

R134a

ECO COOLER

AIR COOLED CHILLER

STANDARD MODEL

50Hz

150 kW – 2000 kW

WITH ECONOMIZER

2022

ECO COOLER
AIR CONDITIONER

MULTI STAGE EVAPORATIVE COOLING

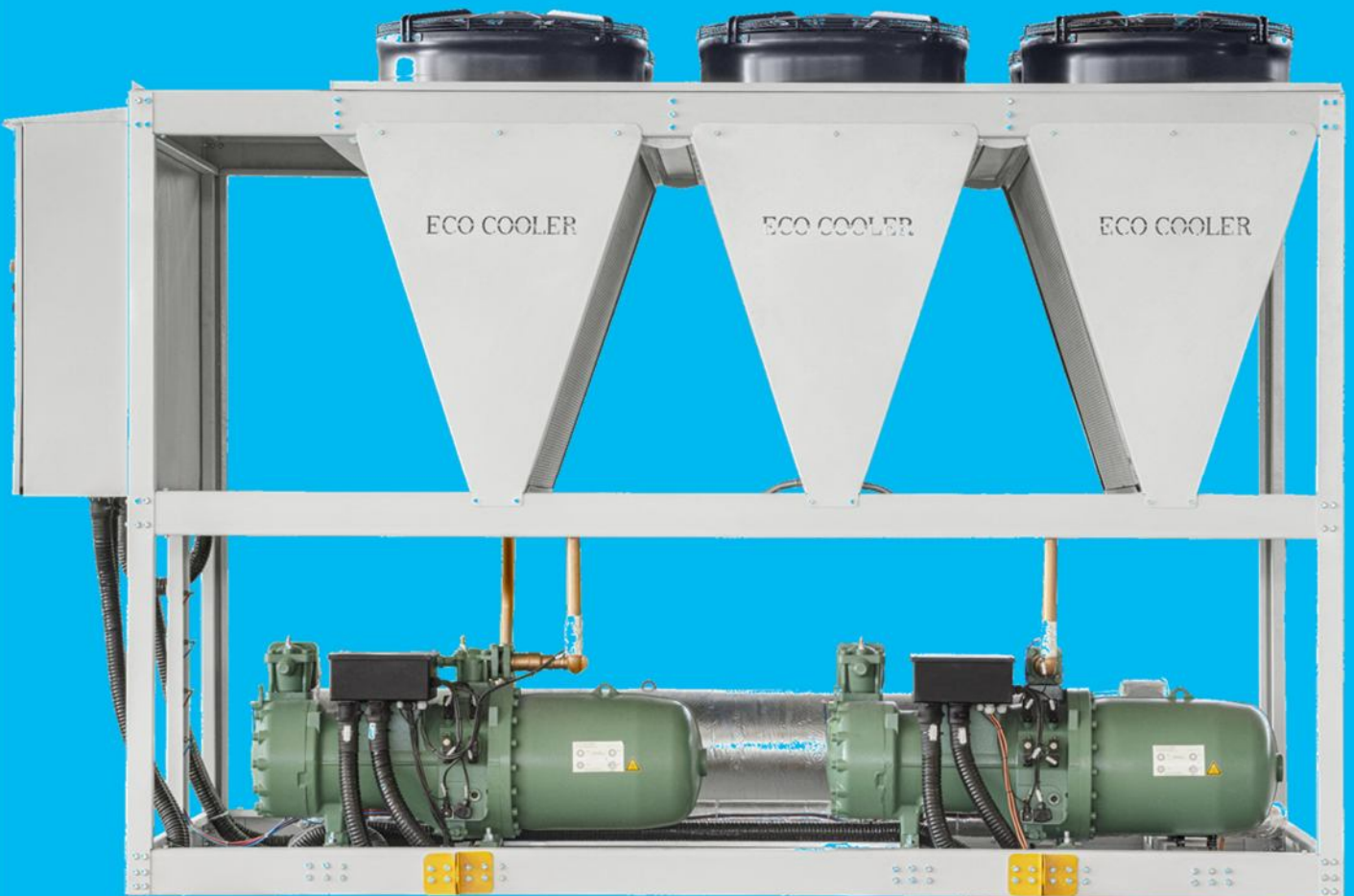




Special Public places
Commercial, Office, Hospital, Restaurant,
Coffee shop & Etc .

ECO COOLER

AIR CONDITIONER





ECO COOLER

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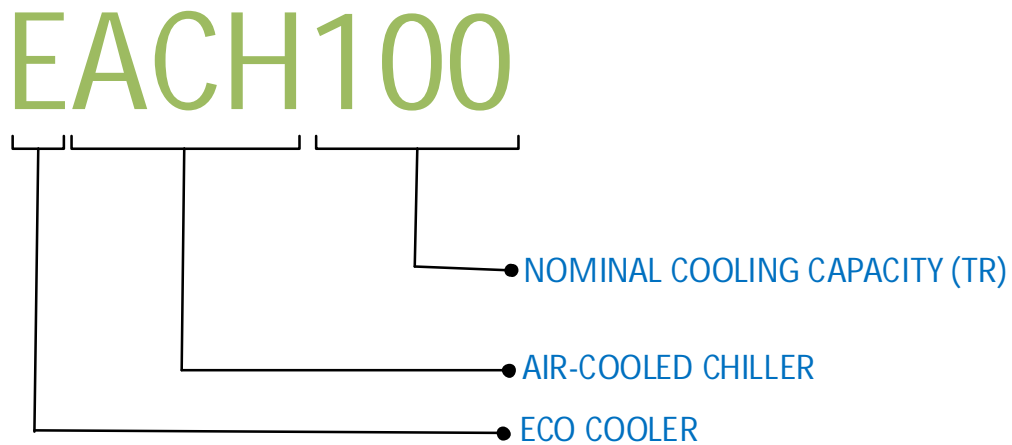
INTRODUCTION

Eco Cooler connection with customer 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

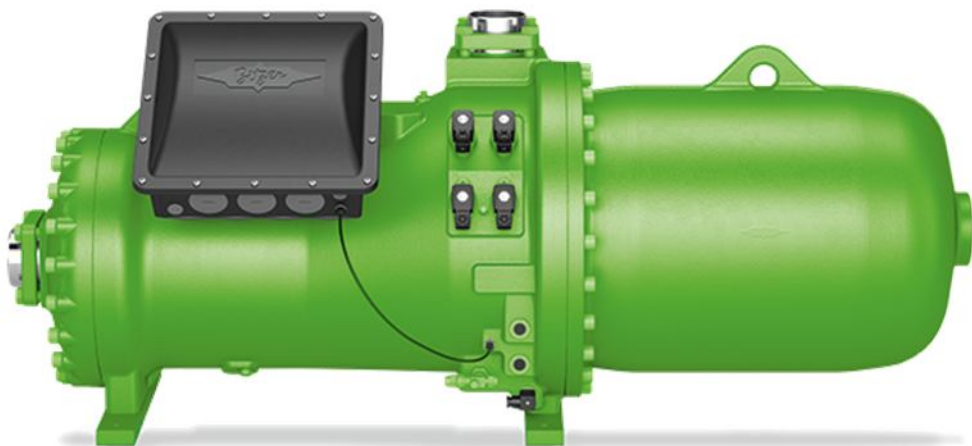
- Optimized energy efficiency both at full and part load conditions
- Low operating sound levels are achieved by the latest compressor and fan design
- Stepped and Stepless screw compressor with professional control system to minimize energy consumption and optimize the unit performance.
- Compact design 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

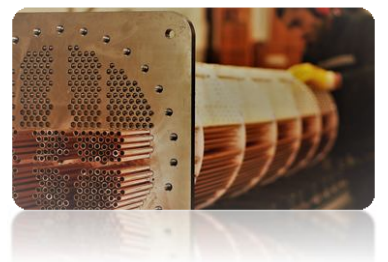
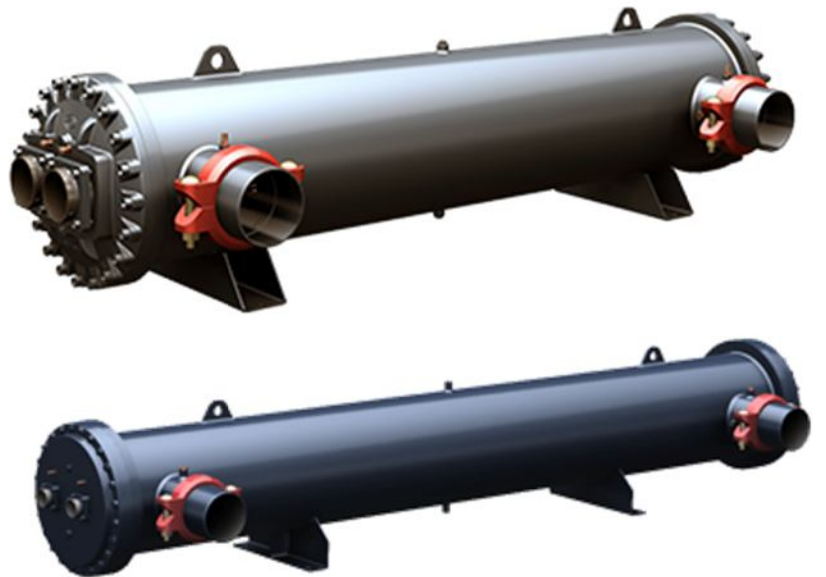
EACH compressors features mechanical capacity control, which enables very good efficiency and simple system integration. It features mechanical capacity control, which enables very good efficiency and simple system integration. Screw Compressors are equipped to solenoid valve for stepped or stepless 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.

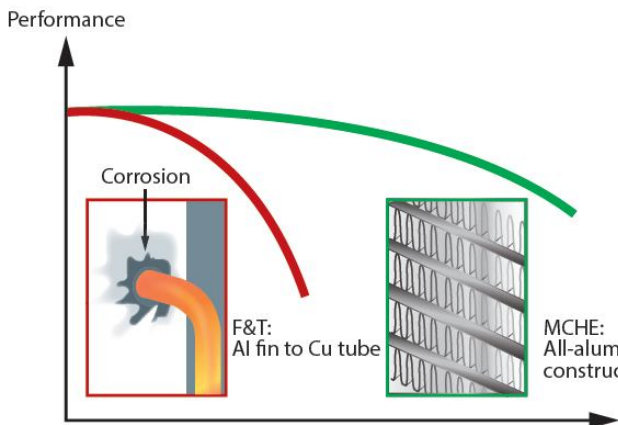
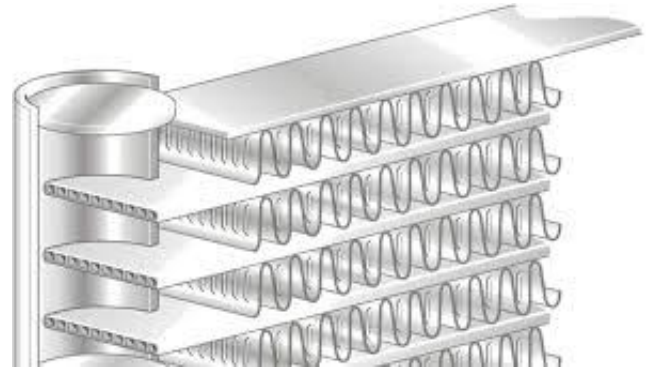
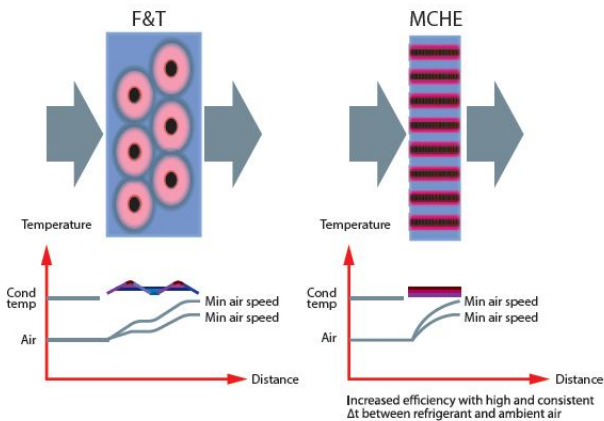


