LG
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STEKON
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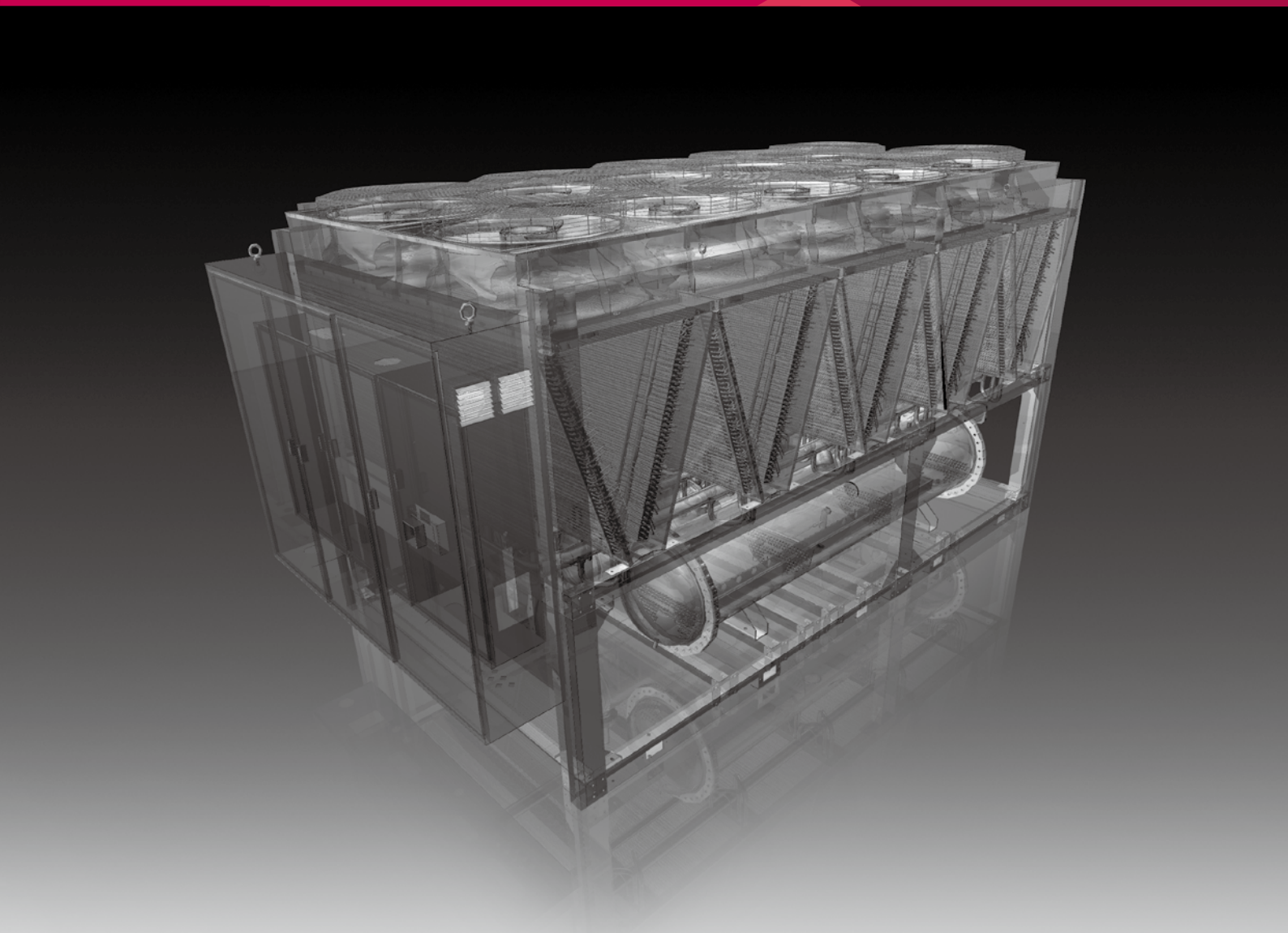
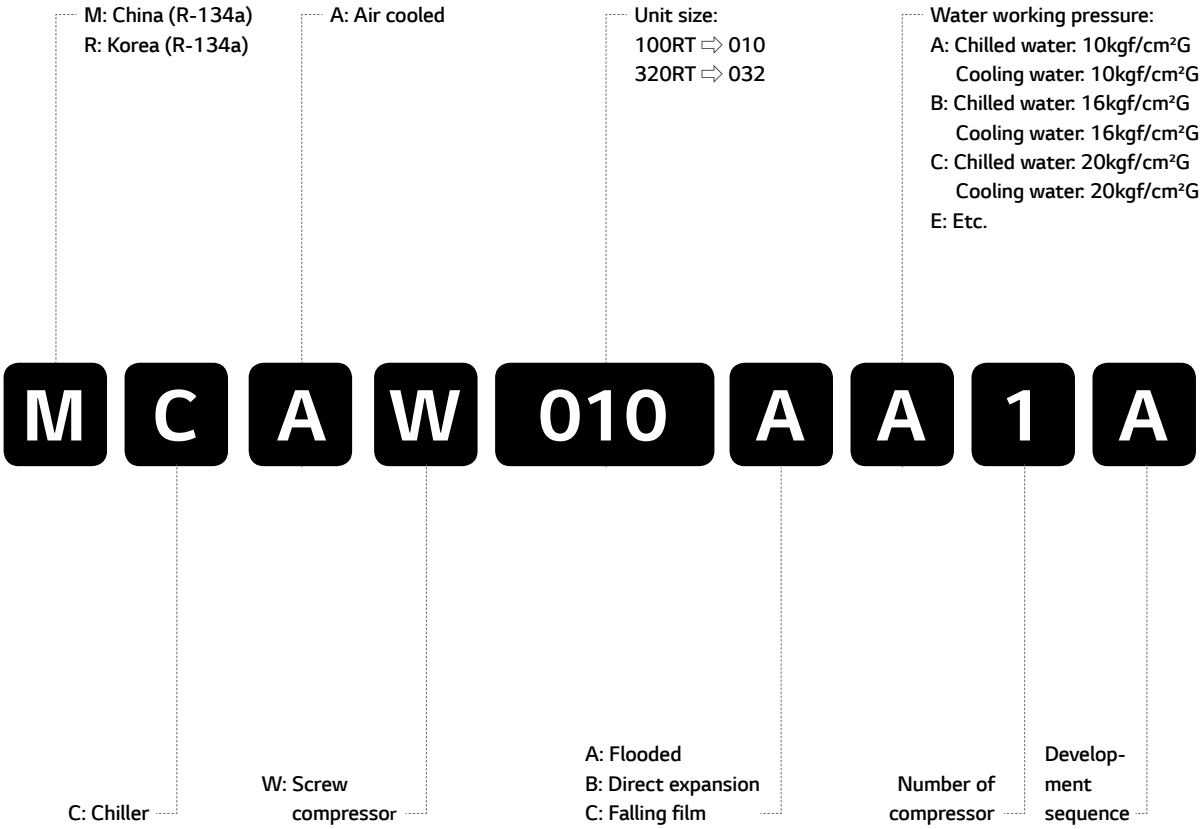
LG HVAC SOLUTION

