1.9	1.9	1.9	1.9	3.8	3.8	3.8	5.7
EVAPORATOR		Direct Expansion Shell & Tube											
EVAPORATOR QTY (No.)		1											
WATER FLOW RATE (m^3/h)		0.0	0.0	0.0	3.6	5.5	6.4	8.7	10.2	15.6	16.6	18.7	21.6
WATER VOLUME PER COOLER (Liter)		5.9	5.9	5.9	7.1	8.7	10	16.2	18.5	27.4	27.4	27.4	34.7
WATER CONNECTION SIZE (IN /OUT) DIAMETER (mm)		38	38	38	38	50	50	63	63	76	76	76	76
EXPANSION VALVE		Thermostatic											
POWER REQUIREMENT		400V/3PH/50Hz											
REFRIGERATION CIRCUITS (No.)		1	1	1	1	1	1	1	1	1	1	1	2
APPROXIMATE WEIGHT (kg)		278	738	743	281	322	327	402	419	648	660	663	892
DIMENSION	HEIGHT (m)	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59
	WIDTH (m)	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
	LENGTH (m)	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	1.94	1.94	1.94	2.91

*Capacity rating are based on Standard ARI-550/590 conditions of: 35 °C (95 °F) ambient/ 7 °C (44.6 °F) Leaving Chilled Water Temperature / 5 °C (9 °F) Inlet-Outlet Water Temperature Difference/ 0.018 m^2.°C/kW (0.0001 ft^2. h.°F /Btu) Fouling Factor

TECHNICAL DATA

UNIT MODEL (EACH)		70	75	80	85	90	95	100	105	110	115	120	125	130	135
COOLING CAPACITY*	RT	68.9	81.1	81.1	93.5	93.5	93.5	93.5	115.9	115.9	115.9	115.9	115.9	143.8	143.8
	kW	241.2	284.0	284.0	327.2	327.2	327.2	327.2	405.6	405.6	405.6	405.6	405.6	503.4	503.4
POWER INPUT (kW)		79.2	83.2	83.2	102.8	102.8	102.8	102.8	123.6	123.6	123.6	123.6	123.6	149.4	149.4
TOTAL EER (W/W)		2.8	3.0	3.0	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.0
COMPRESSOR		Scroll													
QUANTITY (No.)		6	8	8	8	8	8	8	6	6	6	6	6	6	6
OIL GRADE		POE RL32-3MAF													
OIL CHARGE PER COMPRESSOR (Liter)		3.38	3.25	3.25	3.38	3.38	3.38	3.38	6.8	6.8	6.8	6.8	6.8	6.3	6.3
CAPACITY CONTROL STEPPED		6	8						6						
CONDENSER TYPE		MICRO CHANNEL													
CONDENSER QTY (No.)		8	12	12	12	12	12	12	8	8	8	8	8	10	10
TOTAL FACE AREA (m^2)		8	12	12	12	12	12	12	16	16	16	16	16	20	20
CONDENSER FAN		Propeller Direct Driven , 800mm dia , 920 rpm													
FAN QTY (No.)		4	6	6	6	6	6	6	8	8	8	8	8	10	10
AIR FLOW RATE (m^3/h)		90000	135000	135000	135000	135000	135000	135000	180000	180000	180000	180000	180000	225000	225000
MOTOR POWER FAN (kW)		7.6	11.4	11.4	11.4	11.4	11.4	11.4	15.2	15.2	15.2	15.2	15.2	19	19
EVAPORATOR		Direct Expansion Shell & Tube													
EVAPORATOR QTY (No.)		1													
WATER FLOW RATE (m^3/h)		37.5	44.2	44.2	50.9	50.9	50.9	50.9	63.1	63.1	63.1	63.1	63.1	78.4	78.4
WATER VOLUME PER COOLER (Liter)		53.6	98.5	98.5	93	93	93	93	139.8	139.8	139.8	139.8	139.8	130.8	130.8
WATER CONNECTION SIZE (IN /OUT) DIAMETER (mm)		100	125	125	125	125	125	125	150	150	150	150	150	150	150
EXPANSION VALVE		Electronic													
POWER REQUIREMENT		400V/3PH/50Hz													
REFRIGERATION CIRCUITS (No.)		2	2	2	2	2	2	2	2	2	2	2	2	2	2
APPROXIMATE WEIGHT (kg)		1216	1683	1683	1700	1700	1700	1700	2348	2348	2348	2348	2348	2711	2711
DIMENSION	HEIGHT (m)	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59
	WIDTH (m)	1.27	1.27	1.27	1.27	1.27	1.27	1.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27
	LENGTH (m)	3.88	5.82	5.82	5.82	5.82	5.82	5.82	3.88	3.88	3.88	3.88	3.88	4.85	4.85

*Capacity rating are based on Standard ARI-550/590 conditions of: 35 °C (95 °F) ambient/ 7 °C (44.6 °F) Leaving Chilled Water Temperature / 5 °C (9 °F) Inlet-Outlet Water Temperature Difference/ 0.018 m^2.°C/kW (0.0001 ft^2. h.°F /Btu) Fouling Factor

TECHNICAL DATA

UNIT MODEL (EACH)		140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290
COOLING CAPACITY*	RT	143.8	153.1	153.1	189.3	189.3	189.3	195.4	241.7	241.7	241.7	241.7	279.4	279.4	279.4	279.4	279.4
	kW	503.4	536.0	536.0	662.4	662.4	662.4	684.0	846.0	846.0	846.0	846.0	978.0	978.0	978.0	978.0	978.0
POWER INPUT (kW)		149.4	167.2	167.2	204.8	204.8	204.8	205.0	262.0	262.0	262.0	262.0	315.6	315.6	315.6	315.6	315.6
TOTAL EER (W/W)		3.0	2.9	2.9	2.9	2.9	2.9	3.0	2.9	2.9	2.9	2.9	2.8	2.8	2.8	2.8	2.8
COMPRESSOR		Scroll															
QUANTITY (No.)		6	8	8	8	8	8	10	10	10	10	10	12	12	12	12	12
OIL GRADE		POE RL32-3MAF															
OIL CHARGE PER COMPRESSOR (Liter)		6.3	6.8	6.8	6.3	6.3	6.3	6.8	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
CAPACITY CONTROL STEPPED		6			8					10					12		
CONDENSER TYPE		MICRO CHANNEL															
CONDENSER QTY (No.)		10	10	10	12	12	12	14	14	14	14	14	16	16	16	16	16
TOTAL FACE AREA (m^2)		20	20	20	24	24	24	28	28	28	28	28	32	32	32		32
CONDENSER FAN		Propeller Direct Driven , 800mm dia , 920 rpm															
FAN QTY (No.)		10	10	10	12	12	12	14	14	14	14	14	16	16	16	16	16
AIR FLOW RATE (m^3/h)		225000	225000	225000	270000	270000	270000	315000	315000	315000	315000	315000	360000	360000	360000	360000	360000
MOTOR POWER FAN (kW)		19	19	19	22.8	22.8	22.8	26.6	26.6	26.6	26.6	26.6	30.4	30.4	30.4	30.4	30.4
EVAPORATOR		Direct Expansion Shell & Tube															
EVAPORATOR QTY (No.)		1															
WATER FLOW RATE (m^3/h)		78.4	83.4	83.4	103.1	103.1	103.1	106.5	131.7	131.7	131.7	131.7	152.2	152.2	152.2		152.2
WATER VOLUME PER COOLER (Liter)		130.8	121	121	212.5	212.5	212.5	212.5	212.5	212.5	212.5	212.5	189.7	189.7	189.7	189.7	189.7
WATER CONNECTION SIZE (IN /OUT) DIAMETER (mm)		150	150	150	200	200	200	200	200	200	200	200	200	200	200	200	200
EXPANSION VALVE		Electronic															
POWER REQUIREMENT		400V/3PH/50Hz															
REFRIGERATION CIRCUITS (No.)		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
APPROXIMATE WEIGHT (kg)		2711	2952	2952	3525	3525	3525	3971	4131	4131	4131	4131	4764	4764	4764	4764	4764
DIMENSION	HEIGHT (m)	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59
	WIDTH (m)	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27
	LENGTH (m)	4.85	4.85	4.85	5.82	5.82	5.82	6.79	6.79	6.79	6.79	6.79	7.76	7.76	7.76	7.76	7.76

*Capacity rating are based on Standard ARI-550/590 conditions of: 35 °C (95 °F) ambient/ 7 °C (44.6 °F) Leaving Chilled Water Temperature / 5 °C (9 °F) Inlet-Outlet Water Temperature Difference/ 0.018 m^2.°C/kW (0.0001 ft^2. h.°F /Btu) Fouling Factor

PERFORMANCE DATA TABLES

LEAVING CHILLED WATER TEMP. (LCWT)	UNIT SIZE	30°C (86°F) AMBIENT TEMPERATURE				
		COOLING CAPACITY		COMP. POWER (kW)	Total EER (W/W)	WATER FLOW (m^3/h)
		RT	kW			
7°C	EACH-3	0.0	0.0	0.0	0.0	0.0
	EACH-4	0.0	0.0	0.0	0.0	0.0
	EACH-5	0.0	0.0	0.0	0.0	0.0
	EACH-7	7.1	24.7	6.3	3.0	3.8
	EACH-10	10.8	37.9	8.9	3.5	5.9
	EACH-12	12.6	44.0	10.9	3.4	6.8
	EACH-15	16.9	59.2	15.1	3.5	9.2
	EACH-20	20.2	70.8	20.6	3.1	11.0
	EACH-25	30.3	106.2	25.3	3.4	16.5
	EACH-30	32.6	114.0	87.6	1.2	17.7
	EACH-35	36.7	128.4	35.7	3.3	20.0
	EACH-40	42.3	148.0	37.9	3.4	23.0
	EACH-45	50.5	176.8	47.2	3.3	27.5
	EACH-50	59.8	209.4	49.6	3.7	32.6
	EACH-55	59.8	209.4	49.6	3.7	32.6
	EACH-60	64.3	225.0	57.6	3.5	35.0
	EACH-65	73.4	256.8	71.4	3.3	40.0
	EACH-70	73.4	256.8	71.4	3.3	40.0
	EACH-75	86.6	303.2	74.6	3.5	47.2
	EACH-80	86.6	303.2	74.6	3.5	47.2
	EACH-85	99.9	349.6	92.8	3.4	54.4
	EACH-90	99.9	349.6	92.8	3.4	54.4
	EACH-95	99.9	349.6	92.8	3.4	54.4
	EACH-100	99.9	349.6	92.8	3.4	54.4
	EACH-105	123.9	433.8	111.6	3.4	67.5
	EACH-110	123.9	433.8	111.6	3.4	67.5
	EACH-115	123.9	433.8	111.6	3.4	67.5
	EACH-120	123.9	433.8	111.6	3.4	67.5
	EACH-125	123.9	433.8	111.6	3.4	67.5
	EACH-130	153.3	536.4	134.4	3.5	83.5
	EACH-135	153.3	536.4	134.4	3.5	83.5
	EACH-140	153.3	536.4	134.4	3.5	83.5
	EACH-150	163.4	572.0	150.8	3.4	89.0
	EACH-160	163.4	572.0	150.8	3.4	89.0
	EACH-170	201.8	706.4	184.0	3.4	110.0
	EACH-180	201.8	706.4	184.0	3.4	110.0
	EACH-190	201.8	706.4	184.0	3.4	110.0
	EACH-200	208.6	730.0	184.0	3.5	113.6
	EACH-210	257.4	901.0	236.0	3.4	140.2
	EACH-220	257.4	901.0	236.0	3.4	140.2
	EACH-230	257.4	901.0	236.0	3.4	140.2
	EACH-240	257.4	901.0	236.0	3.4	140.2
	EACH-250	297.6	1041.6	284.4	3.3	162.1
	EACH-260	297.6	1041.6	284.4	3.3	162.1
	EACH-270	297.6	1041.6	284.4	3.3	162.1
	EACH-280	297.6	1041.6	284.4	3.3	162.1
	EACH-290	297.6	1041.6	284.4	3.3	162.1

1- ECHA Chillers are rated based on Standard ARI-550/590-98 conditions of: 5 °C (9 °F) Inlet/Outlet Water Temperature Difference and 0.018 m^2.°C/kW (0.0001 ft^2. h.°F /Btu) Fouling Factor

2- Direct interpolation is permissible. Do not extrapolate.