STANDARD SPECIFICATIONS

CONDENSERS COIL

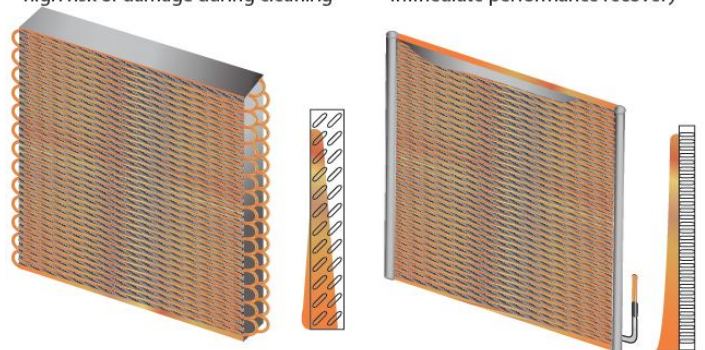
The condenser coils are built up microchannel technology. Integral NOCOLOK brazing low contact resistance improve the heat transfer performance perfectly. AL-AL structure without electric potential difference makes high corrosion resistance. The advantages of microchannel condensers over finned-tube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



F&T
dust removal difficult - heat transfer loss
high risk of damage during cleaning

MCHE
dust removal easy
immediate performance recovery



STANDARD SPECIFICATIONS

CONDENSER FAN

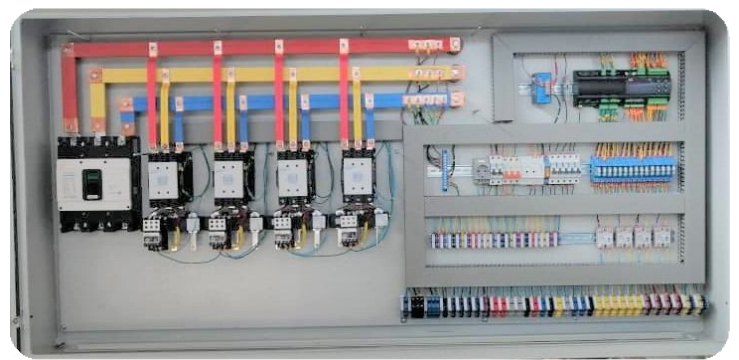
Direct drive vertical discharge condenser fans are dynamically balanced. Totally enclosed air over motors completely seal the motor windings to prevent exposure to ambient conditions. Three-phase condenser fan motors with permanently lubricated ball bearings and internal thermal overload protection are 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)		45	50	55	60	70	80	90	100	115	130	140	150
COOLING CAPACITY*	RT	46.5	52.9	52.9	62.6	75.4	78.6	92.9	106.6	112.9	133.1	149.1	149.1
	kW	162.6	185.1	185.1	219.0	264.0	275.0	325.0	373.0	395.0	466.0	522.0	522.0
POWER INPUT (kW)		45.2	54.2	54.2	58.4	76.4	88.2	90.3	108.6	123.4	131.1	152.3	152.3
TOTAL EER (W/W)		3.2	3.1	3.1	3.3	3.1	2.9	3.2	3.1	2.9	3.2	3.1	3.1
COMPRESSOR		Semi Hermetic Compact Screw											
QUANTITY (No.)		1						2					
OIL GRADE		BSE170 Or Equivalent											
OIL CHARGE PER COMPRESSOR (Liter)		14	14	14	14	21	28	28	28	42	42	42	42
CAPACITY CONTROL (%) (STEPPED)		100-25											
CONDENSER TYPE		MICRO CHANNEL											
CONDENSER QTY (No.)		6	6	6	8	8	8	12	12	12	8	8	8
TOTAL FACE AREA (m ²)		6	6	6	8	8	8	12	12	12	16	16	16
CONDENSER FAN		Propeller Direct Driven , 800mm dia , 920 rpm											
FAN QTY (No.)		3	3	3	4	4	4	6	6	6	8	8	8
AIR FLOW RATE (m ³ /h)		67500	67500	67500	90000	90000	90000	135000	135000	135000	180000	180000	180000
MOTOR POWER FAN (kW)		5.7	5.7	5.7	7.6	7.6	7.6	11.4	11.4	11.4	15.2	15.2	15.2
EVAPORATOR		Direct Expansion Shell & Tube											
EVAPORATOR QTY (No.)		1	1	1	1	1	1	1	1	1	1	1	1
WATER FLOW RATE (m ³ /h)		25.3	28.8	28.8	34.1	41.1	42.8	50.6	58.1	61.5	72.5	81.3	81.3
WATER VOLUME PER COOLER (Liter)		128	128	128	172	172	167	167	167	166	160	277	277
WATER CONNECTION SIZE (IN /OUT) DIAMETER (mm)		125	125	125	150	150	150	150	150	150	150	150	150
EXPANSION VALVE		Electronic											
POWER REQUIREMENT		400V/3PH/50Hz											
ECONOMIZER EXPANSION DEVICE		Thermostatic											
ECONOMIZER		Braze Plate Heat Exchanger											
ECONOMIZER LOAD (kW)		17.5	25.1	25.1	22.4	34.3	41.0	35.1	50.1	66.9	63.0	68.5	68.5
REFRIGERATION CIRCUITS (No.)		1						2					
APPROXIMATE WEIGHT (kg)		1258	1268	1268	1538	1853	2048	2348	2393	3023	3180	3370	3370
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	2.27	2.27	2.27
	LENGTH (m)	2.91	2.91	2.91	3.88	3.88	3.88	5.82	5.82	5.82	3.88	3.88	3.88

*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 m².°C/kW (0.0001 ft². h.°F /Btu) Fouling Factor

TECHNICAL DATA

UNIT MODEL (EACH)		160	170	180	190	200	220	230	240	250	260	270	280
COOLING CAPACITY*	RT	167.1	167.1	187.7	187.7	196.0	222.6	222.6	253.7	253.7	253.7	296.0	296.0
	kW	585.0	585.0	657.0	657.0	686.0	779.0	779.0	888.0	888.0	888.0	1036.0	1036.0
POWER INPUT (kW)		168.4	168.4	195.4	195.4	193.9	229.0	229.0	254.0	254.0	254.0	293.0	293.0
TOTAL EER (W/W)		3.1	3.1	3.1	3.1	3.2	3.1	3.1	3.2	3.2	3.2	3.2	3.2
COMPRESSOR		Semi Hermetic Compact Screw											
QUANTITY (No.)		2											
OIL GRADE		BSE170 Or Equivalent											
OIL CHARGE PER COMPRESSOR (Liter)		18	18	18	18	29	29	29	29	29	29	29	29
CAPACITY CONTROL (%) (STEPPED)		100-25											
CONDENSER TYPE		MICRO CHANNEL											
CONDENSER QTY (No.)		10	10	10	10	12	12	12	14	14	14	16	16
TOTAL FACE AREA (m ²)		20	20	20	20	24	24	24	28	28	28	32	32
CONDENSER FAN		Propeller Direct Driven , 800mm dia , 920 rpm											
FAN QTY (No.)		10	10	10	10	12	12	12	14	14	14	16	16
AIR FLOW RATE (m ³ /h)		225000	225000	225000	225000	270000	270000	270000	315000	315000	315000	360000	360000
MOTOR POWER FAN (kW)		19	19	19	19	22.8	22.8	22.8	26.6	26.6	26.6	30.4	30.4
EVAPORATOR		Direct Expansion Shell & Tube											
EVAPORATOR QTY (No.)		1											
WATER FLOW RATE (m ³ /h)		91.1	91.1	102.3	102.3	106.8	121.3	121.3	138.2	138.2	138.2	161.3	161.3
WATER VOLUME PER COOLER (Liter)		270	270	252	252	252	240	240	455	455	455	433	433
WATER CONNECTION SIZE (IN/OUT) DIAMETER (mm)		150	150	150	150	150	150	150	200	200	200	200	200
EXPANSION VALVE		Electronic											
POWER REQUIREMENT		400V/3PH/50Hz											
ECONOMIZER EXPANSION DEVICE		Thermostatic											
ECONOMIZER		Braze Plate Heat Exchanger											
ECONOMIZER LOAD (kW)		75	75	82	82	93	102	102	101	101	101	118	118
REFRIGERATION CIRCUITS (No.)		2											
APPROXIMATE WEIGHT (kg)		3657	3657	3685	3685	4779	4779	4779	5363	5363	5363	5718	5718
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)	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	4.85	5.82	5.82	5.82	6.79	6.79	6.79	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 m².°C/kW (0.0001 ft². h.°F /Btu) Fouling Factor

TECHNICAL DATA

UNIT MODEL (EACH)		300	320	330	340	350	360	380	400	420	430	440	450
COOLING CAPACITY*	RT	296.0	334.0	334.0	334.0	360.9	360.9	390.9	390.9	437.1	437.1	437.1	448.3
	kW	1036.0	1169.0	1169.0	1169.0	1263.0	1263.0	1368.0	1368.0	1530.0	1530.0	1530.0	1569.0
POWER INPUT (kW)		293.0	327.0	327.0	327.0	370.0	370.0	392.0	392.0	426.9	426.9	426.9	423.6
TOTAL EER (W/W)		3.2	3.2	3.2	3.2	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.3
COMPRESSOR		Semi Hermetic Compact Screw											
QUANTITY (No.)		2						3					
OIL GRADE		BSE170 Or Equivalent											
OIL CHARGE PER COMPRESSOR (Liter)		29	29	29	29	31	31	31	31	29	29	29	29
CAPACITY CONTROL (%) (STEPPED)		100-25											
CONDENSER TYPE		MICRO CHANNEL											
CONDENSER QTY (No.)		16	18	18	18	20	20	22	22	24	24	24	27
TOTAL FACE AREA (m ²)		32	36	36	36	40	40	44	44	48	48	48	54
CONDENSER FAN		Propeller Direct Driven , 800mm dia , 920 rpm											
FAN QTY (No.)		16	18	18	18	20	20	22	22	24	24	24	27
AIR FLOW RATE (m ³ /h)		360000	405000	405000	405000	450000	450000	495000	495000	540000	540000	540000	607500
MOTOR POWER FAN (kW)		30.4	34.2	34.2	34.2	38	38	41.8	41.8	45.6	45.6	45.6	51.3
EVAPORATOR		Direct Expansion Shell & Tube											
EVAPORATOR QTY (No.)		1											
WATER FLOW RATE (m ³ /h)		161.3	182.0	182.0	182.0	196.6	196.6	212.9	212.9	238.2	238.2	238.2	244.2
WATER VOLUME PER COOLER (Liter)		433	440	440	440	430	430	590	590	700	700	700	700
WATER CONNECTION SIZE (IN /OUT) DIAMETER (mm)		200	200	200	200	200	200	250	250	250	250	250	250
EXPANSION VALVE		Electronic											
POWER REQUIREMENT		400V/3PH/50Hz											
ECONOMIZER EXPANSION DEVICE		Thermostatic											
ECONOMIZER		Braze Plate Heat Exchanger											
ECONOMIZER LOAD (kW)		118.4	117.5	117.5	117.5	127.9	127.9	124.1	124.1	174.3	174.3	174.3	168.3
REFRIGERATION CIRCUITS (No.)		2						3					
APPROXIMATE WEIGHT (kg)		5718	6062	6062	6062	6516	6516	7011	7011	7325	7325	7325	8997
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)	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)	7.76	8.73	8.73	8.73	9.7	9.7	10.67	10.67	11.64	11.64	11.64	13.095