AIR COOLED SCREW CHILLER



Nomenclature



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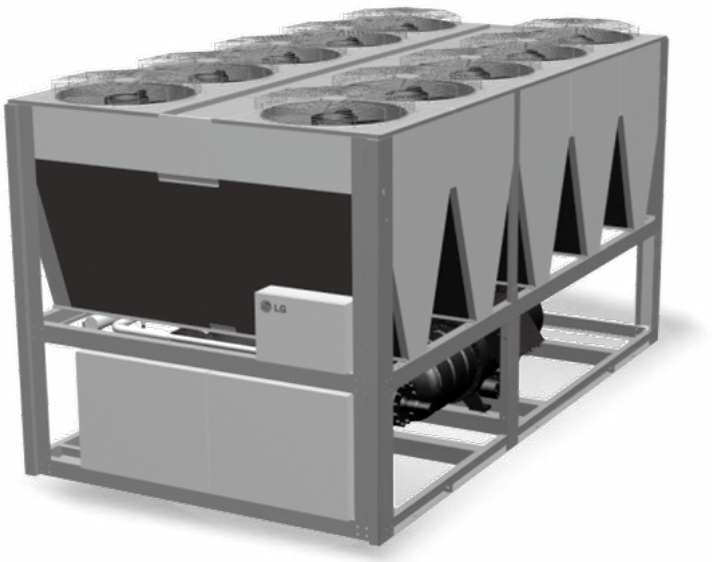
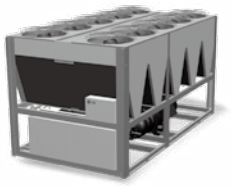


Line up

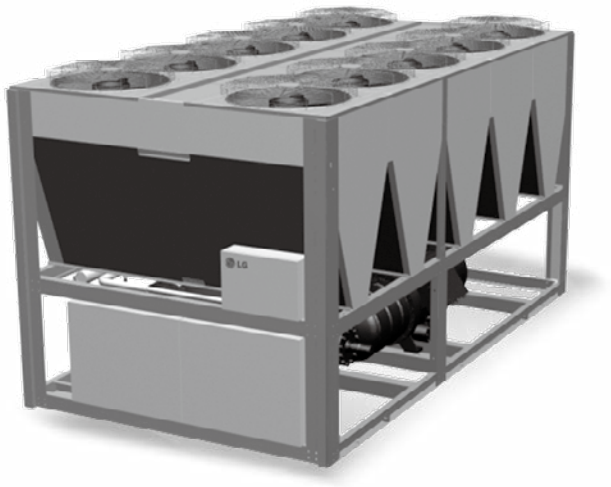


Model			100	200	300	400	500
	High efficiency	50Hz	74RT ~ 311RT				
		60Hz	71RT ~ 297RT				
	Standard efficiency	50Hz	76RT ~ 494RT				
		60Hz	74RT ~ 485RT				

* Above capacity range is base on the AHRI condition.

LG Air cooled water chillers are complete, self-contained automatic refrigerating units that include the latest in engineering components arranged to provide a compact and efficient unit. Each unit is completely assembled; factory wired, evacuated, charged, tested and comes complete and ready for installation.

Each unit consists of multiple air-cooled condensers with integral sub-cooler sections, one or more accessible semi-hermetic twin screw compressors, star-delta starters, high efficiency evaporator, and complete refrigerant piping. Liquid line components included are manual liquid line shutoff valves, charging valves, filter-driers, liquid line solenoid valves, sight glass/moisture indicators, and electronic expansion valves.



- High-performance compressor manufactured by specialized manufacturer is adopted to ensure that the chiller is economical and durable with low vibration and low noise.
- Highly integrated motherboard is adopted and hence the function is strong and reliable.
- Advanced control algorithm is adopted to control chiller in advance and hence avoid frequent stoppage protection of chiller.
- We have set complete safety protection function in order to make chiller safely and reliably run.
- The linkage control and remote monitoring function of peripheral equipment ensure that the chiller can run safely and the operation and monitoring are convenient.
- The selection of excellent raw materials and fittings is the key to guaranteeing chiller quality.

Excellent reliability and powerful operation

The cutting-edge design of Air-cooled screw chiller accomplishes high performance and reliability for industrial and commercial market.

LG Air-cooled screw compressors are precisely machined from solid compound metal bar using profound cutting process.