3- Energy Efficiency Ratio (EER) is for the overall unit, refer to electrical data for fan power input.

PERFORMANCE DATA TABLES

LEAVING CHILLED WATER TEMP. (LCWT)	UNIT SIZE	35°C (95°F) AMBIENT TEMPERATURE				
		COOLING CAPACITY		COMP. POWER (kW)	Total EER (W/W)	WATER FLOW (m^3/h)
		RT	kW			
7°C	EACH-3	0.0	0.0	0.0	0.0	0.0
	EACH-4	0.0	0.0	0.0	0.0	0.0
	EACH-5	0.0	0.0	0.0	0.0	0.0
	EACH-7	6.7	23.4	7.0	2.6	3.6
	EACH-10	10.1	35.4	9.9	3.0	5.5
	EACH-12	11.8	41.4	12.1	3.0	6.4
	EACH-15	15.9	55.8	16.9	3.0	8.7
	EACH-20	18.8	65.8	22.8	2.7	10.2
	EACH-25	28.5	99.9	28.2	2.9	15.6
	EACH-30	30.5	106.8	32.1	3.0	16.6
	EACH-35	34.4	120.3	39.6	2.8	18.7
	EACH-40	39.7	138.8	42.0	2.9	21.6
	EACH-45	47.4	166.0	52.4	2.9	25.8
	EACH-50	56.4	197.4	55.5	3.1	30.7
	EACH-55	56.4	197.4	55.5	3.1	30.7
	EACH-60	60.2	210.6	64.2	2.9	32.8
	EACH-65	68.9	241.2	79.2	2.8	37.5
	EACH-70	68.9	241.2	79.2	2.8	37.5
	EACH-75	81.1	284.0	83.2	3.0	44.2
	EACH-80	81.1	284.0	83.2	3.0	44.2
	EACH-85	93.5	327.2	102.8	2.9	50.9
	EACH-90	93.5	327.2	102.8	2.9	50.9
	EACH-95	93.5	327.2	102.8	2.9	50.9
	EACH-100	93.5	327.2	102.8	2.9	50.9
	EACH-105	115.9	405.6	123.6	2.9	63.1
	EACH-110	115.9	405.6	123.6	2.9	63.1
	EACH-115	115.9	405.6	123.6	2.9	63.1
	EACH-120	115.9	405.6	123.6	2.9	63.1
	EACH-125	115.9	405.6	123.6	2.9	63.1
	EACH-130	143.8	503.4	149.4	3.0	78.4
	EACH-135	143.8	503.4	149.4	3.0	78.4
	EACH-140	143.8	503.4	149.4	3.0	78.4
	EACH-150	153.1	536.0	167.2	2.9	83.4
	EACH-160	153.1	536.0	167.2	2.9	83.4
	EACH-170	189.3	662.4	204.8	2.9	103.1
	EACH-180	189.3	662.4	204.8	2.9	103.1
	EACH-190	189.3	662.4	204.8	2.9	103.1
	EACH-200	195.4	684.0	205.0	3.0	106.5
	EACH-210	241.7	846.0	262.0	2.9	131.7
	EACH-220	241.7	846.0	262.0	2.9	131.7
	EACH-230	241.7	846.0	262.0	2.9	131.7
	EACH-240	241.7	846.0	262.0	2.9	131.7
	EACH-250	279.4	978.0	315.6	2.8	152.2
	EACH-260	279.4	978.0	315.6	2.8	152.2
	EACH-270	279.4	978.0	315.6	2.8	152.2
	EACH-280	279.4	978.0	315.6	2.8	152.2
	EACH-290	279.4	978.0	315.6	2.8	152.2

1- ECHA Chillers are rated based on Standard ARI-550/590-98 conditions of: 5 °C (9 °F) Inlet/Outlet Water Temperature Difference and 0.018 m^2.°C/kW (0.0001 ft^2. h.°F /Btu) Fouling Factor

2- Direct interpolation is permissible. Do not extrapolate.

3- Energy Efficiency Ratio (EER) is for the overall unit, refer to electrical data for fan power input.

PERFORMANCE DATA TABLES

LEAVING CHILLED WATER TEMP. (LCWT)	UNIT SIZE	40°C (104°F) AMBIENT TEMPERATURE				
		COOLING CAPACITY		COMP. POWER (kW)	Total EER (W/W)	WATER FLOW (m^3/h)
		RT	kW			
7°C	EACH-3	0.0	0.0	0.0	0.0	0.0
	EACH-4	0.0	0.0	0.0	0.0	0.0
	EACH-5	0.0	0.0	0.0	0.0	0.0
	EACH-7	6.3	22.0	7.8	2.3	3.4
	EACH-10	9.4	32.9	11.0	2.6	5.1
	EACH-12	11.1	38.7	13.5	2.5	6.0
	EACH-15	14.9	52.0	18.8	2.5	8.1
	EACH-20	17.5	61.2	25.4	2.2	9.5
	EACH-25	26.6	93.0	31.5	2.5	14.5
	EACH-30	28.2	98.7	35.6	2.5	15.4
	EACH-35	31.9	111.6	44.1	2.3	17.4
	EACH-40	36.9	129.2	46.6	2.5	20.1
	EACH-45	44.0	154.0	58.2	2.4	24.0
	EACH-50	52.8	184.8	62.1	2.7	28.8
	EACH-55	52.8	184.8	62.1	2.7	28.8
	EACH-60	56.1	196.2	71.1	2.5	30.5
	EACH-65	64.1	224.4	88.2	2.3	34.9
	EACH-70	64.1	224.4	88.2	2.3	34.9
	EACH-75	75.7	264.8	92.4	2.6	41.2
	EACH-80	75.7	264.8	92.4	2.6	41.2
	EACH-85	87.8	307.2	114.4	2.4	47.8
	EACH-90	87.8	307.2	114.4	2.4	47.8
	EACH-95	87.8	307.2	114.4	2.4	47.8
	EACH-100	87.8	307.2	114.4	2.4	47.8
	EACH-105	108.7	380.4	138.0	2.5	59.2
	EACH-110	108.7	380.4	138.0	2.5	59.2
	EACH-115	108.7	380.4	138.0	2.5	59.2
	EACH-120	108.7	380.4	138.0	2.5	59.2
	EACH-125	108.7	380.4	138.0	2.5	59.2
	EACH-130	135.1	472.8	166.2	2.6	73.6
	EACH-135	135.1	472.8	166.2	2.6	73.6
	EACH-140	135.1	472.8	166.2	2.6	73.6
	EACH-150	143.5	502.4	186.4	2.4	78.2
	EACH-160	143.5	502.4	186.4	2.4	78.2
	EACH-170	177.6	621.6	227.2	2.5	96.8
	EACH-180	177.6	621.6	227.2	2.5	96.8
	EACH-190	177.6	621.6	227.2	2.5	96.8
	EACH-200	182.6	639.0	228.0	2.5	99.5
	EACH-210	226.3	792.0	291.0	2.5	123.3
	EACH-220	226.3	792.0	291.0	2.5	123.3
	EACH-230	226.3	792.0	291.0	2.5	123.3
	EACH-240	226.3	792.0	291.0	2.5	123.3
	EACH-250	260.9	913.2	350.4	2.4	142.1
	EACH-260	260.9	913.2	350.4	2.4	142.1
	EACH-270	260.9	913.2	350.4	2.4	142.1
	EACH-280	260.9	913.2	350.4	2.4	142.1
	EACH-290	260.9	913.2	350.4	2.4	142.1

1- ECHA Chillers are rated based on Standard ARI-550/590-98 conditions of: 5 °C (9 °F) Inlet/Outlet Water Temperature Difference and 0.018 m^2.°C/kW (0.0001 ft^2. h.°F /Btu) Fouling Factor

2- Direct interpolation is permissible. Do not extrapolate.

3- Energy Efficiency Ratio (EER) is for the overall unit, refer to electrical data for fan power input.

PERFORMANCE DATA TABLES

LEAVING CHILLED WATER TEMP. (LCWT)	UNIT SIZE	45°C (113°F) AMBIENT TEMPERATURE				
		COOLING CAPACITY		COMP. POWER (kW)	Total EER (W/W)	WATER FLOW (m^3/h)
		RT	kW			
7°C	EACH-3	0.0	0.0	0.0	0.0	0.0
	EACH-4	0.0	0.0	0.0	0.0	0.0
	EACH-5	0.0	0.0	0.0	0.0	0.0
	EACH-7	5.9	20.6	8.6	2.0	3.2
	EACH-10	8.6	30.2	12.3	2.1	4.7
	EACH-12	10.3	35.9	15.0	2.1	5.6
	EACH-15	13.9	48.6	21.0	2.1	7.6
	EACH-20	16.6	58.2	27.4	2.0	9.1
	EACH-25	24.8	86.7	35.3	2.1	13.5
	EACH-30	26.3	92.1	39.8	2.1	14.3
	EACH-35	29.8	104.4	48.6	2.0	16.3
	EACH-40	34.2	119.6	52.0	2.1	18.6
	EACH-45	41.0	143.6	64.6	2.0	22.4
	EACH-50	48.9	171.0	69.3	2.2	26.6
	EACH-55	48.9	171.0	69.3	2.2	26.6
	EACH-60	51.6	180.6	79.5	2.1	28.1
	EACH-65	59.5	208.2	97.2	2.0	32.4
	EACH-70	59.5	208.2	97.2	2.0	32.4
	EACH-75	69.9	244.8	103.2	2.1	38.1
	EACH-80	69.9	244.8	103.2	2.1	38.1
	EACH-85	80.9	283.2	126.8	2.0	44.1
	EACH-90	80.9	283.2	126.8	2.0	44.1
	EACH-95	80.9	283.2	126.8	2.0	44.1
	EACH-100	80.9	283.2	126.8	2.0	44.1
	EACH-105	101.0	353.4	153.6	2.1	55.0
	EACH-110	101.0	353.4	153.6	2.1	55.0
	EACH-115	101.0	353.4	153.6	2.1	55.0
	EACH-120	101.0	353.4	153.6	2.1	55.0
	EACH-125	101.0	353.4	153.6	2.1	55.0
	EACH-130	125.3	438.6	184.8	2.2	68.3
	EACH-135	125.3	438.6	184.8	2.2	68.3
	EACH-140	125.3	438.6	184.8	2.2	68.3
	EACH-150	133.0	465.6	208.0	2.1	72.5
	EACH-160	133.0	465.6	208.0	2.1	72.5
	EACH-170	164.3	575.2	252.0	2.1	89.5
	EACH-180	164.3	575.2	252.0	2.1	89.5
	EACH-190	164.3	575.2	252.0	2.1	89.5
	EACH-200	170.0	595.0	254.0	2.1	92.6
	EACH-210	209.7	734.0	321.0	2.1	114.3
	EACH-220	209.7	734.0	321.0	2.1	114.3
	EACH-230	209.7	734.0	321.0	2.1	114.3
	EACH-240	209.7	734.0	321.0	2.1	114.3
	EACH-250	243.1	850.8	385.2	2.0	132.4
	EACH-260	243.1	850.8	385.2	2.0	132.4
	EACH-270	243.1	850.8	385.2	2.0	132.4
	EACH-280	243.1	850.8	385.2	2.0	132.4
	EACH-290	243.1	850.8	385.2	2.0	132.4