*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 m².°C/kW (0.0001 ft². 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-45	48.2	168.6	36	4	26.2
	EACH-50	55.1	192.7	48.7	3.5	30
	EACH-55	55.1	192.7	48.7	3.5	30
	EACH-60	64.9	227	52.4	3.8	35.3
	EACH-70	78.6	275	68.2	3.6	42.8
	EACH-80	82	287	79.1	3.3	44.7
	EACH-90	96.9	339	80.8	3.7	52.8
	EACH-100	110.6	387	97.4	3.6	60.2
	EACH-115	116.9	409	109.9	3.4	63.7
	EACH-130	137.4	481	117.1	3.6	74.9
	EACH-140	154.9	542	135.9	3.6	84.4
	EACH-150	154.9	542	135.9	3.6	84.4
	EACH-160	173.1	606	150.3	3.6	94.3
	EACH-170	173.1	606	150.3	3.6	94.3
	EACH-180	194.9	682	174.6	3.5	106.2
	EACH-190	194.9	682	174.6	3.5	106.2
	EACH-200	204	714	173.9	3.6	111.1
	EACH-220	232	812	206	3.5	126.4
	EACH-230	232	812	206	3.5	126.4
	EACH-240	263.7	923	229	3.6	143.7
	EACH-250	263.7	923	229	3.6	143.7
	EACH-260	263.7	923	229	3.6	143.7
	EACH-270	307.4	1076	264	3.7	167.5
	EACH-280	307.4	1076	264	3.7	167.5
	EACH-300	307.4	1076	264	3.7	167.5
	EACH-320	346.9	1214	294	3.7	189
	EACH-330	346.9	1214	294	3.7	189
	EACH-340	346.9	1214	294	3.7	189
	EACH-350	375.1	1313	337	3.5	204.4
	EACH-360	375.1	1313	337	3.5	204.4
EACH-380	406.6	1423	355	3.6	221.5	
EACH-400	406.6	1423	355	3.6	221.5	
EACH-420	454.3	1590	384	3.7	247.5	
EACH-430	454.3	1590	384	3.7	247.5	
EACH-440	454.3	1590	384	3.7	247.5	
EACH-450	464.6	1626	381.9	3.8	253.1	

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 m².°C/kW (0.0001 ft². 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 (m³/h)
		RT	kW			
7°C	EACH-45	46.5	162.6	45.2	3.2	25.3
	EACH-50	52.9	185.1	54.2	3.1	28.8
	EACH-55	52.9	185.1	54.2	3.1	28.8
	EACH-60	62.6	219	58.4	3.3	34.1
	EACH-70	75.4	264	76.4	3.1	41.1
	EACH-80	78.6	275	88.2	2.9	42.8
	EACH-90	92.9	325	90.3	3.2	50.6
	EACH-100	106.6	373	108.6	3.1	58.1
	EACH-115	112.9	395	123.4	2.9	61.5
	EACH-130	133.1	466	131.1	3.2	72.5
	EACH-140	149.1	522	152.3	3.1	81.3
	EACH-150	149.1	522	152.3	3.1	81.3
	EACH-160	167.1	585	168.4	3.1	91.1
	EACH-170	167.1	585	168.4	3.1	91.1
	EACH-180	187.7	657	195.4	3.1	102.3
	EACH-190	187.7	657	195.4	3.1	102.3
	EACH-200	196	686	193.9	3.2	106.8
	EACH-220	222.6	779	229	3.1	121.3
	EACH-230	222.6	779	229	3.1	121.3
	EACH-240	253.7	888	254	3.2	138.2
	EACH-250	253.7	888	254	3.2	138.2
	EACH-260	253.7	888	254	3.2	138.2
	EACH-270	296	1036	293	3.2	161.3
	EACH-280	296	1036	293	3.2	161.3
	EACH-300	296	1036	293	3.2	161.3
	EACH-320	334	1169	327	3.2	182
	EACH-330	334	1169	327	3.2	182
	EACH-340	334	1169	327	3.2	182
	EACH-350	360.9	1263	370	3.1	196.6
	EACH-360	360.9	1263	370	3.1	196.6
EACH-380	390.9	1368	392	3.2	212.9	
EACH-400	390.9	1368	392	3.2	212.9	
EACH-420	437.1	1530	426.9	3.2	238.2	
EACH-430	437.1	1530	426.9	3.2	238.2	
EACH-440	437.1	1530	426.9	3.2	238.2	
EACH-450	448.3	1569	423.6	3.3	244.2	

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 m².°C/kW (0.0001 ft². 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-45	44.5	155.7	50.5	2.8	24.2
	EACH-50	50.6	177.2	60.3	2.7	27.6
	EACH-55	50.6	177.2	60.3	2.7	27.6
	EACH-60	59.7	209	65	2.9	32.5
	EACH-70	72	252	85.8	2.7	39.2
	EACH-80	74	259	98.6	2.4	40.3
	EACH-90	88.3	309	100.9	2.8	48.1
	EACH-100	101.7	356	121.4	2.7	55.4
	EACH-115	108.6	380	138.8	2.5	59.1
	EACH-130	128	448	147.3	2.8	69.7
	EACH-140	142.3	498	171.4	2.7	77.5
	EACH-150	142.3	498	171.4	2.7	77.5
	EACH-160	160.3	561	188.4	2.7	87.3
	EACH-170	160.3	561	188.4	2.7	87.3
	EACH-180	179.7	629	219	2.6	97.9
	EACH-190	179.7	629	219	2.6	97.9
	EACH-200	187.1	655	216	2.7	102
	EACH-220	212	742	255	2.7	115.5
	EACH-230	212	742	255	2.7	115.5
	EACH-240	242.3	848	280	2.8	132
	EACH-250	242.3	848	280	2.8	132
	EACH-260	242.3	848	280	2.8	132
	EACH-270	282.9	990	324	2.8	154.1
	EACH-280	282.9	990	324	2.8	154.1
	EACH-300	282.9	990	324	2.8	154.1
	EACH-320	319.4	1118	362	2.8	174
	EACH-330	319.4	1118	362	2.8	174
	EACH-340	319.4	1118	362	2.8	174
	EACH-350	342.9	1200	406	2.7	186.8
	EACH-360	342.9	1200	406	2.7	186.8
EACH-380	374.6	1311	432	2.8	204.1	
EACH-400	374.6	1311	432	2.8	204.1	
EACH-420	418.3	1464	472.8	2.8	227.9	
EACH-430	418.3	1464	472.8	2.8	227.9	
EACH-440	418.3	1464	472.8	2.8	227.9	
EACH-450	429.4	1503	469.5	2.9	234	

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 m². °C/kW (0.0001 ft². 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-45	41.8	146.2	57.8	2.3	22.8
	EACH-50	47.9	167.7	67.9	2.3	26.1
	EACH-55	47.9	167.7	67.9	2.3	26.1
	EACH-60	57	199.4	72.9	2.5	31
	EACH-70	68.6	240	95	2.3	37.4
	EACH-80	71.4	250	106	2.2	38.9
	EACH-90	83.7	293	112.6	2.4	45.6
	EACH-100	96.3	337	135.8	2.3	52.5
	EACH-115	104.6	366	151.4	2.2	57
	EACH-130	123.1	431	165.9	2.4	67.1
	EACH-140	136	476	189.8	2.3	74.1
	EACH-150	136	476	189.8	2.3	74.1
	EACH-160	153.1	536	211	2.3	83.4
	EACH-170	153.1	536	211	2.3	83.4
	EACH-180	171.7	601	242	2.3	93.5
	EACH-190	171.7	601	242	2.3	93.5
	EACH-200	177.4	621	240	2.4	96.7
	EACH-220	200.9	703	280	2.3	109.4
	EACH-230	200.9	703	280	2.3	109.4
	EACH-240	230	805	308	2.4	125.3
	EACH-250	230	805	308	2.4	125.3
	EACH-260	230	805	308	2.4	125.3
	EACH-270	270.3	946	355	2.5	147.3
	EACH-280	270.3	946	355	2.5	147.3
	EACH-300	270.3	946	355	2.5	147.3
	EACH-320	304	1064	397	2.5	165.6
	EACH-330	304	1064	397	2.5	165.6
	EACH-340	304	1064	397	2.5	165.6
	EACH-350	324.9	1137	444	2.4	177
	EACH-360	324.9	1137	444	2.4	177
EACH-380	354.9	1242	474	2.4	193.3	
EACH-400	354.9	1242	474	2.4	193.3	
EACH-420	397.7	1392	519.6	2.5	216.7	
EACH-430	397.7	1392	519.6	2.5	216.7	
EACH-440	397.7	1392	519.6	2.5	216.7	
EACH-450	408.9	1431	517.5	2.5	222.7	

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 m². °C/kW (0.0001 ft². h. °F /Btu) Fouling Factor