Tolerance is maintained within a few microns just like one-tenth hair thickness. Robust components with highly skilled assembling process help the compressor last for a long time.
LG condenser production technology is already well-known to worldwide air conditioning manufacturing industries because of its leading technologies.

World class high efficiency (High efficiency model)

Top level efficiency is in accordance with AHRI Standard 550/590.
Optimized compressor design including a rotor and a slide valve is suitable for comfort cooling applications.
The rotor is designed to work efficiently for different pressure ranges covering air conditioning and refrigeration application.
The slide valve controls the cooling capacity by controlling the position of the slide where refrigerant suction starts using internal pressure difference between discharge and suction.
LG air cooled screw chiller has 4 steps capacity control (100, 75, 50, 25%) capability which is optimized for part-load condition.
Precise rotor tip clearance provides excellent energy efficiency in the screw rotary compressor because this reduces leakage from high pressure to low pressure side during compression, achieving top class COP.
The evaporator uses internally grooved tubes having helical angle which enhanced the water side heat transfer performance. The outside of the tube is of optimum shape which has highly enhanced performance for pooling boiling and film-wise evaporation with R134a. The V-shape of condenser allows the largest heat transfer surface area for the same footprint, resulting in largest heat transfer performance when the configuration is optimally designed.
The LG V-shape condenser coil was designed using numerical and experimental analysis, having optimum air flow path to optimize heat rejection performance.
Also, the enhanced condenser fin geometry allows the optimum heat transfer performance at small air side pressure drop, and this reduces the fan-motor power consumption. The fin is pre-coated to prevent corrosion at normal conditions and epoxy coated fin condenser which is sustainable in harsh conditions, is also available as option.

Low noise and low vibration

The unit was designed with a compact structure and robust assembly. The condenser fan is completed with high-efficiency wing style axial fan and direct driven motor for low sound level.
The unit configures compressor sound insulation box (Option), which makes LG chillers silent and stable.

Installation, start-up

- Small operating footprint fit most retrofit applications. (Compact model)
- Factory testing for high reliability.
- Factory-installed and tested controls help to reduce start up time and minimized extra cost.
- Display temperatures and pressure for each component spot.

Compressor specification

- Semi-hermetic twin-rotor screw compressor.
- Direct-drive, low speed/RPM.
- Only three moving parts, resulting in high reliability.
- The slide valve has a unique profile, optimized for part-load conditions.
- Field serviceable and easy maintenance.
- Precise rotor tip clearance
- A refrigerant dispersing device is set internally to the compressor for motor cooling.

Factory testing / Unit performance testing

LG air-cooled screw chillers are given a complete functional test at the factory. LG computer-based testing programs completely check the components including sensors, wiring, electronics and microprocessor control functions.

LG promotes factory performance tests for air-cooled chillers and water-cooled chillers to show that we stand behind the products which are designed and build up.

The benefits of a performance test include verification of performance, prevention of operational problems, and assurance of a smooth start-up. Each compressor is run and tested to verify capacity and efficiency.

Structural strength analysis

Structure is designed to ensure stiffness for various disturbances by steps of structure modeling, meshing, excitation and evaluation.
Structural strength evaluation simulation

Aerodynamic analysis

Condenser part is appropriately designed by aerodynamic analysis like inlet and outlet uniform airflow design and dead zone reduction design.
Heat circulation evaluation simulation

Eco-friendly refrigerant R134a

System designed with Eco-friendly refrigerant R134a which does not harm the ozone layer & protects the environment.
The HCFC (R22, R123) series cannot produce any more from 2020 according to the Montreal Protocol for protection of ozone layer.

AHRI certification program and standards and codes

The performance of the screw chiller complies with Air Conditioning, Heating, and Refrigeration Institute (AHRI) latest standards program (AHRI Standard 550/590). Providing independent, third-party verification, the AHRI regularly tests chiller to ensure compliance.