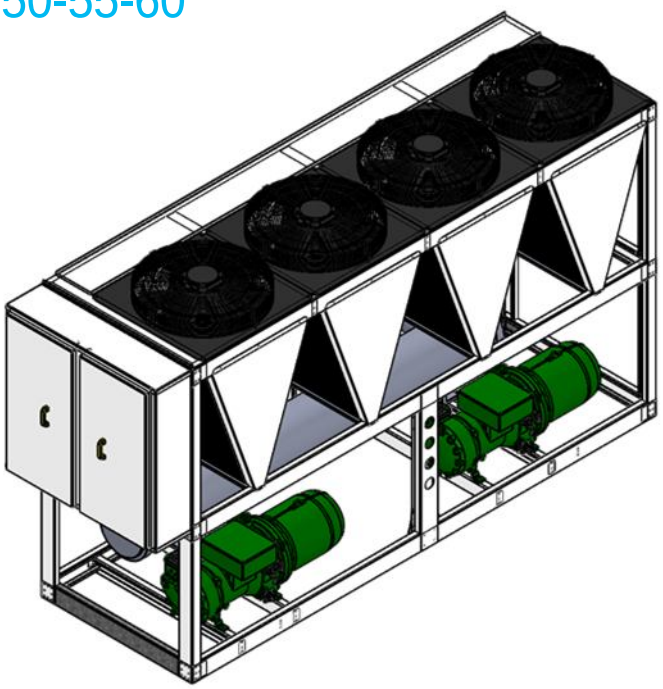
1- ECHA Chillers are rated based on Standard ARI-550/590-98 conditions of: 5 °C (9 °F) Inlet/Outlet Water Temperature Difference and 0.018 m^2.°C/kW (0.0001 ft^2. h.°F /Btu) Fouling Factor

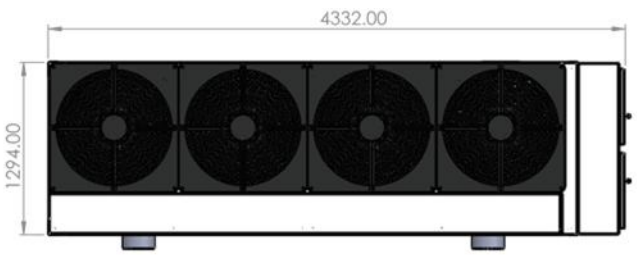
2- Direct interpolation is permissible. Do not extrapolate.

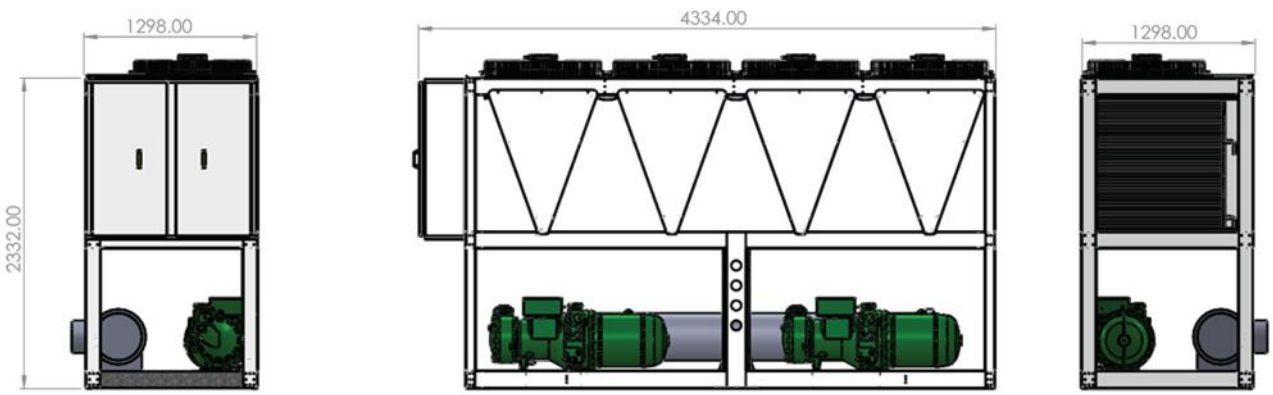
3- Energy Efficiency Ratio (EER) is for the overall unit, refer to electrical data for fan power input.