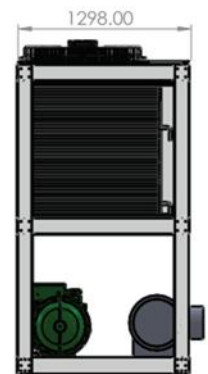
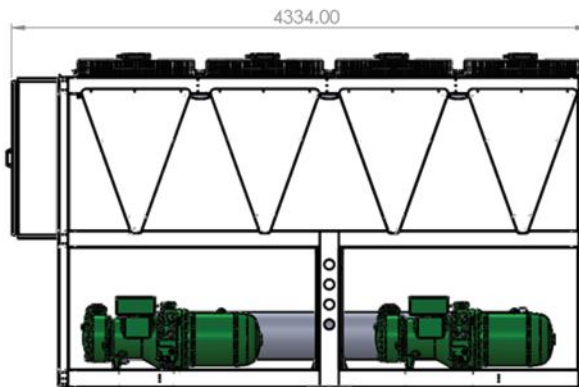
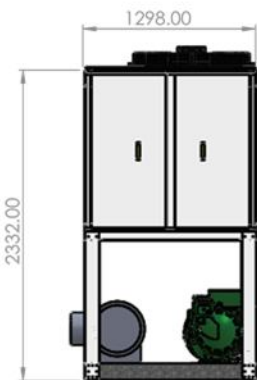
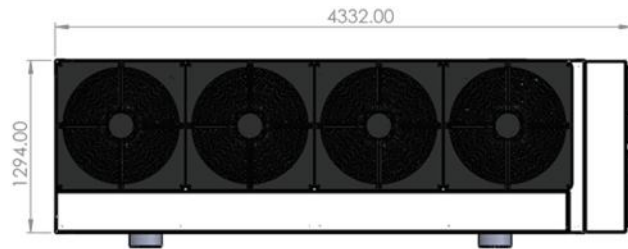
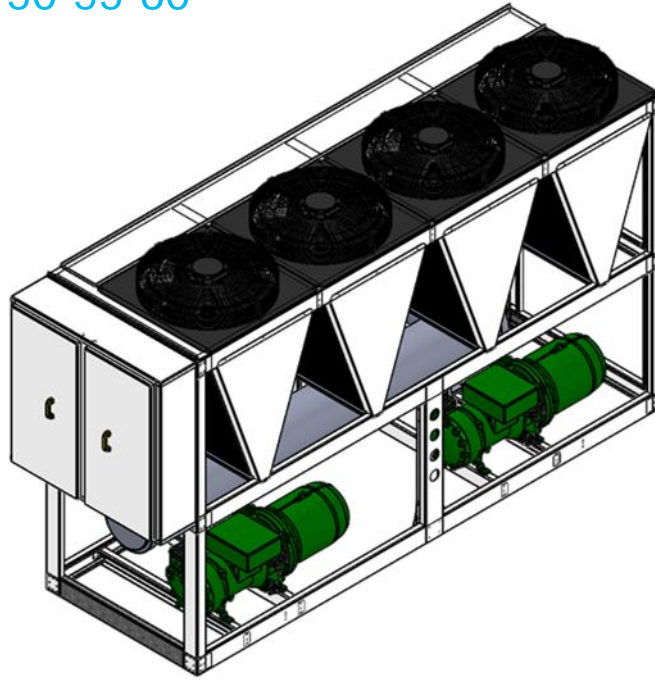
2- Direct interpolation is permissible. Do not extrapolate.

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



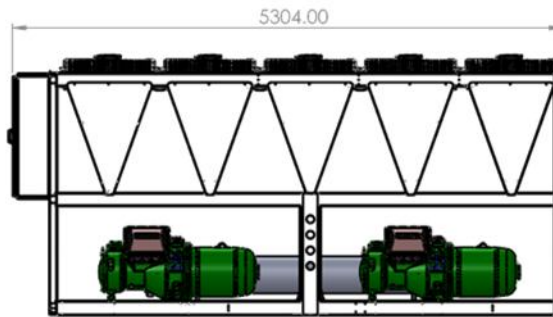
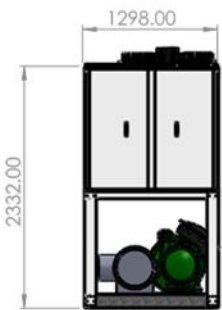
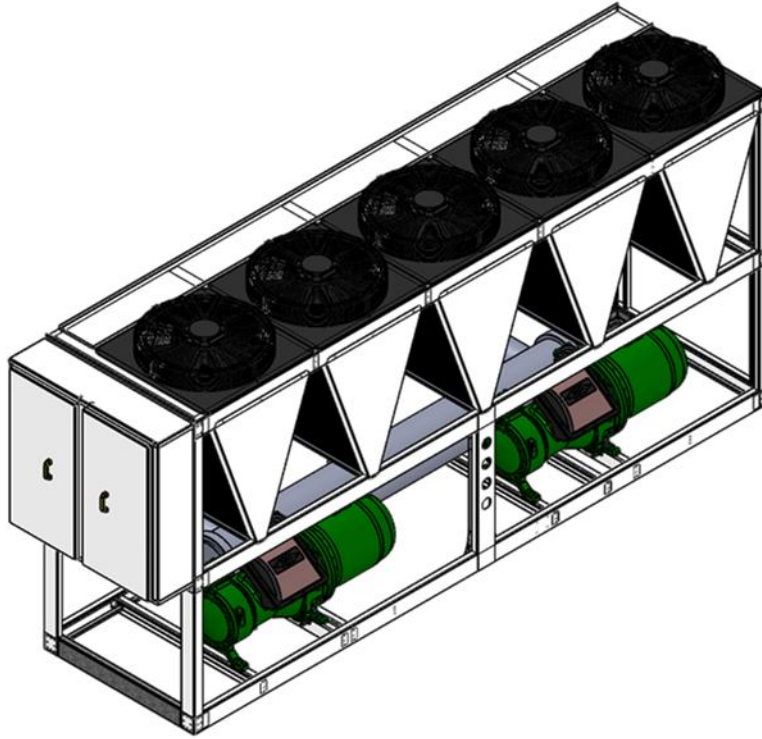
UNIT DIMENSIONS

EACH 45-50-55-60



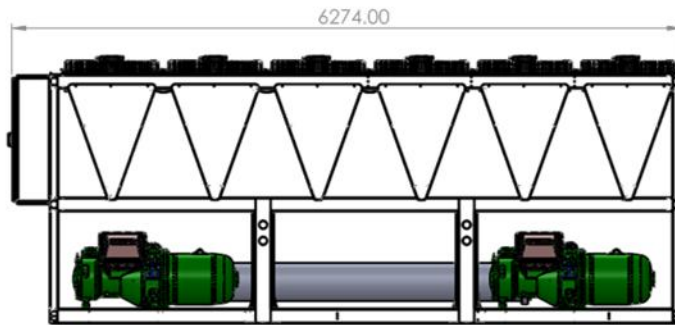
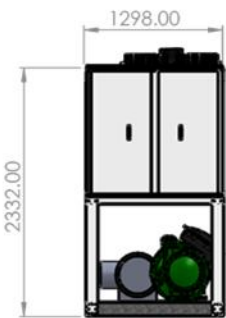
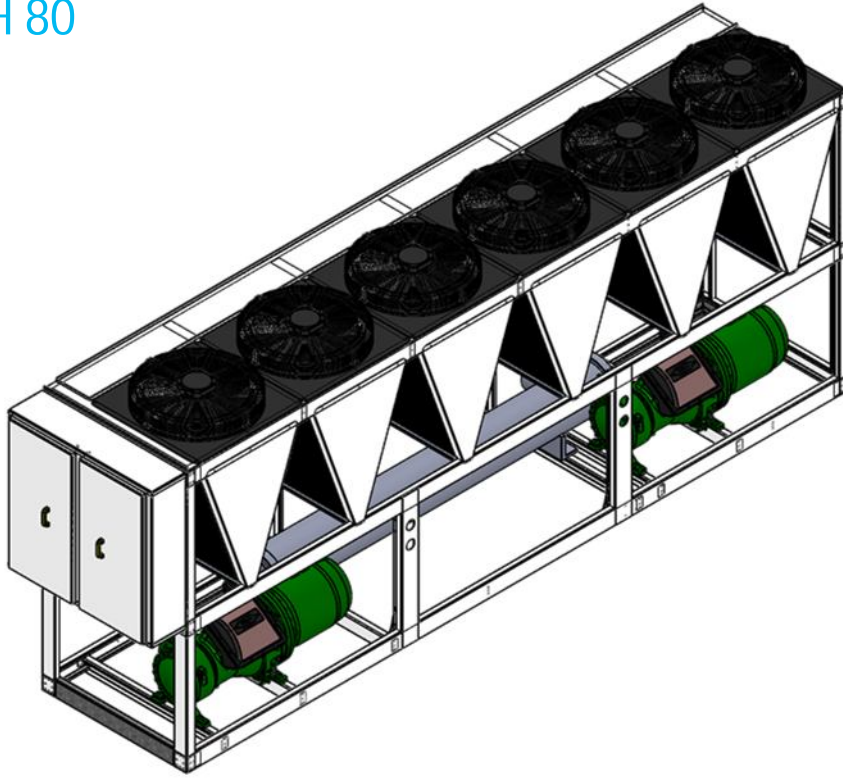
UNIT DIMENSIONS

EACH 70



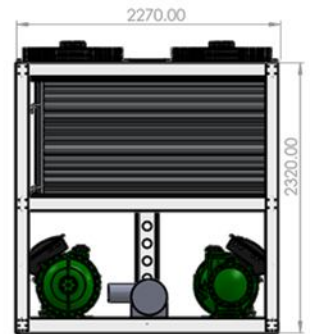
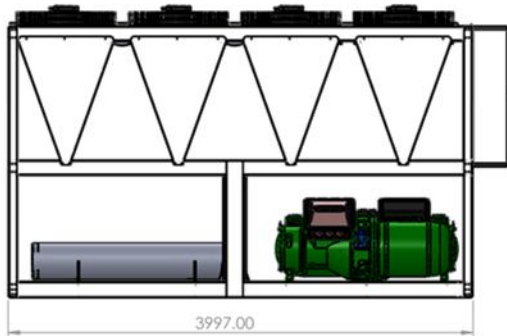
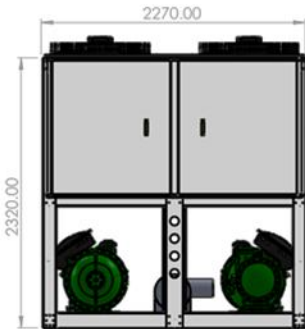
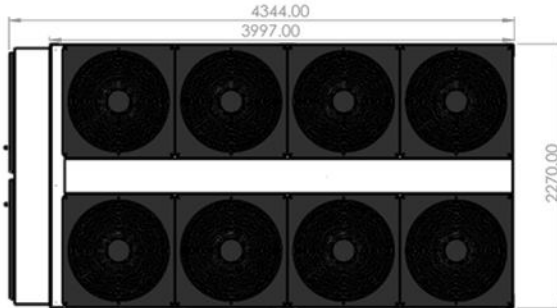
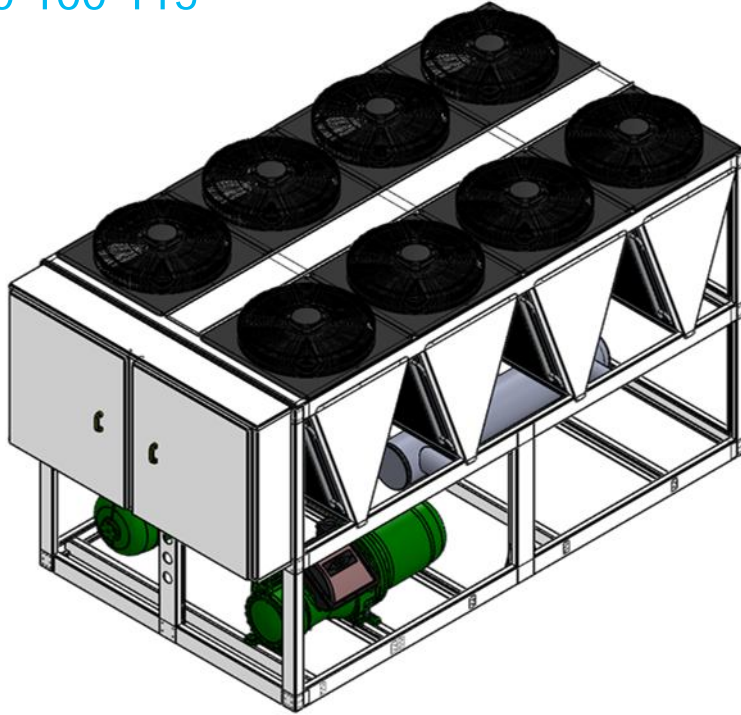
UNIT DIMENSIONS