Chillers conform to the following Standards and Codes:

- AHRI 550/590 - water chilling packages using the vapor compression cycle.
- ANSI/ASHRAE 34 - number designation and safety classification of refrigerants.
- ASME Section VIII - boiler and pressure vessel.
- GB/T 18430.1 - water chilling (heat pump) packages using the vapor compression cycle - part 1: water chilling (heat pump) packages for industrial & commercial and similar applications.

Equipment overview

Semi-hermetic twin compressor

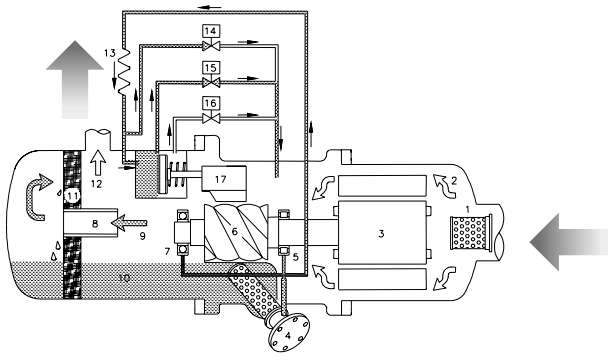
The semi-hermetic screw compressor is developed especially for applications in air-conditioning and refrigeration. With high operating load design, each compressor is of high efficiency and reliability in all operating conditions. Each compressor has the latest and advanced 5-to-6 Patented Screw Rotor Profile designed to ensure high capacity and efficiency in all operating conditions.

The compressor is equipped with separated radial and axial bearings, liquid injection and economizer connection, PTC motor temperature thermistors and discharge temperature thermistors, a motor protector, and oil level switch and oil pressure differential switch and other accessories.. The complete accessories and their new designs guarantee the compressor has the best reliability, longest bearing life during heavy duty running and strict operating conditions.

The slide valve for capacity control is located in the compressor chamber. The slide valve is actuated by injection of pressurized oil into the cylinder from the oil sump as well as bypass of oil through solenoid valves in each oil lines with pressure differential.
The screw compressors are equipped with either 3-step/4-step capacity control system or continuous (stepless) capacity control system. Both of the capacity control systems consist of a modulation slide valve, piston rod, cylinder, piston and piston rings. The slide valve and the piston are connected by a piston rod. The principle of operation is using the oil pressure to drive the piston in the cylinder. The lubrication oil flows from the oil sump through the oil filter cartridge and capillary then fills into the cylinder due to the positive oil pressure bigger than the right side of spring force plus the high pressure gas. The positive pressure differential causes the piston to move toward the right side in the cylinder.

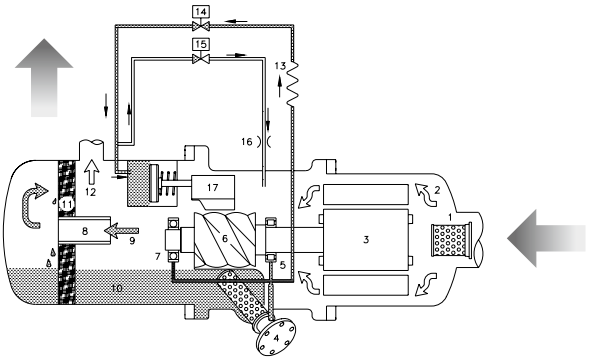
When the slide valve moves toward the right side, the effective compression volume in the compression chamber increases. This means the displacement of refrigerant gas also increases, as a result the refrigeration capacity also increases. However, when any of the step solenoid valve (for 4-step capacity control system) is opened, the high pressure oil in the cylinder bypasses to the suction port, which causes the piston and the slide valve to move toward the left side, and then some of the refrigerant gas bypasses from the compression chamber back to the suction end.

As a result, the refrigeration capacity decreases because of the reduction of displacement of refrigerant gas flowing in the system. The piston spring is used to push the piston back to its original position, i.e. minimum load position in order to reduce the starting current for the next starting.