UNIT DIMENSIONS

EACH 45-50-55-60

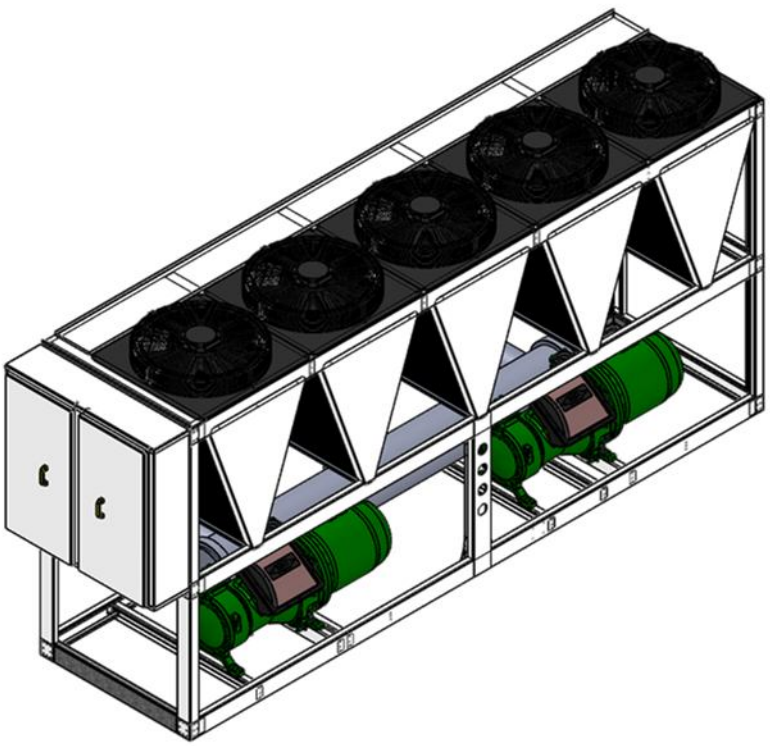


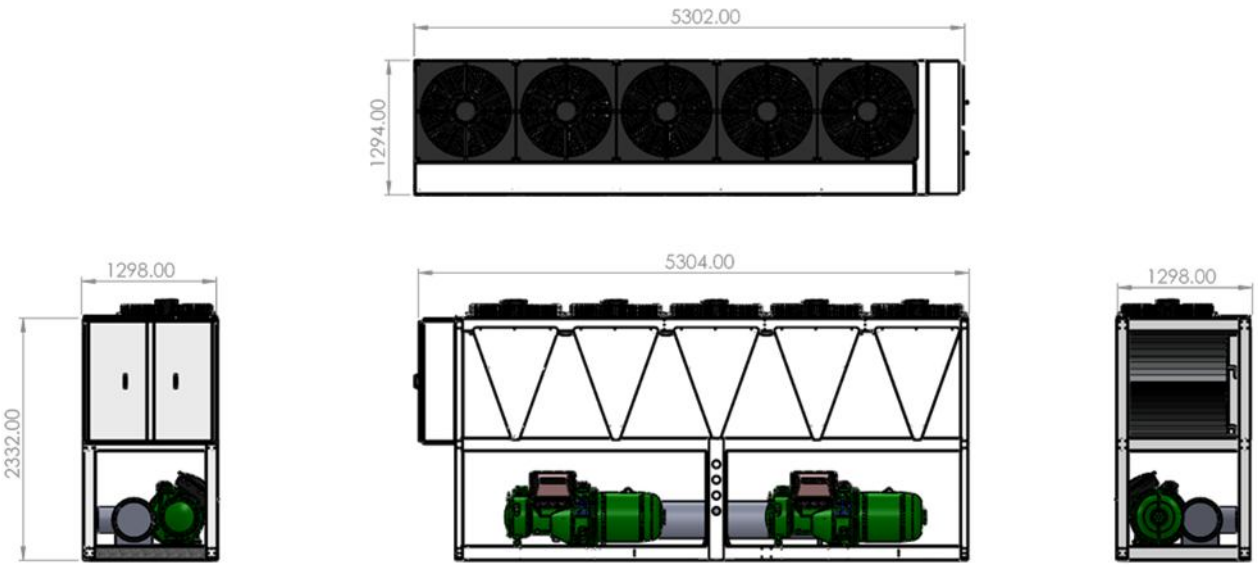




UNIT DIMENSIONS

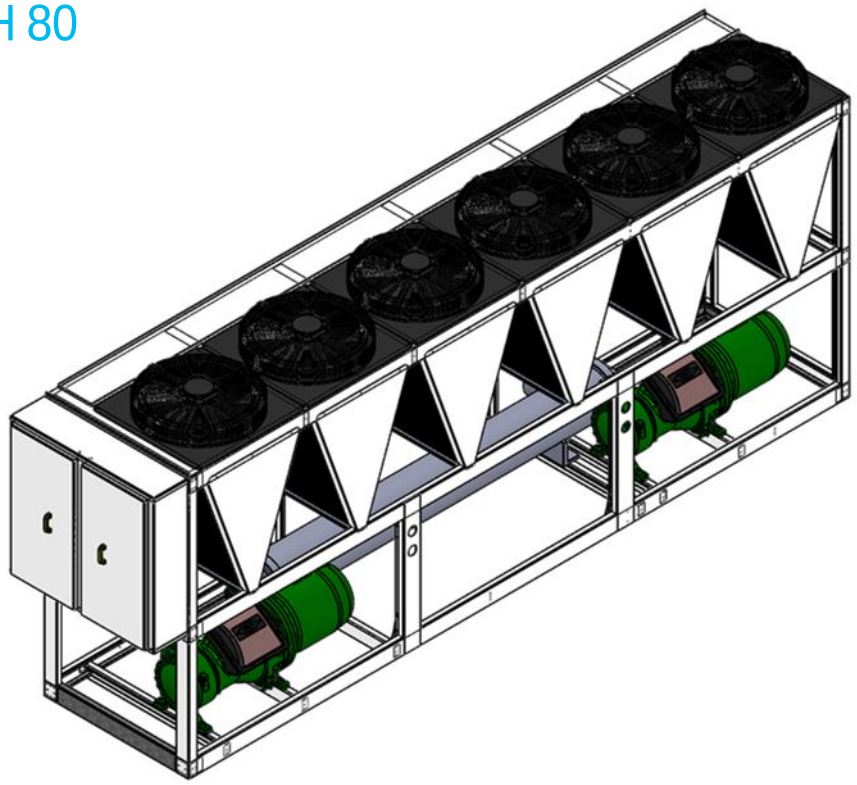
EACH 70

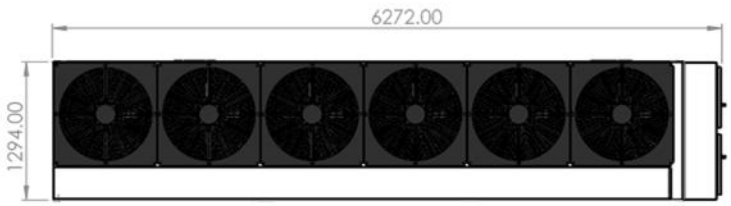


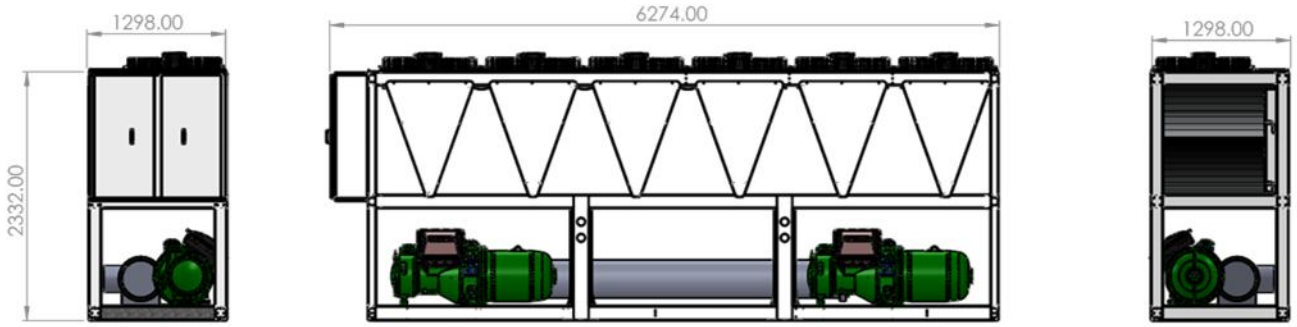


UNIT DIMENSIONS

EACH 80

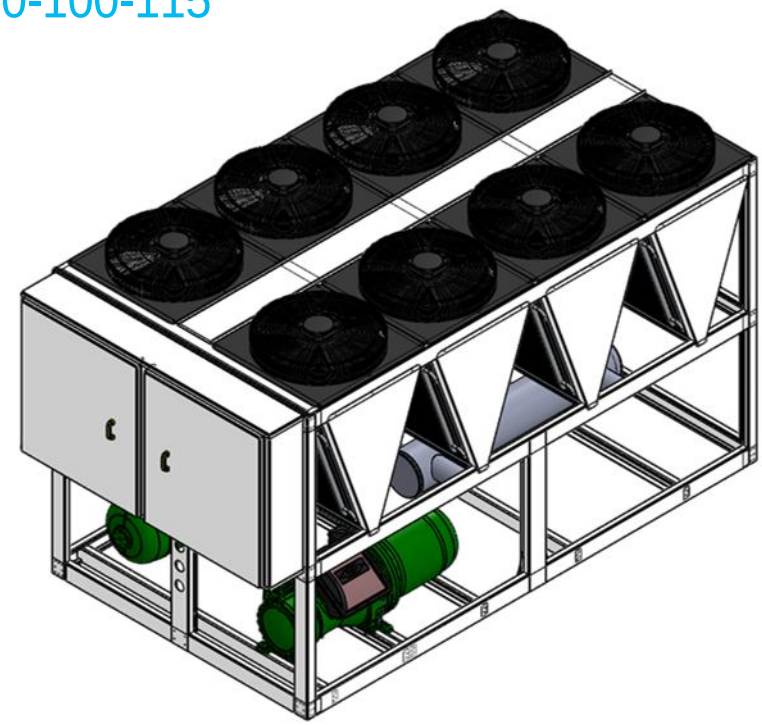


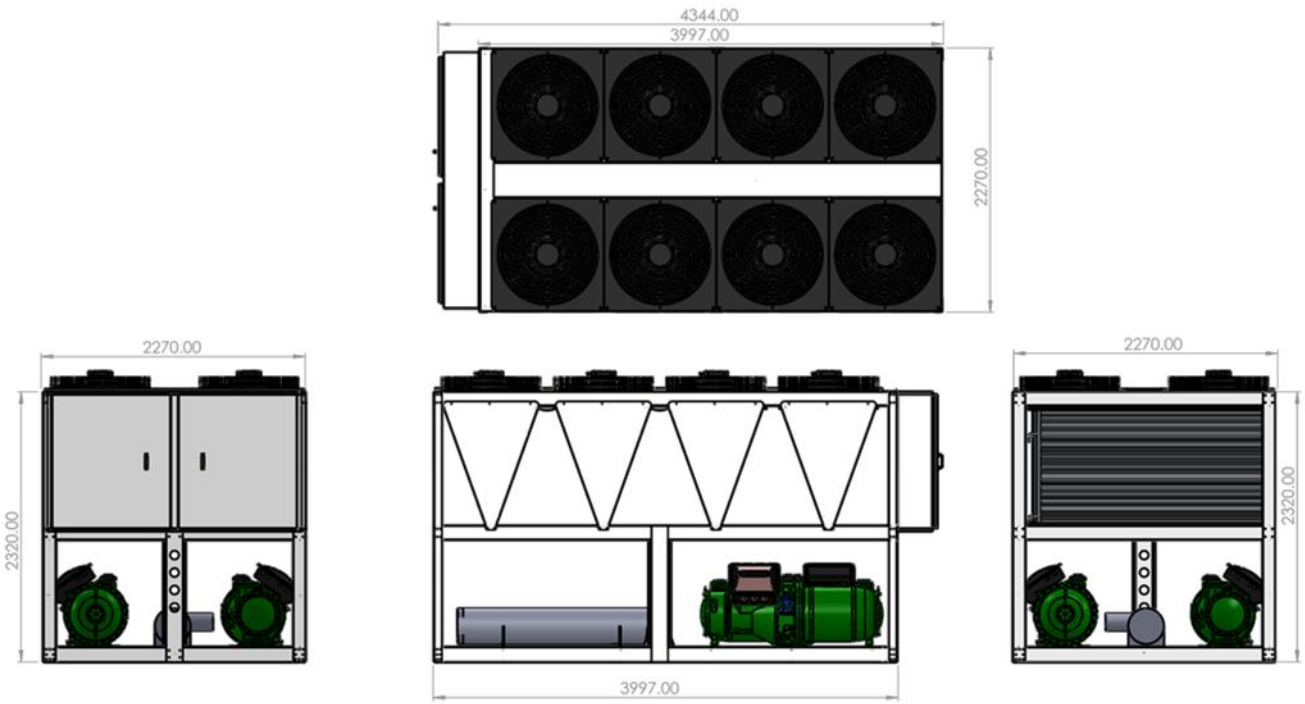