EACH 80



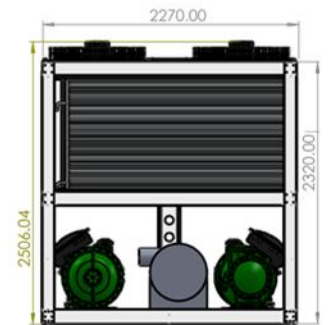
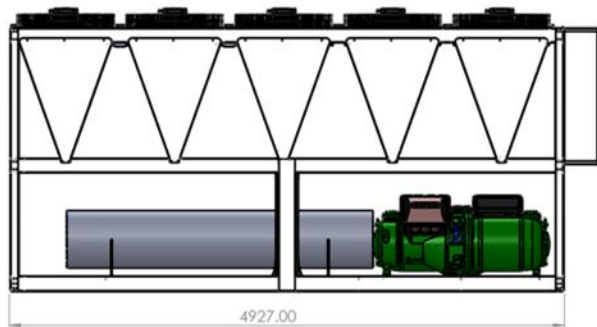
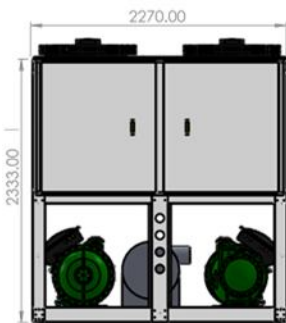
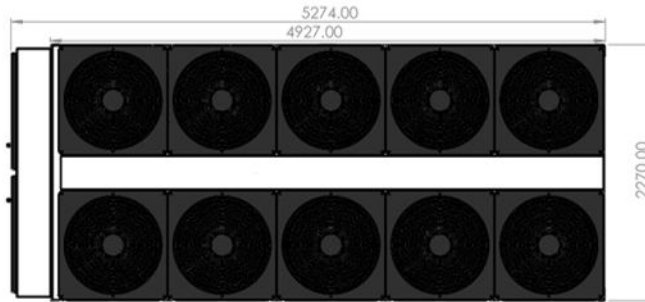
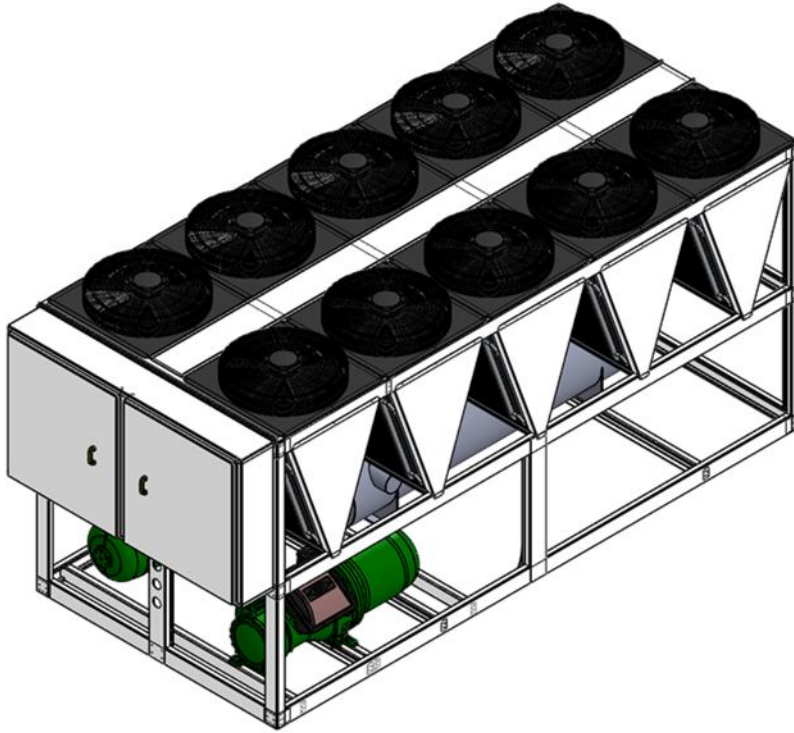
UNIT DIMENSIONS

EACH 90-100-115



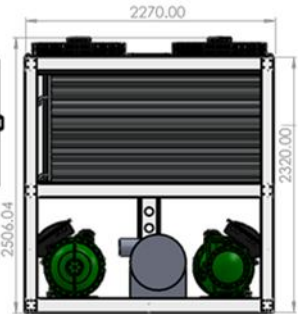
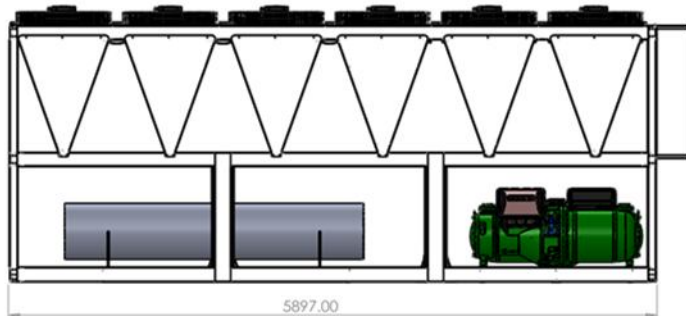
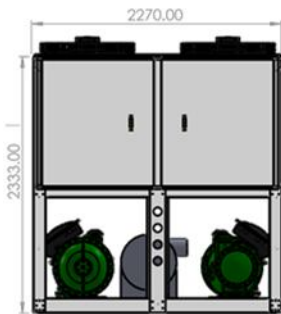
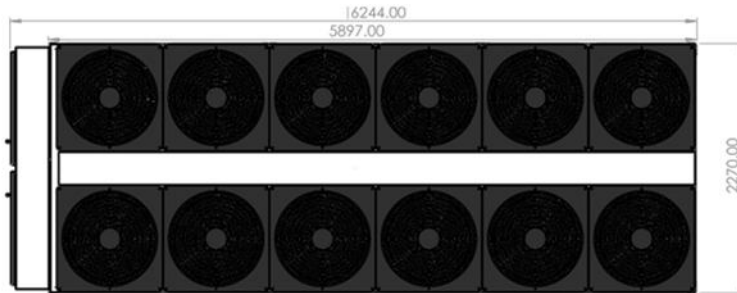
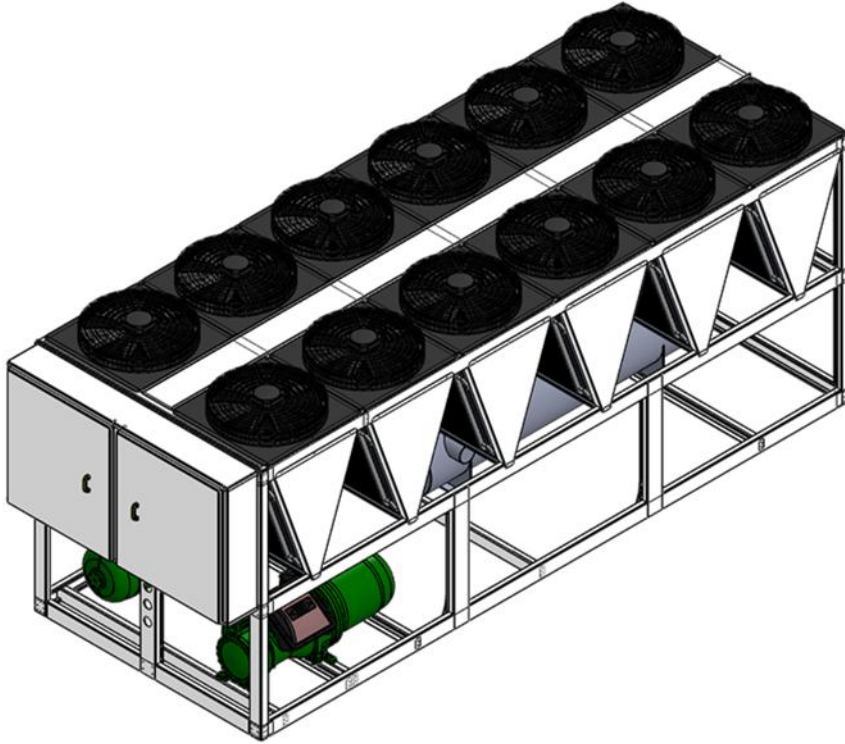
UNIT DIMENSIONS

EACH 130-140-150



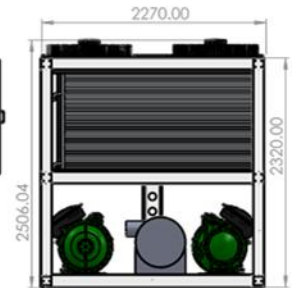
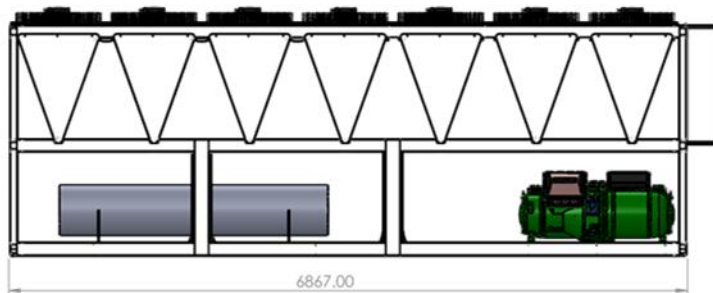
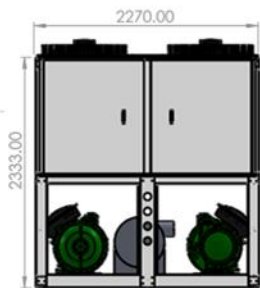
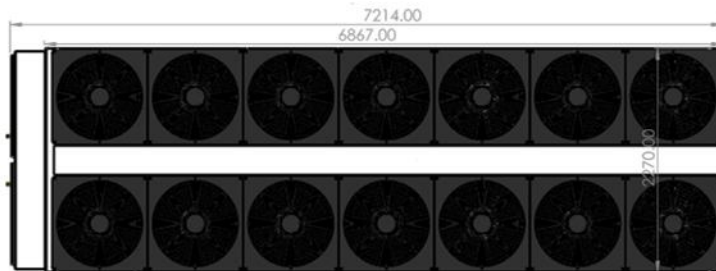
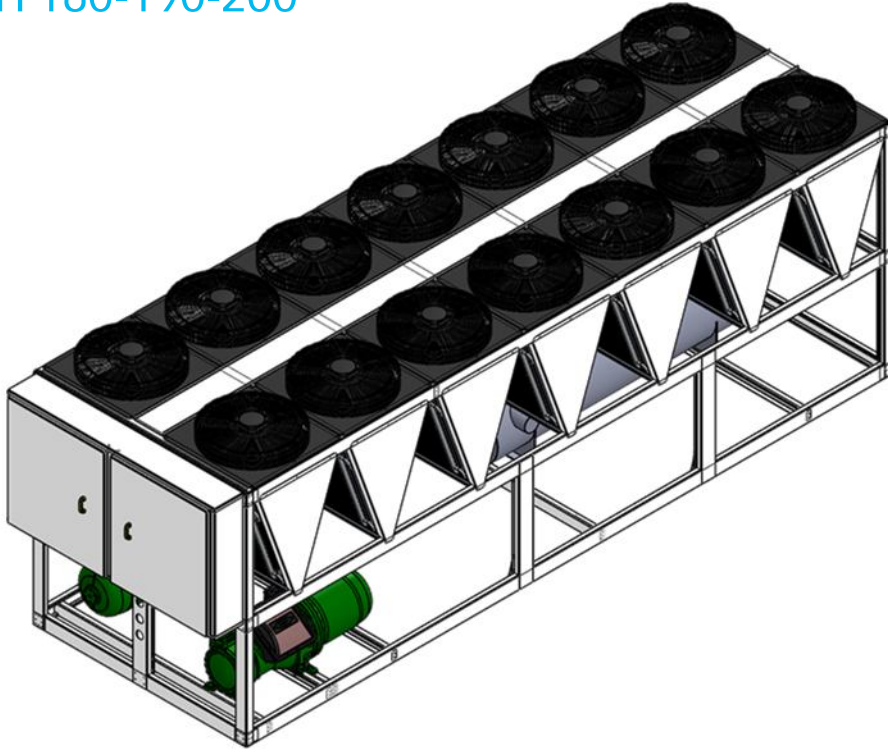
UNIT DIMENSIONS