4-step scapacity control

No	Component	No	Component
1	Suction filter	10	Lubricant
2	Gas in (low pressure)	11	Oil separator catridge
3	Motor	12	Gas out (high pressure without oil)
4	Oil filter catridge	13	Capillary
5	Suction bearings	14	Solenold valve, SV2
6	Male rotor	15	Solenold valve, SV1
7	Discharge bearings	16	Orifice
8	Oil separator baffle	17	Slide valve
9	Gas out (high pressure with oil)		



Step-less capacity control

No	Component	No	Component
1	Suction filter	10	Lubricant
2	Gas in (low pressure)	11	Oil separator demister
3	Motor	12	Gas out (high pressure without oil)
4	Oil filter catridge	13	Capillary
5	Suction bearings	14	Solenold valve (min. %), SV 25% / 33%
6	Male rotor	15	Solenold valve (50% of full load), SV 50%
7	Discharge bearings	16	Solenold valve (75% / 66% of full load), SV 75% / 66%
8	Oil separator baffle	17	Slide valve
9	Gas out (high pressure with oil)	*	For RC2-100, 140 & 180 the SV50% omitted

Heat exchanger

Evaporator

Flooded type

"Flooded" shell and tube type evaporator having refrigerant in the shell and chilled water inside the tubes. The shell is of welded carbon steel construction with steel tube sheets and copper heat exchange tubes. Removable steel water boxes at both ends of the cooler allow tube cleaning without disturbing the refrigerant circuit. Tubes are mechanically expanded into tube sheets with double grooves to ensure leak tight and trouble free operation.

Multiple compressor/ circuit chillers have coolers with separate refrigeration circuits for each compressor. Each refrigeration circuit is provided with its own pressure relief valve. All chillers are fitted with drain valves on the removable heads and shell. All coolers are factory insulated with 19mm of closed cell expanded synthetic rubber with all joints vapor sealed.

Falling film type

"Falling film" shell and tube type evaporator having refrigerant in the shell and chilled water inside the tubes.
Advantage of this type evaporator is higher heat transfer performance and reduced refrigerant charge.
Distributer located on the top side of inside shell makes uniform flow of refrigerant, this refrigerant flows downward by gravity as a continuous film.

The shell is of welded carbon steel construction with steel tube sheets and copper heat exchange tubes. Removable steel water boxes at both ends of the cooler allow tube cleaning without disturbing the refrigerant circuit.

Tubes are mechanically expanded into tube sheets with double grooves to ensure leak tight and trouble free operation. Multiple compressor/ circuit chillers have coolers with separate refrigeration circuits for each compressor.

Each refrigeration circuit is provided with its own pressure relief valve. All chillers are fitted with drain valves on the removable heads and shell. All coolers are factory insulated with 19mm of closed cell expanded synthetic rubber with all joints vapor sealed.

Air cooled condenser

Condenser coils are constructed from copper tubes with spiral grooves on their inside surface to maximize heat transfer efficiency. The two types of condenser fin can be provided as a standard based on customer's request. The one is that aluminum condenser fins have a corrosion resistant and hydrophilic coating to minimize dust and moisture accumulation and ensure a long working life. The fins have rippled and louvered surfaces to improve heat dissipation efficiency.

The other one is that LG's patented chloride-induced corrosion-resistant Goldfin™ reduces heat exchanger corrosion. This specially developed coating offers maximum protection, even in the most humid of conditions.

Each condenser section comprises coils in a reversed V arrangement. Condenser fans are axial type using designed s-shaped blade. Therefore it makes high air flow and low vibration and sound with the combination of this technology, chiller can be operated in ambient temperature up to 52˚C (125˚F). Fan motors are waterproof rated to IP54 with class 'F' insulation suitable for operation in temperatures from -20˚c to 65˚c (-4˚F to 150˚F).