UNIT DIMENSIONS

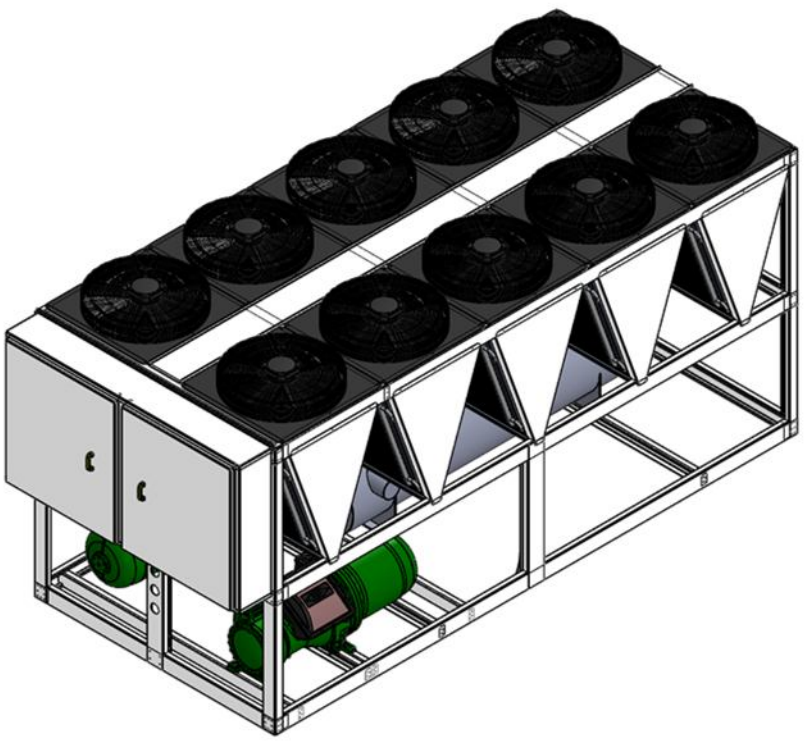
EACH 90-100-115

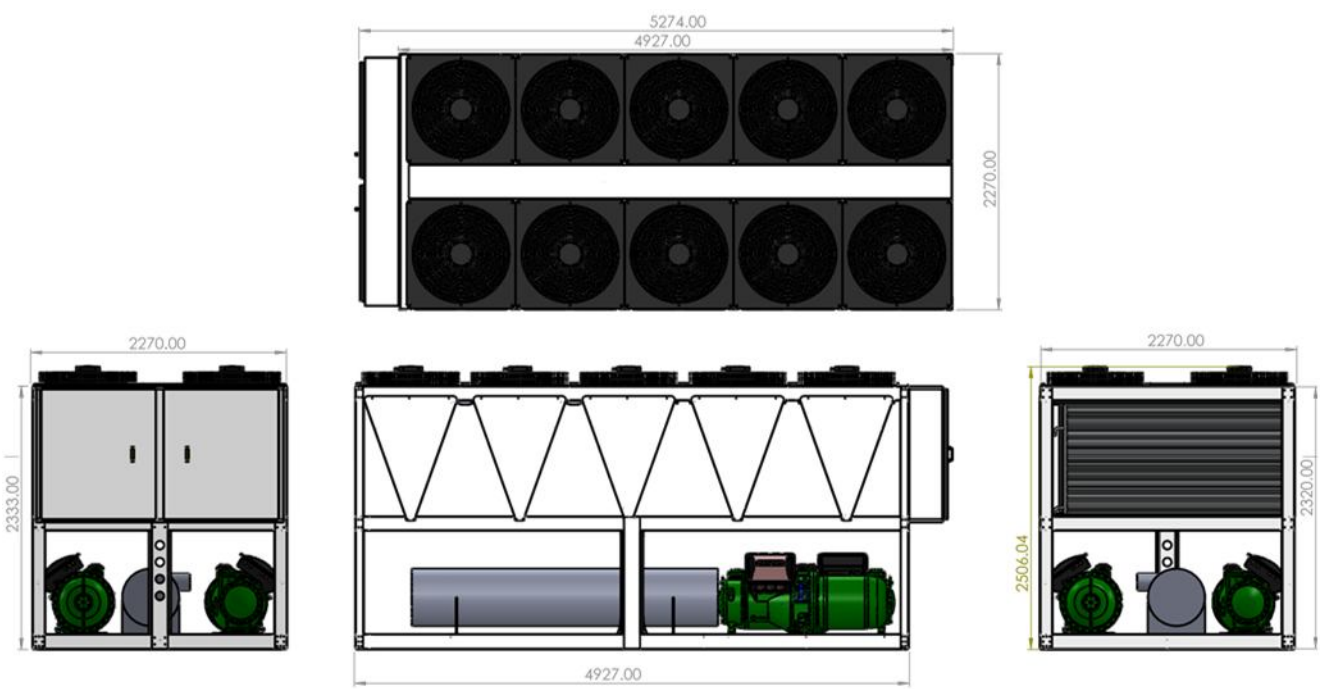




UNIT DIMENSIONS

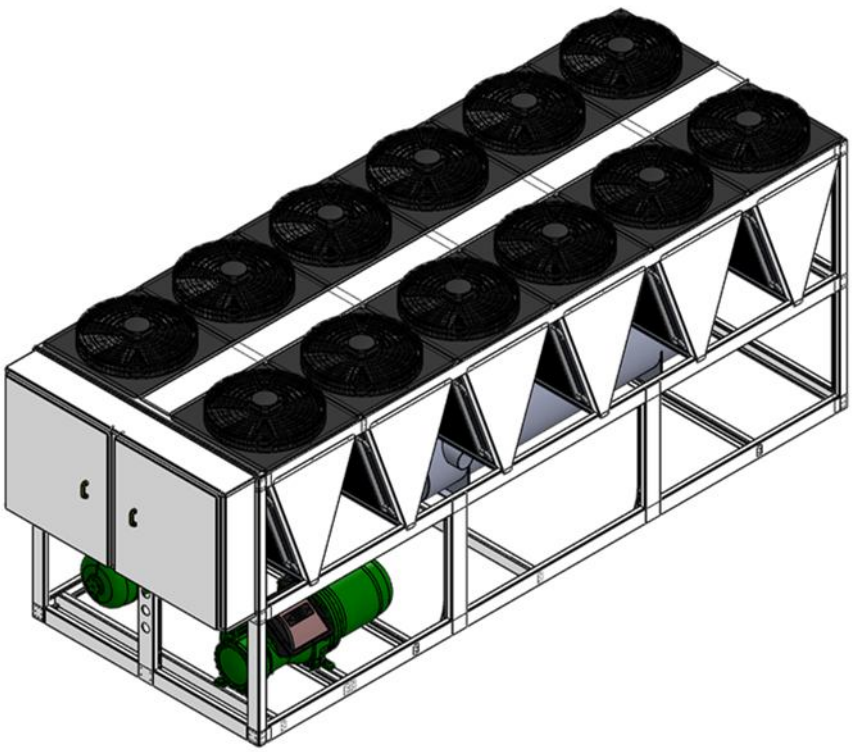
EACH 130-140-150

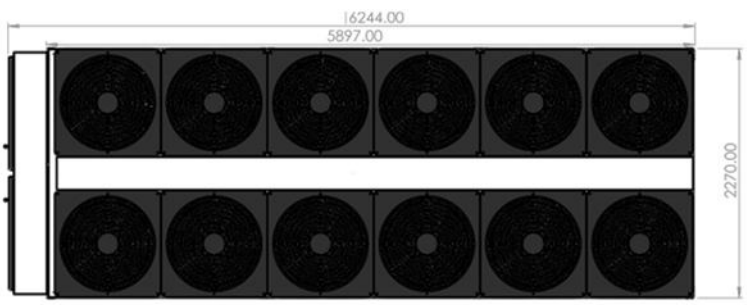


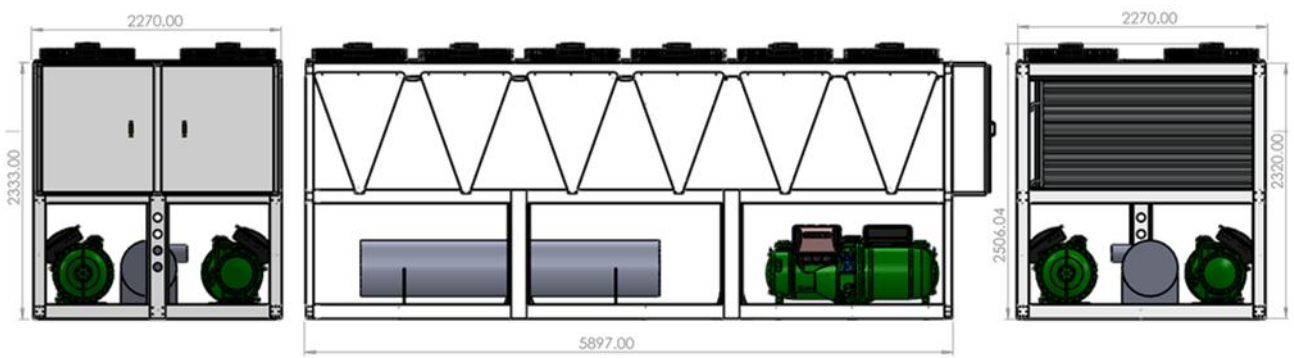


UNIT DIMENSIONS

EACH 160-170

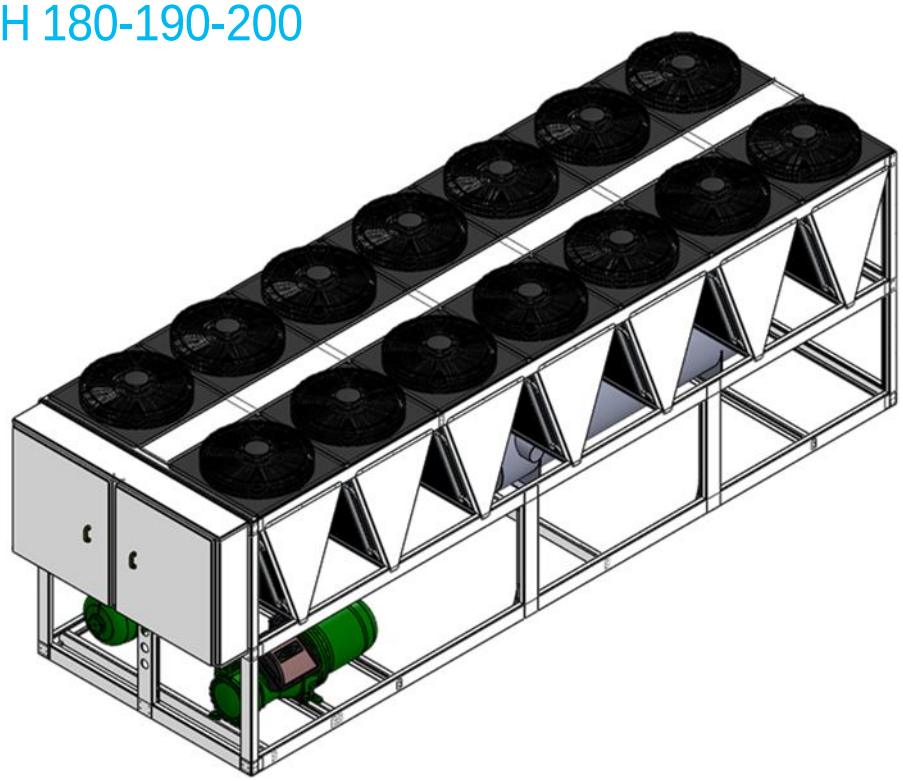