EACH 160-170



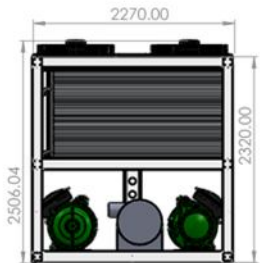
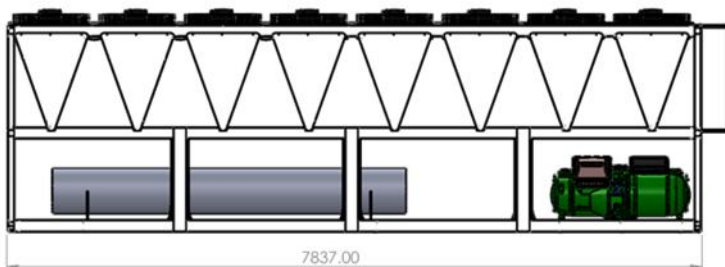
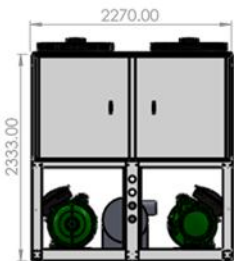
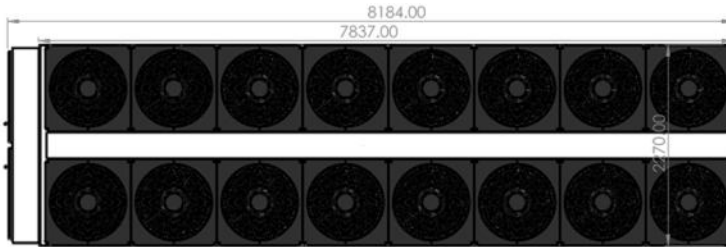
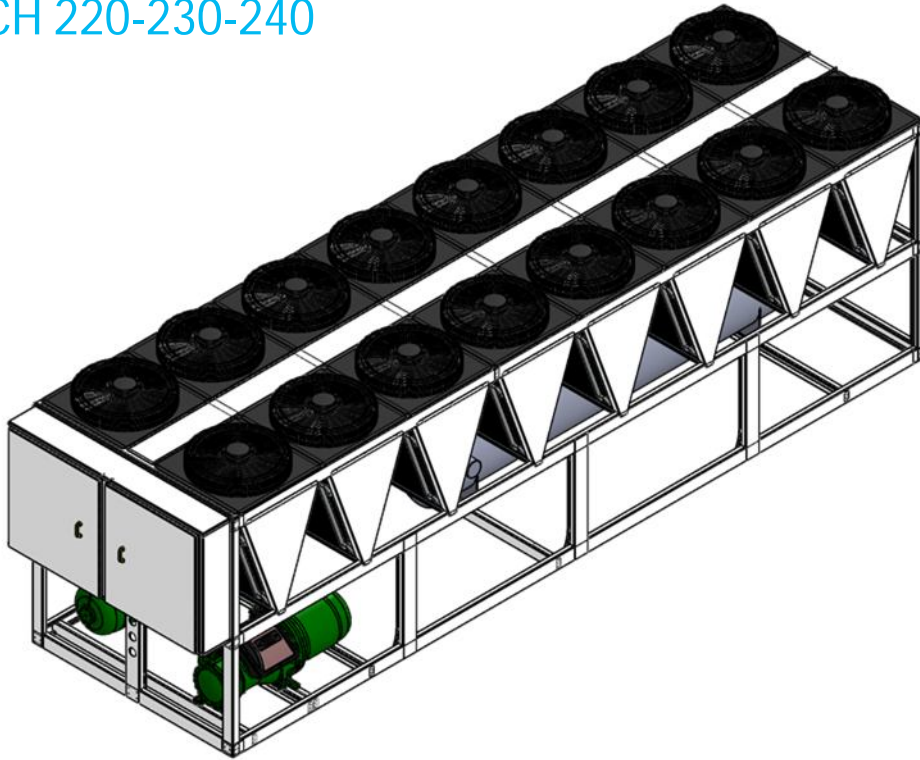
UNIT DIMENSIONS

EACH 180-190-200



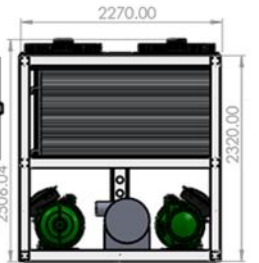
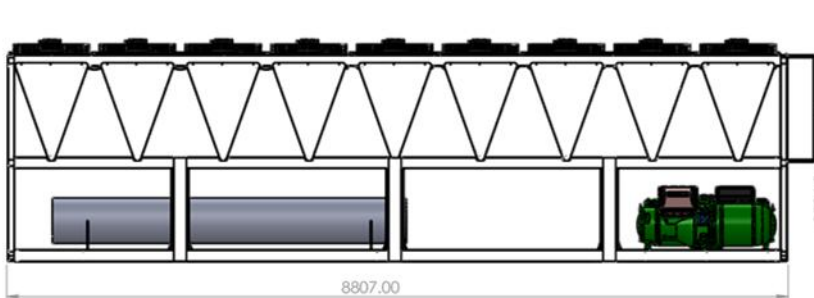
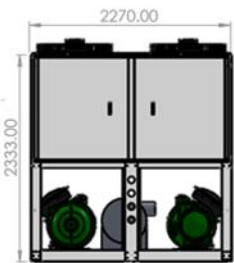
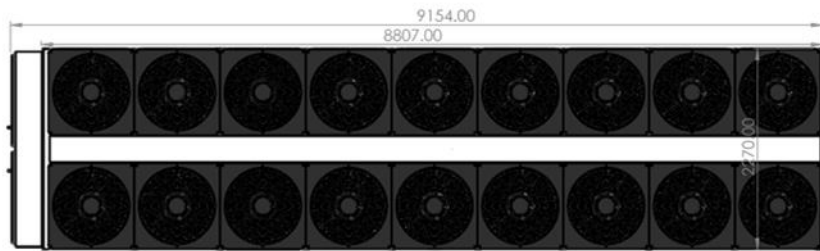
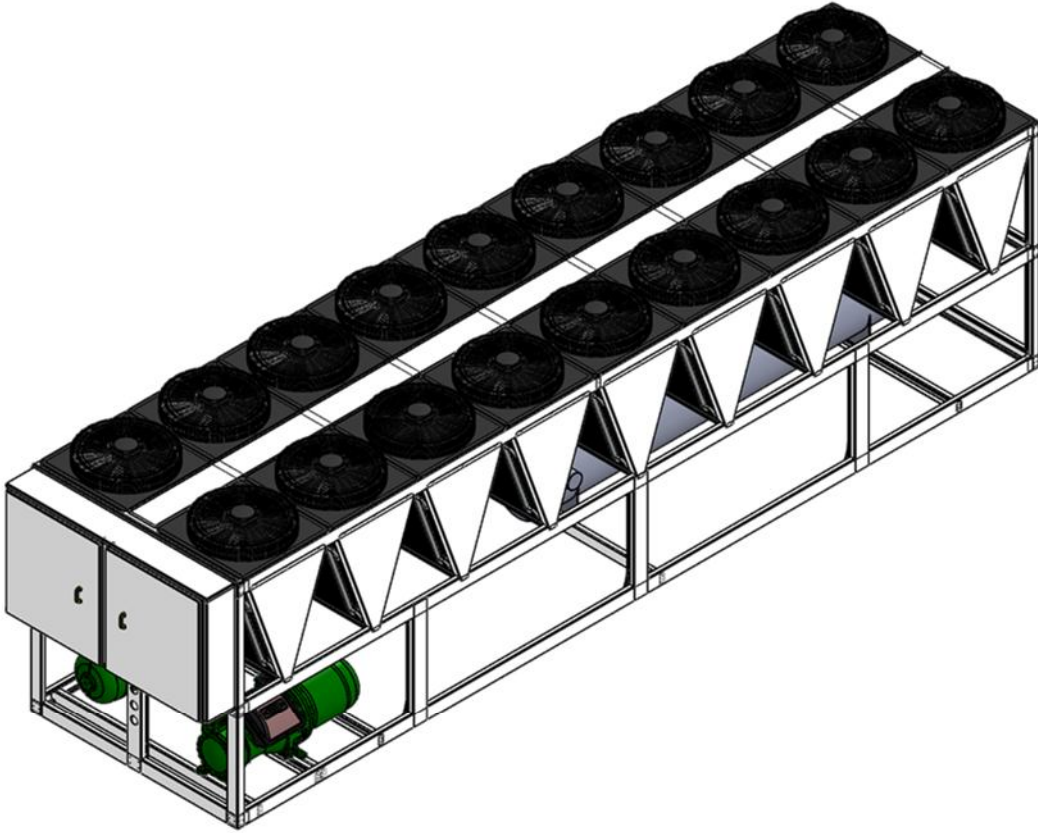
UNIT DIMENSIONS