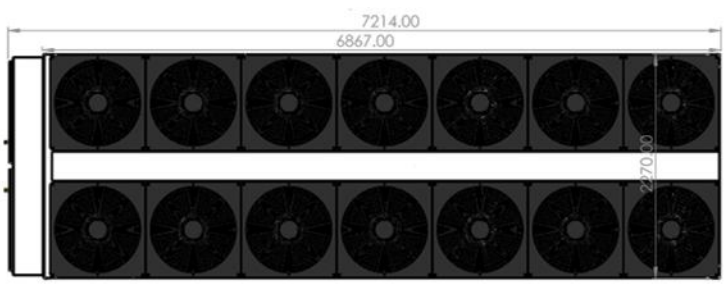


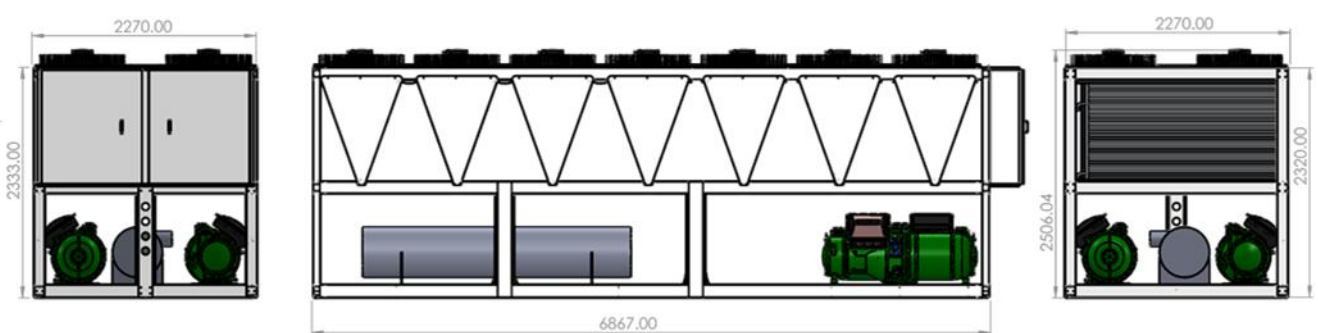


UNIT DIMENSIONS

EACH 180-190-200

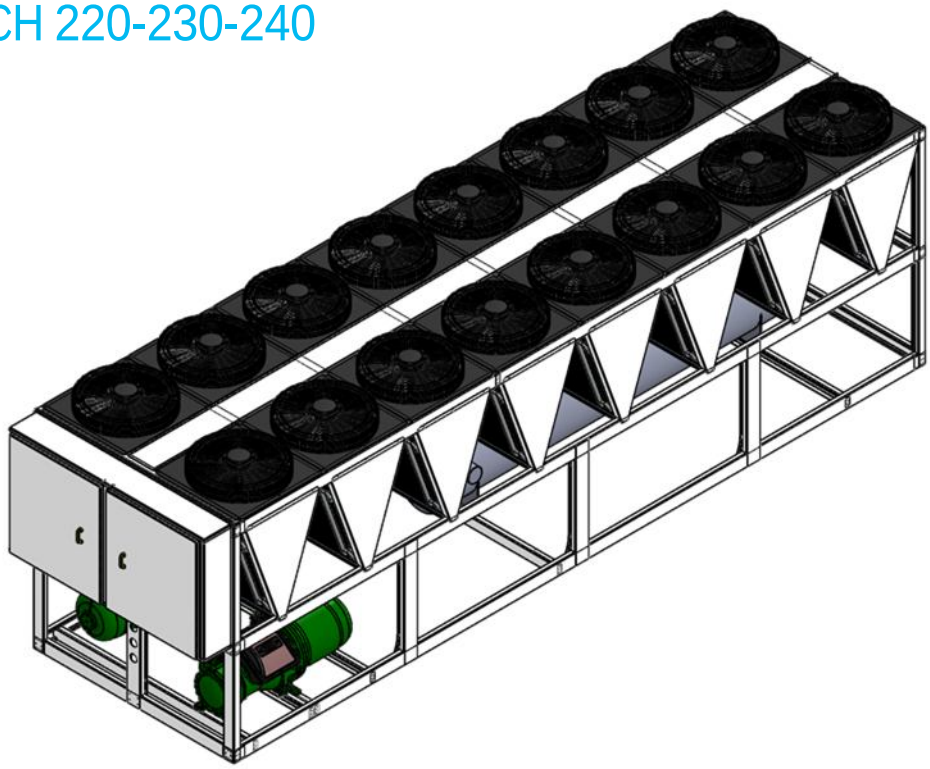


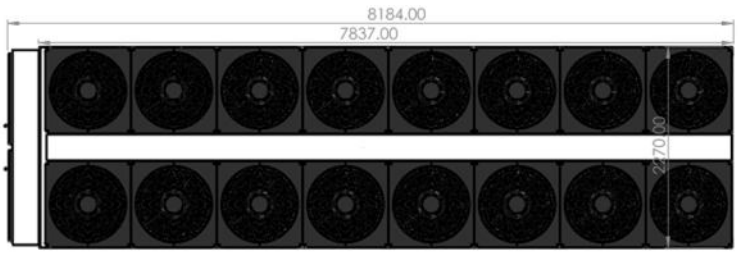


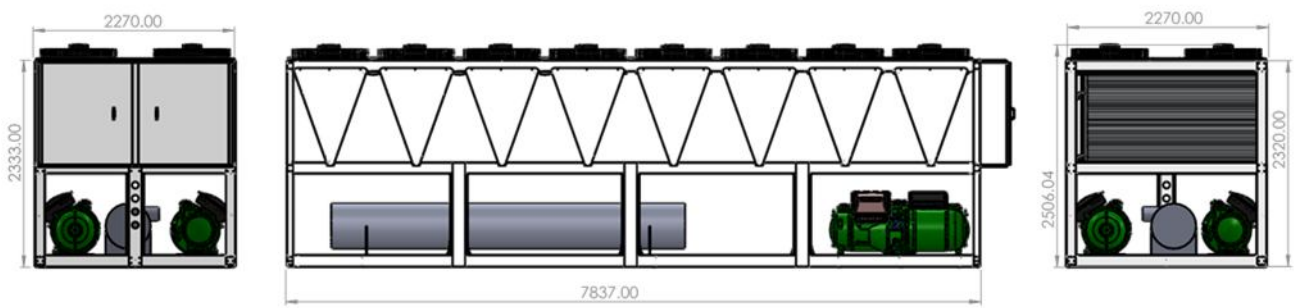


UNIT DIMENSIONS

EACH 220-230-240

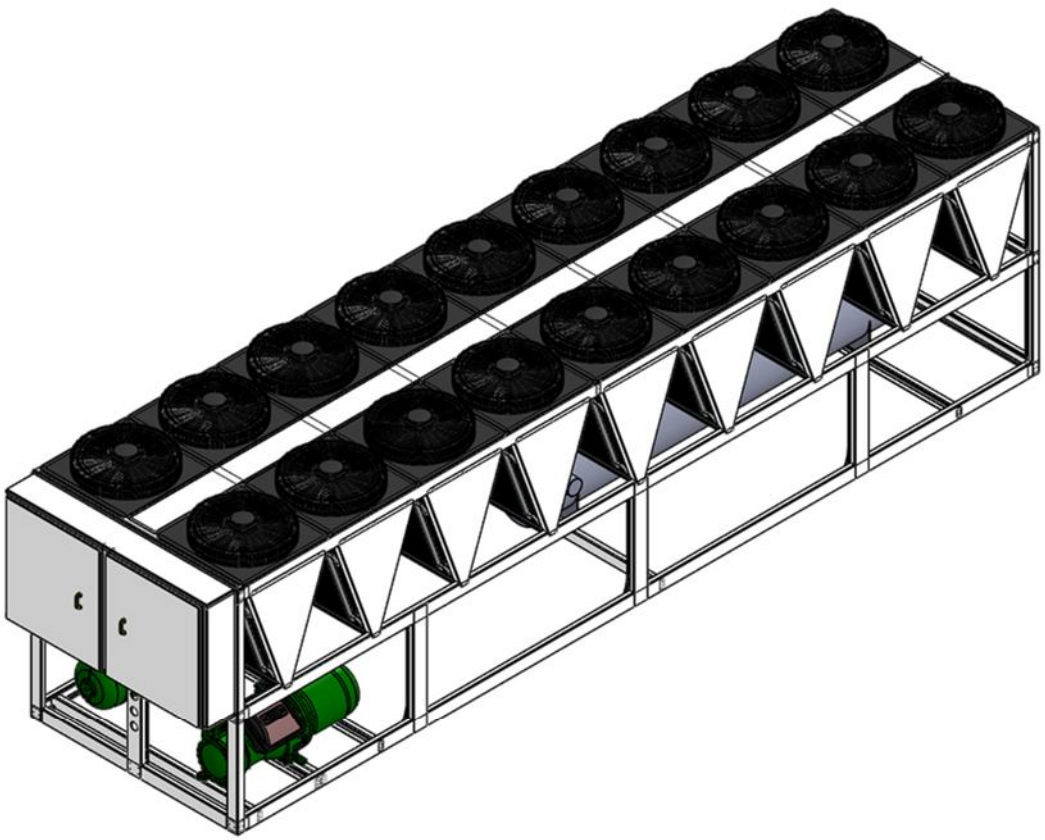


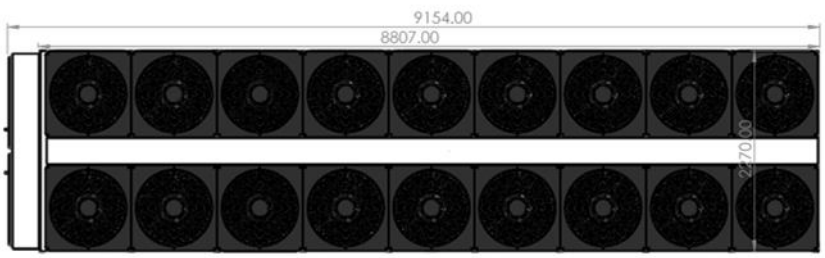


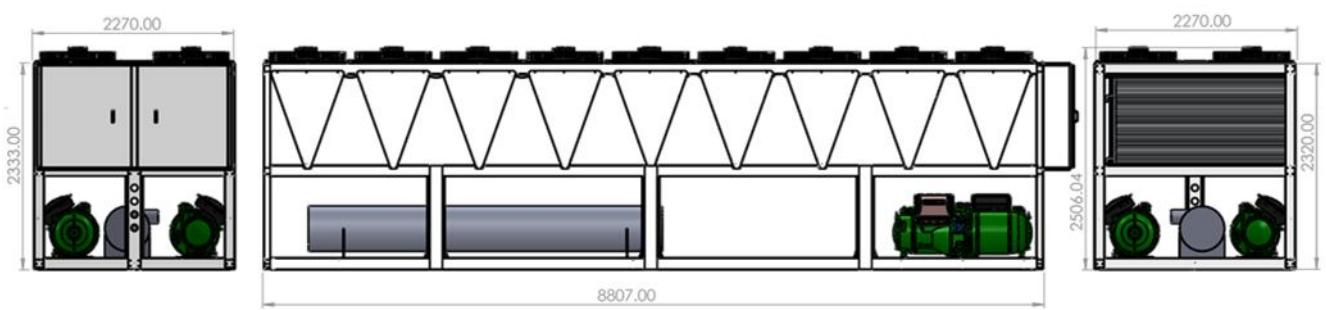


UNIT DIMENSIONS

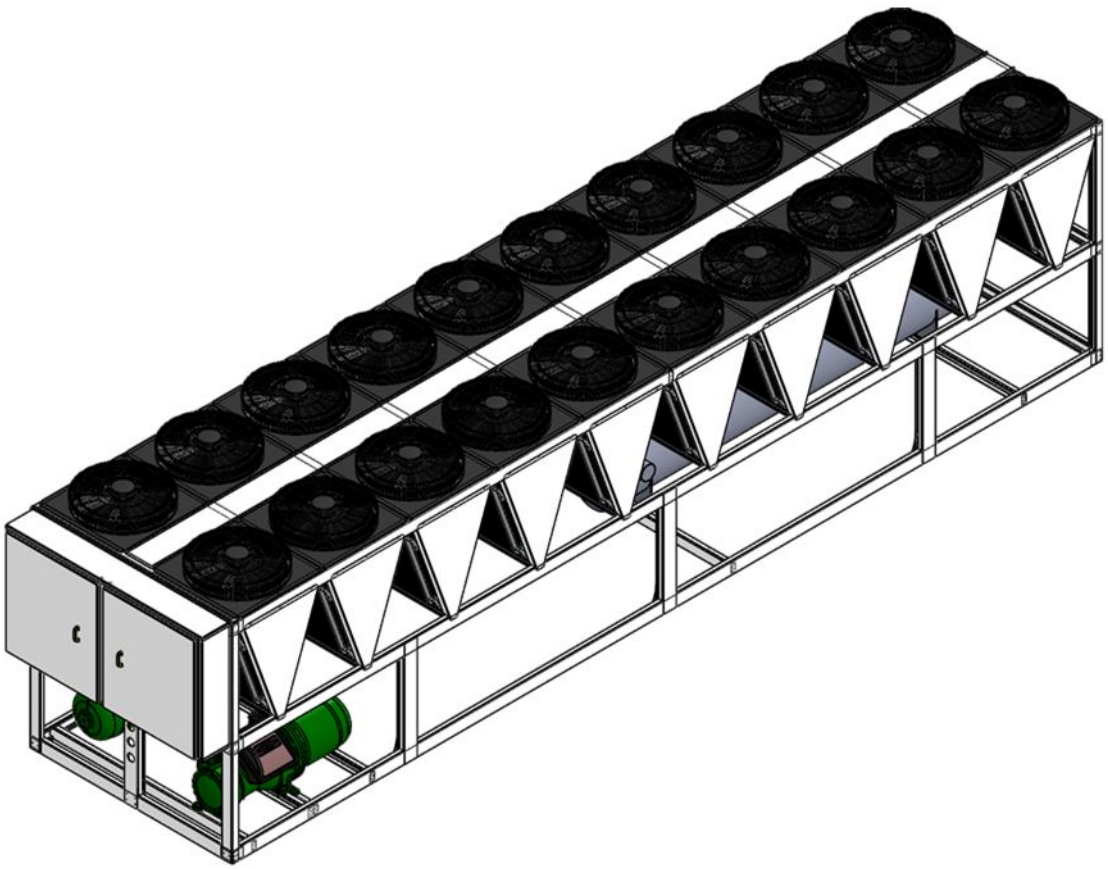
EACH 250-260-270-280

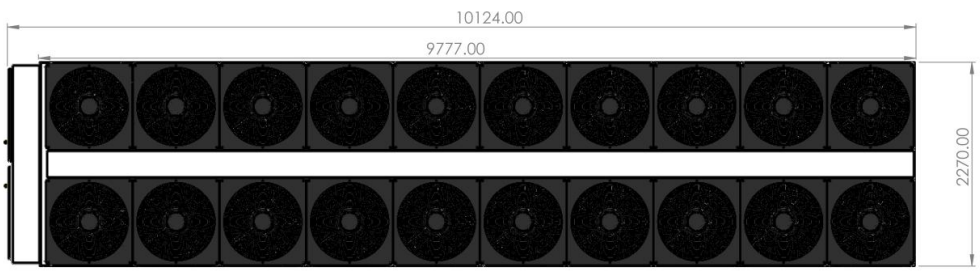


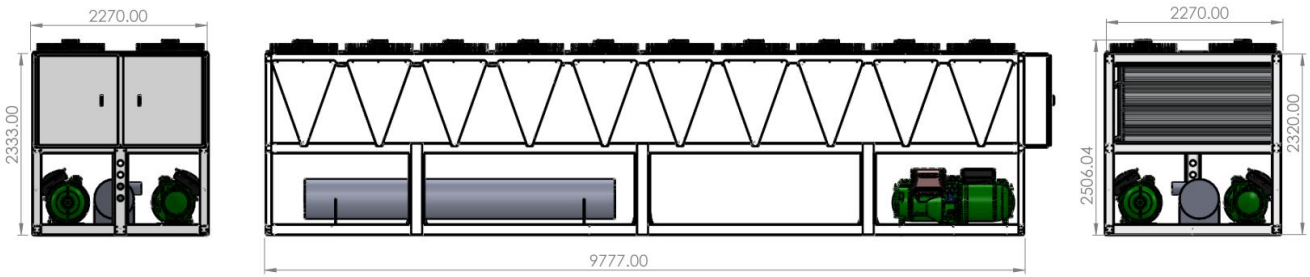




UNIT DIMENSIONS

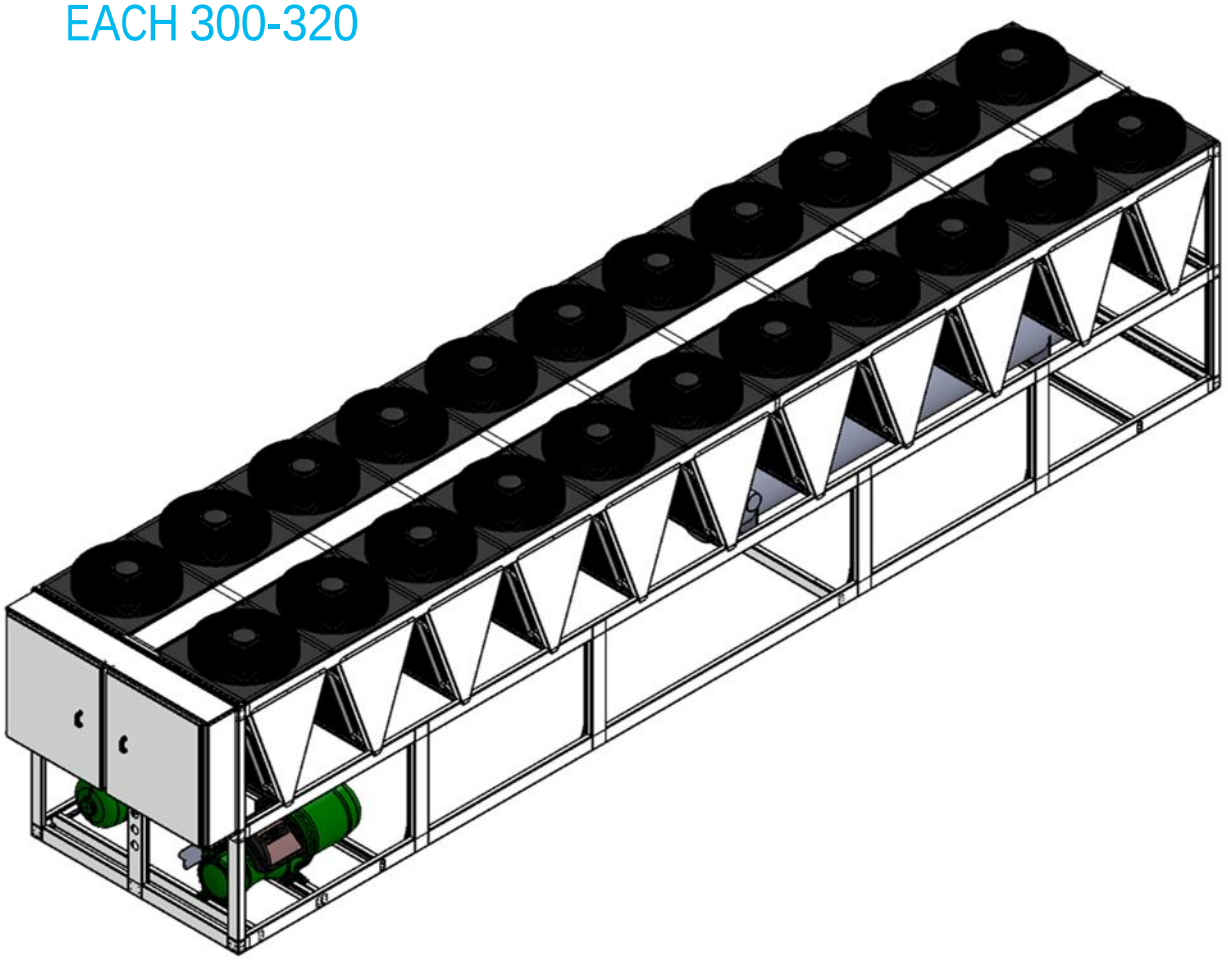


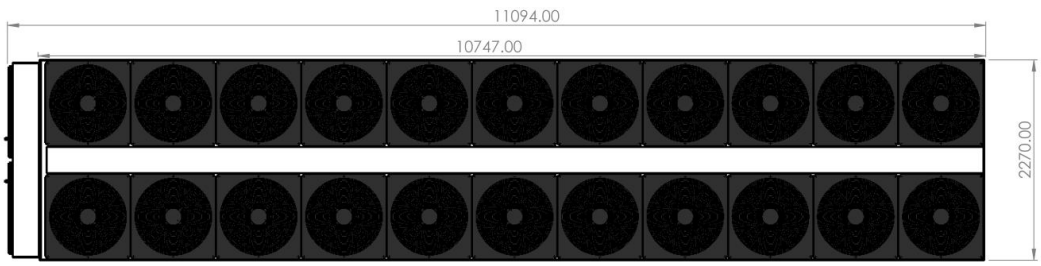


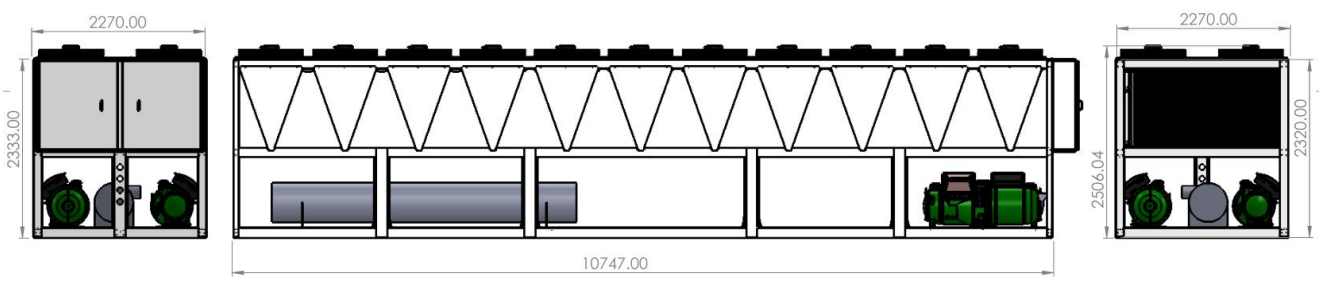


UNIT DIMENSIONS

EACH 300-320

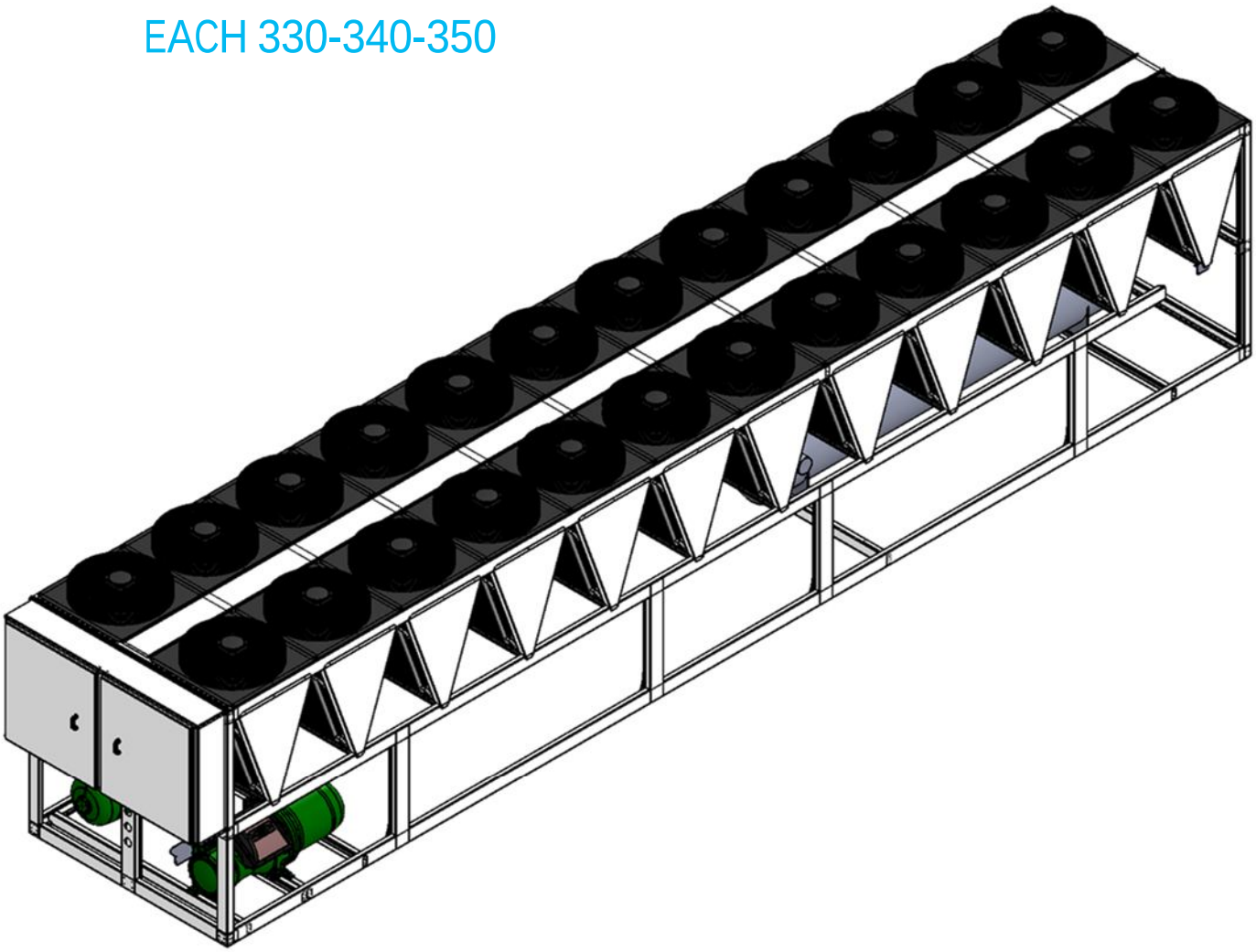