EACH 220-230-240

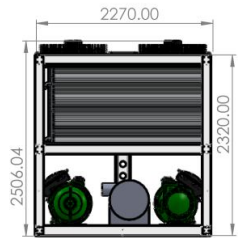
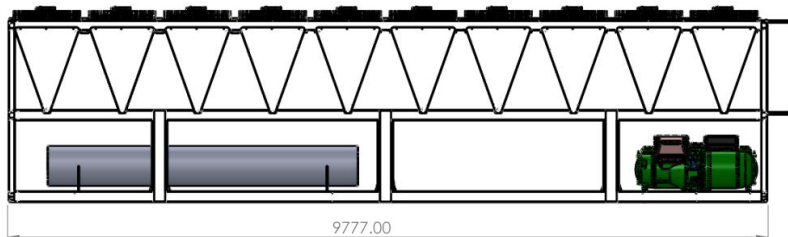
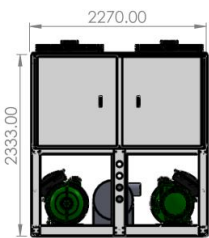
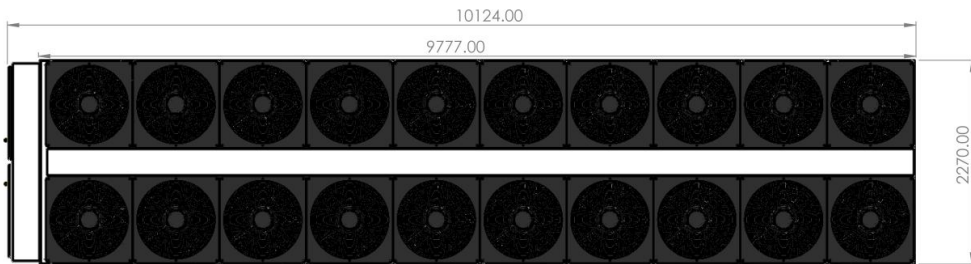
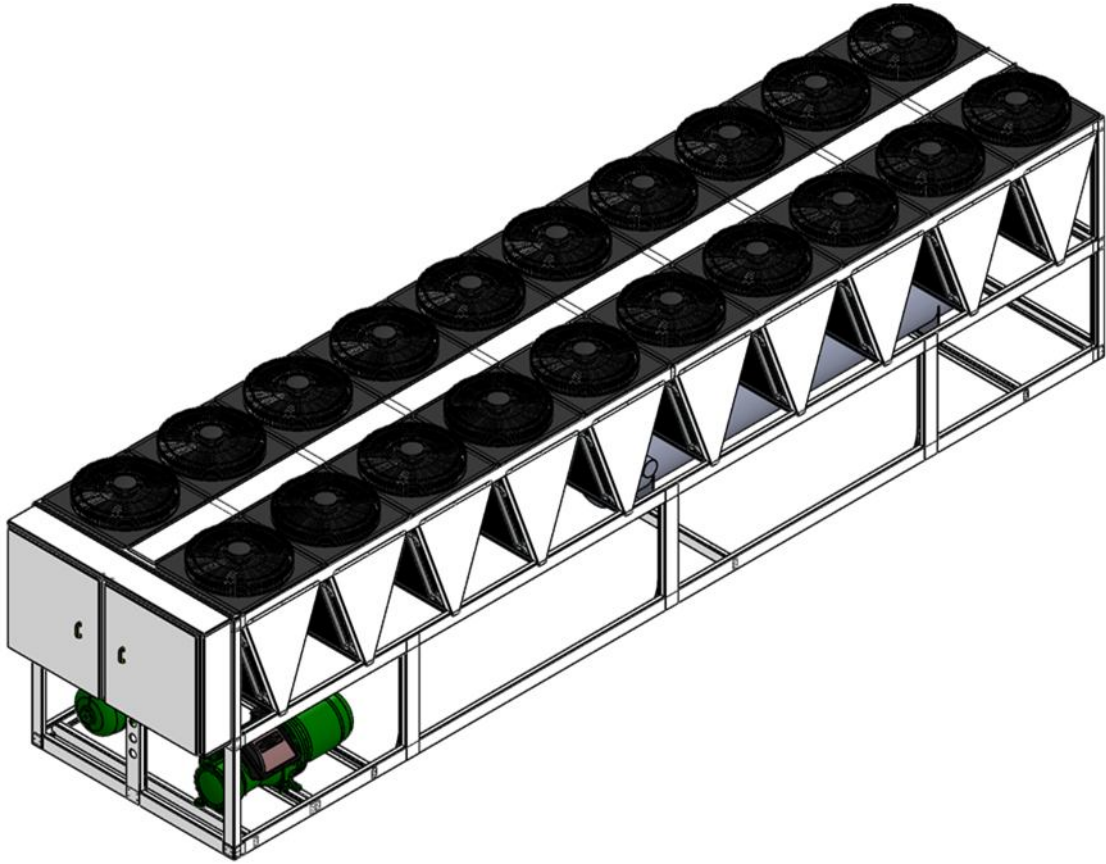


UNIT DIMENSIONS

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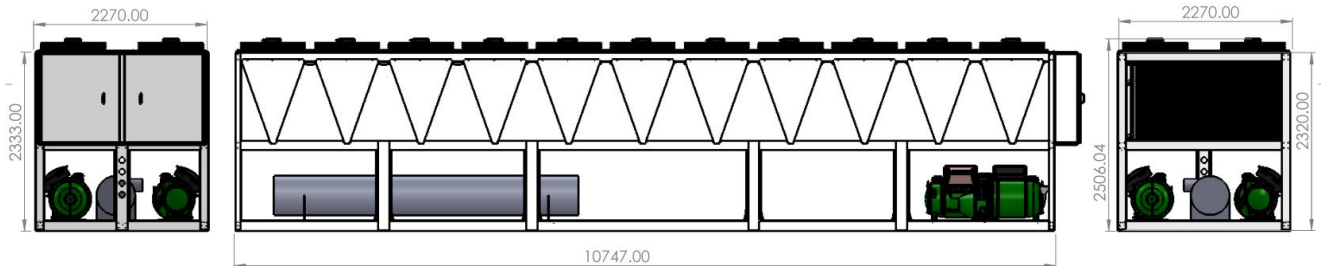
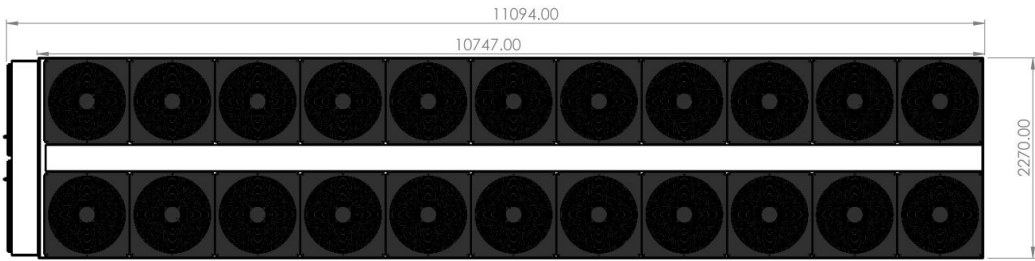
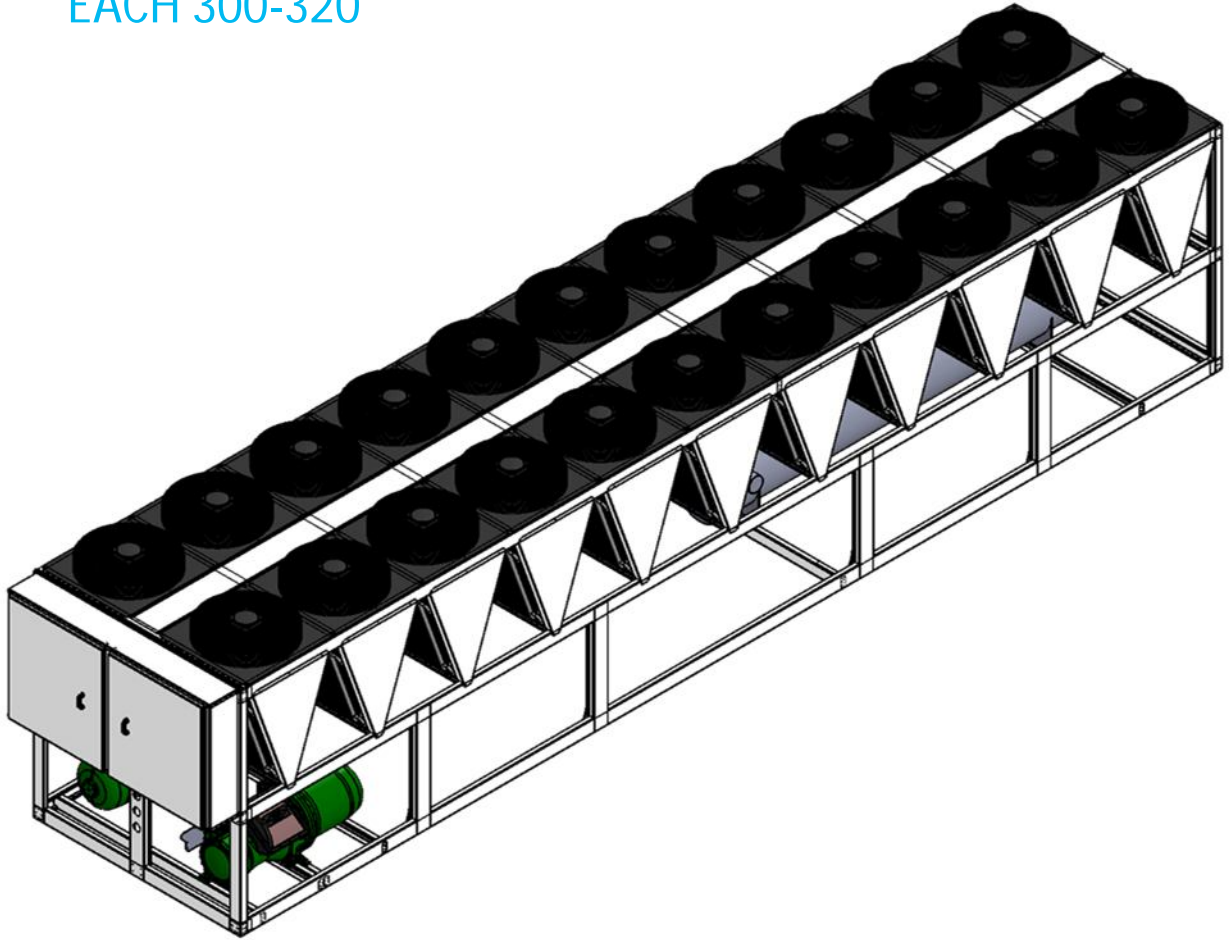