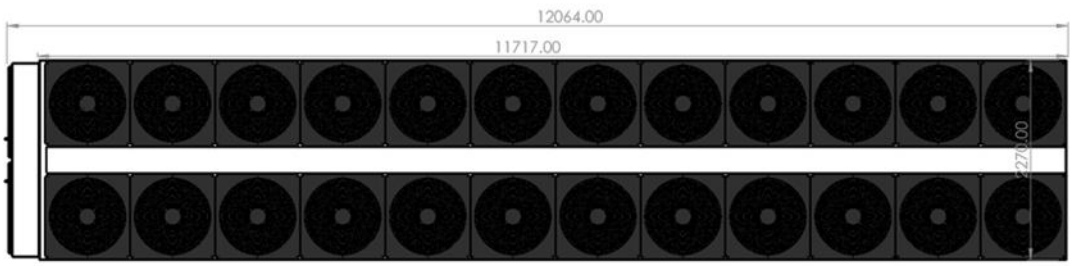


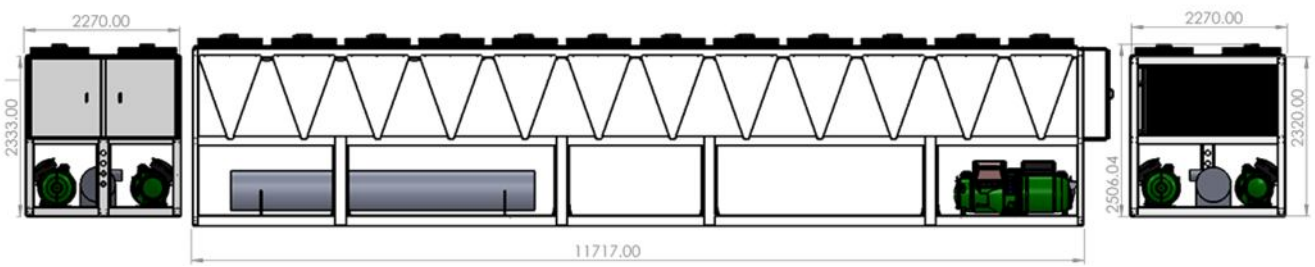


UNIT DIMENSIONS

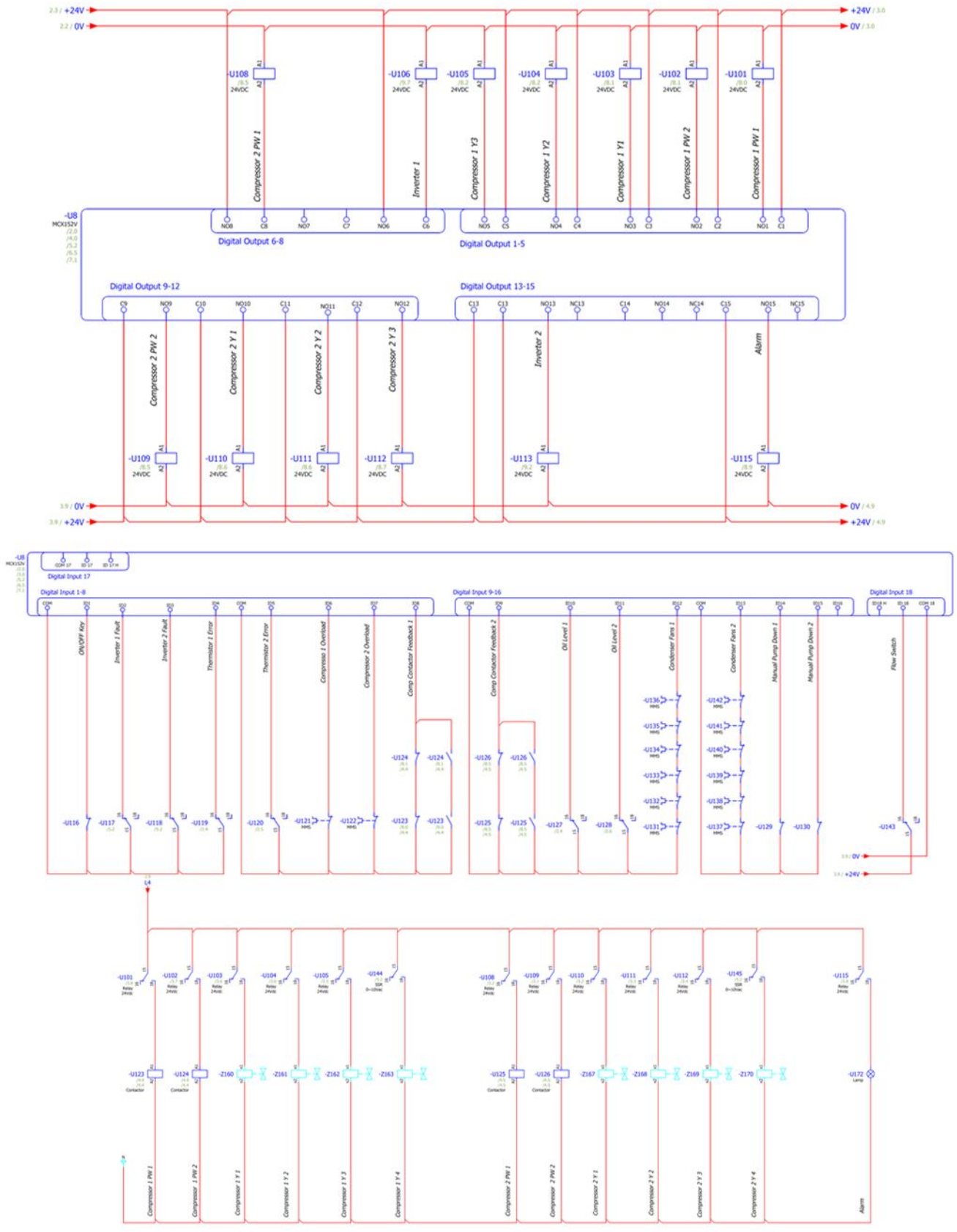
EACH 330-340-350



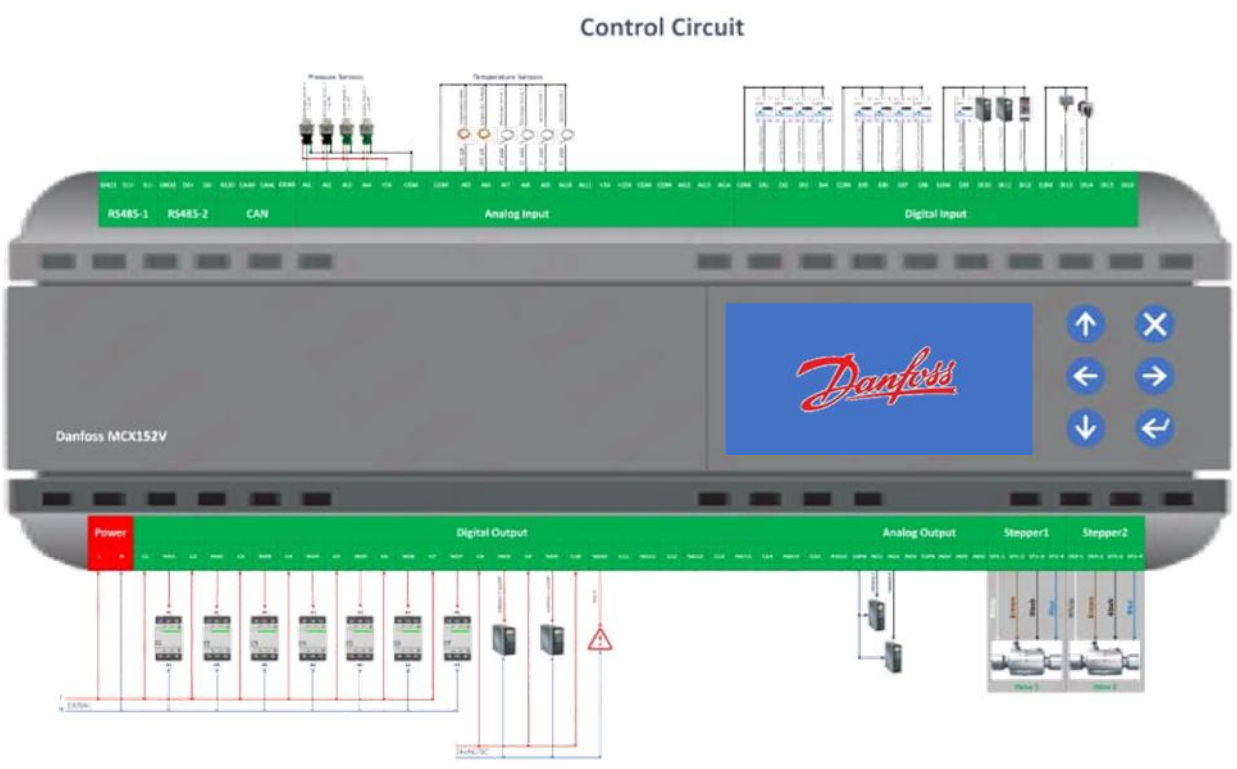


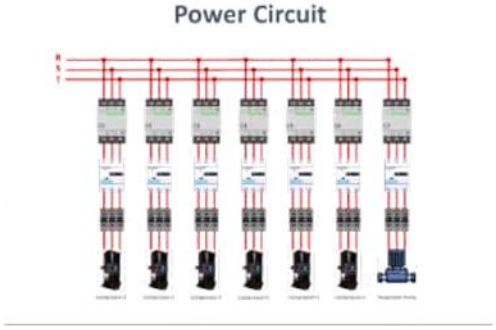


Typical electrical wiring diagram



TYPICAL WIRING DIAGRAM





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