UNIT DIMENSIONS



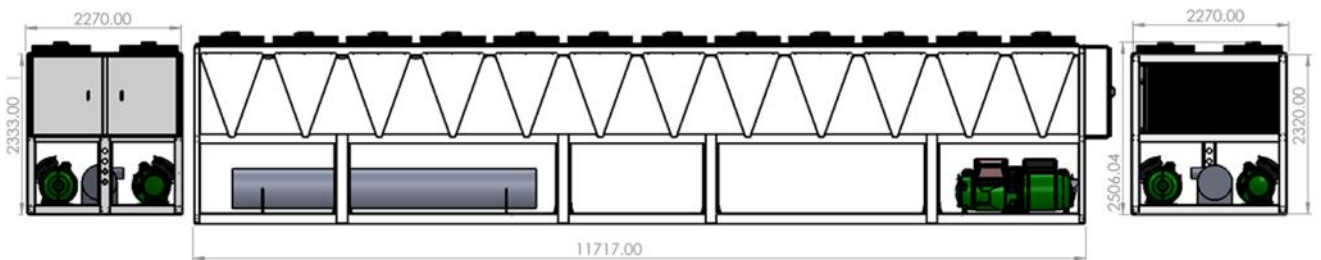
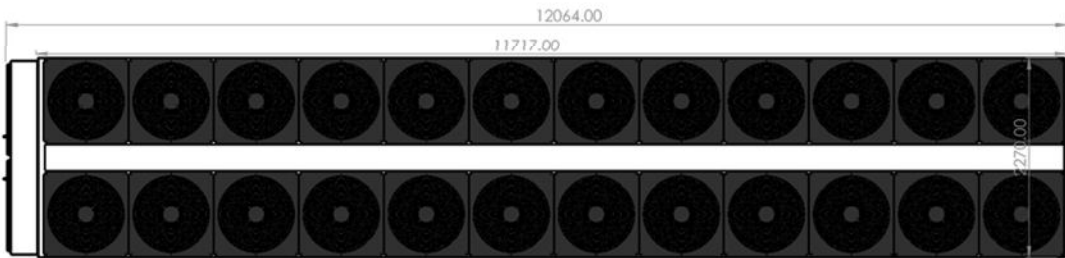
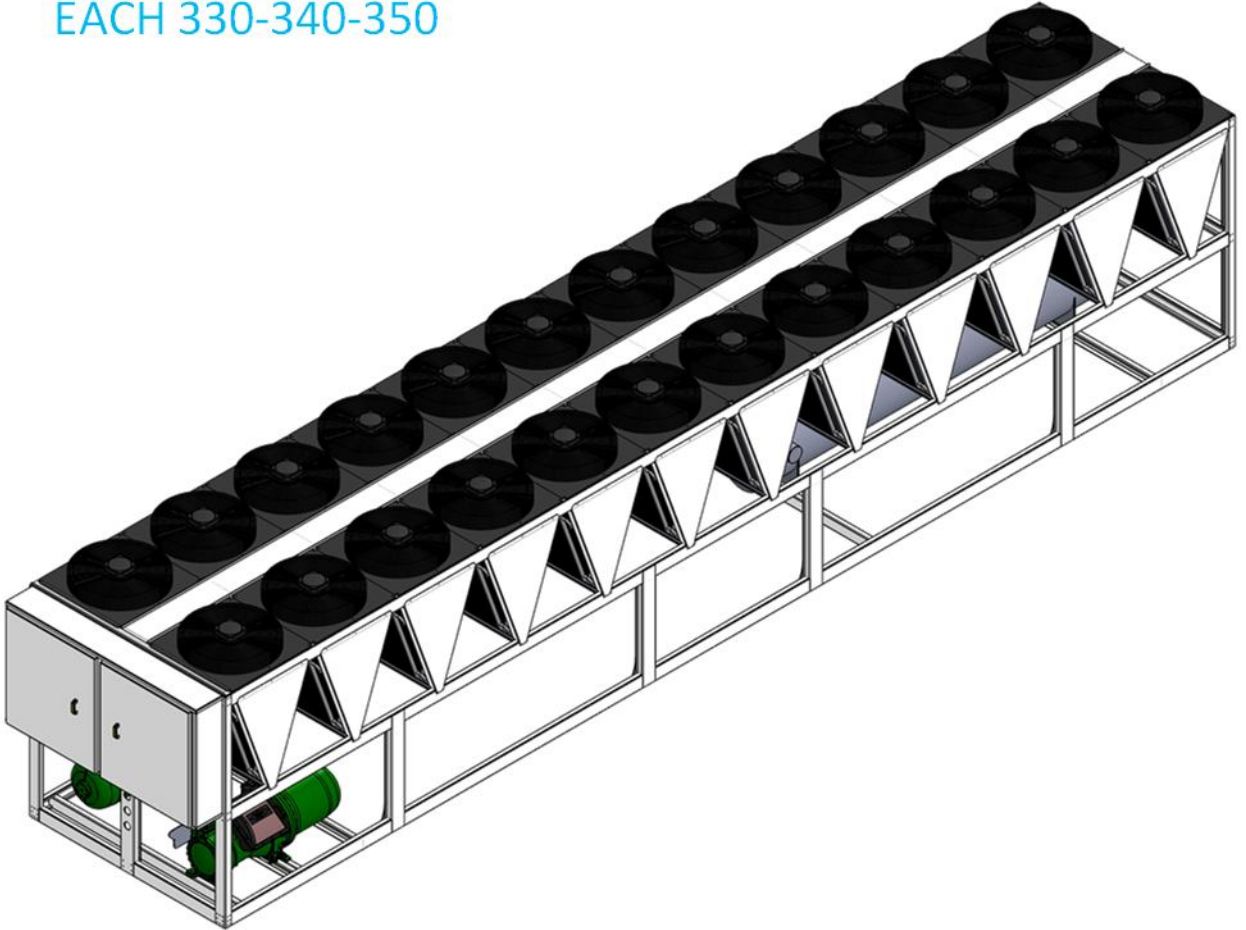
UNIT DIMENSIONS

EACH 300-320

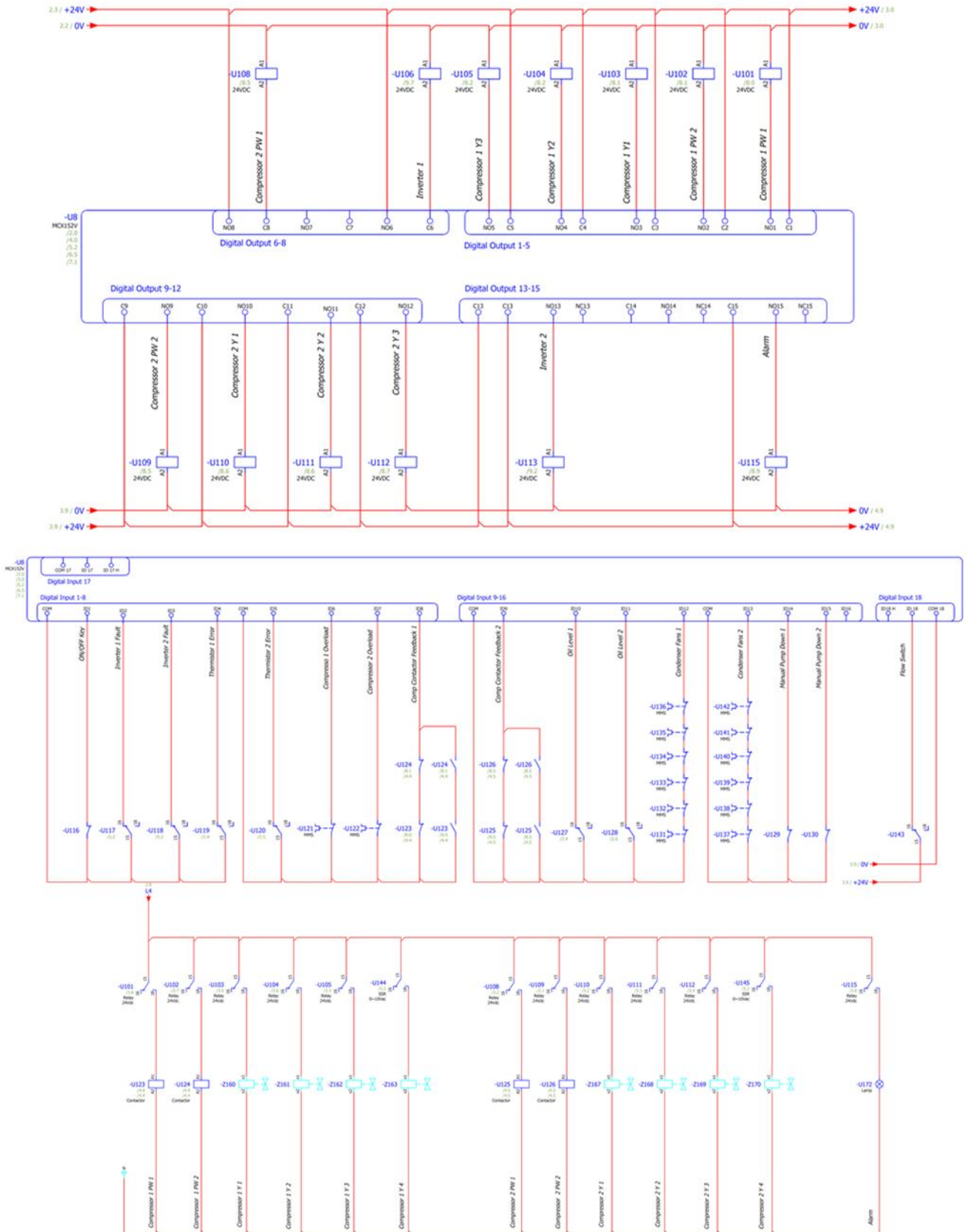


UNIT DIMENSIONS

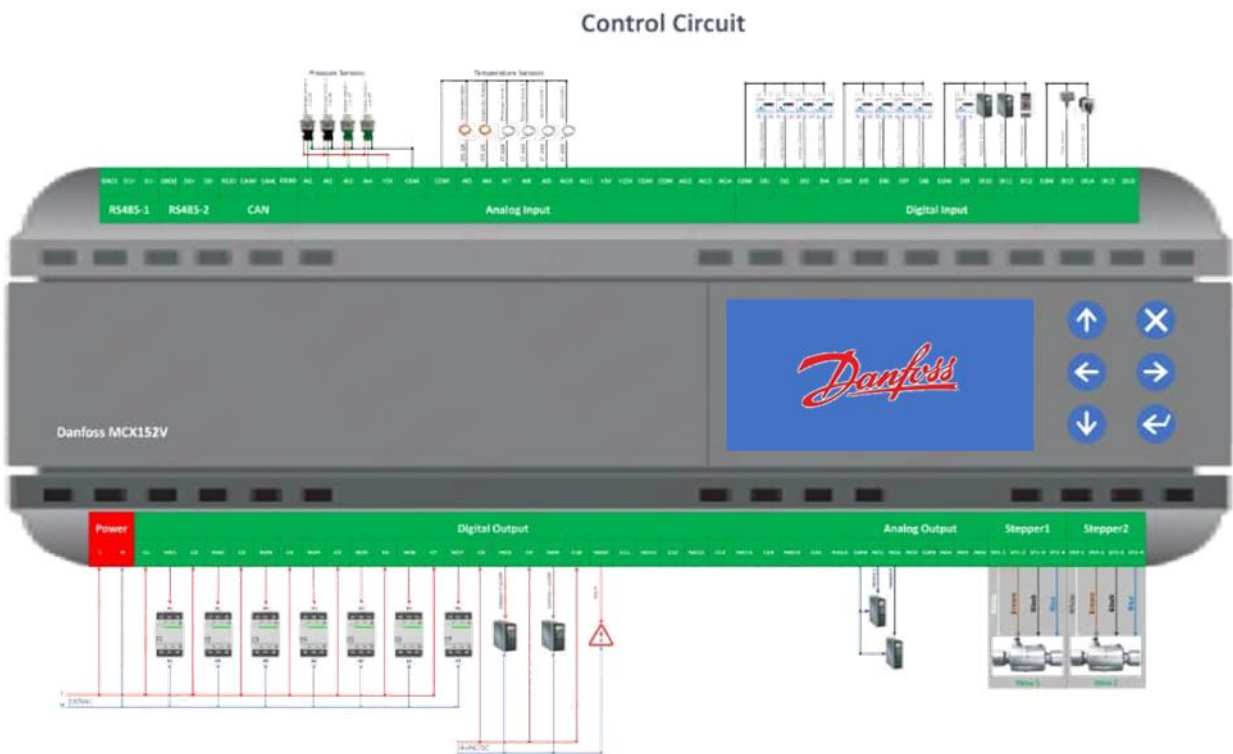
EACH 330-340-350



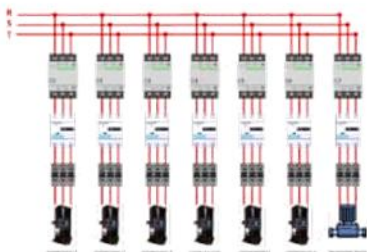
Typical electrical wiring diagram



TYPICAL WIRING DIAGRAM



Power Circuit





. NOTE .

A large rectangular area with rounded corners, outlined in light blue, containing numerous horizontal light blue lines for writing. The lines are evenly spaced and cover the majority of the page below the header.

ECO COOLER
AIR CONDITIONER