Electronic expansion valve

Electrically operated expansion valves is used for precise liquid injection in evaporators.
This EXV are designed for HFC/HCFC conditions, providing 34 bar (493 psig) working pressure.
Balanced design providing bi-flow operation as well as solenoid

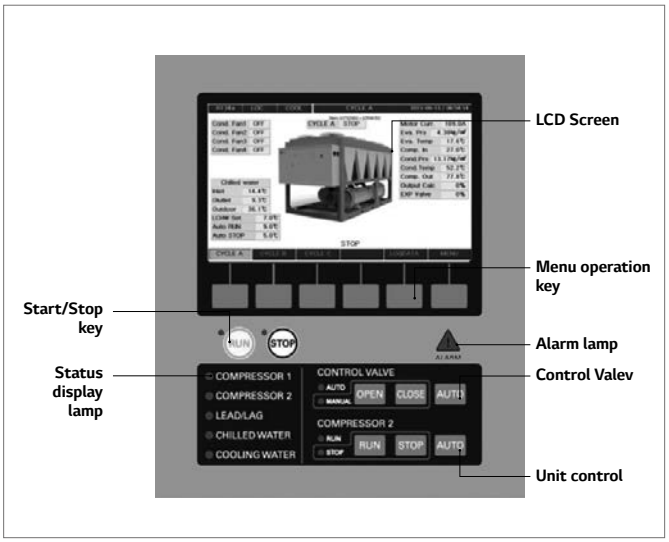
tight shut-off function in both flow directions at MOPD(Maxium Operating Pressure Differential) 33 bar (478.6psig).
This valve controls refrigerant flow for different operating conditions by change orifice size to increase or decrease flow area through the valve.
This valve is controlled by microprocessor signal.

Control

Control panel layout function

HMI(Human Man Interface) with 7 inch Color LCD is composed as a graphic type.
There are start/stop, control valve and unit control, compressor, auto lead lag lamp and chilled water/cooling water lamp keys. There are 'function keys' at the bottom of the screen that change according to the current screen to be able to access lower categories.

How to operate menu and names of the operation panel. Screw chiller control device display has the basic screen that can check the current operation status, main menu for user to conveniently use screw chiller such as user setting, problem/caution information, history etc., and system menu for sensor setting, system related setting.



Controller front view

Names of operation unit

Name	Description
LCD screen	It is the color LCD(Liquid Crystal Display) showing operation information and status as in text(Korean, English, Chinese) or animation graphic.
Menu operation key	It is the key to operate menu displayed on the LCD, such as, selection of the displaying screen or setting of operation condition, etc. The functions of the oepration keys are is displayed at the bottom of the LCD screen, and the functhions of the operation key change as the selected screens.
Control Valve manual operation key	It is the key to operate9open/close) the solenoid valve manually. When "manual" idicator lamp is on, it is state where manual operation is possible. Open/close key only operates while the key is pressed down.
Unit control manual opertion key	It is the key to start/stop manually. When "manual" idicator lamp is on, it is state where manual operation is possible, and it works when it is pressed down for about 1.5 sec. or longer.
Alarm lamp	When a problem or caution warning occurs the alram lamp is turned on. When the alarm lamp is on, the message on about the alarm is displayed on the message display line tin the LCD screen. At this time, therealease key shows up and buzzer will sounds. If you press the release ky at this time, the buzzer will stop and the release key will disappears. And when the problem alarm disappears, the message will also disappears.
Run/Stop key	It is the key to Run/Stop the chiller. It works when you press it down for about 1.5 seconds or longer, and run indicator lamp is on during running, and stop indicator lamp is on when it is stopped.
Compressor 2 Run/Stop key	It is used when 2 compressors are operated. It is the key to Run/Stop the second compressor. In the product where 2 compressors are installed, it is used as the Run/Stop key of the compressor 2. It displays the Run/Stop status of the chiller and devices attached to the chiller and as well as status of the chilled water, cooling water, and flow rate. The indicator lamp is on when it is operated.

Controller system composition diagram

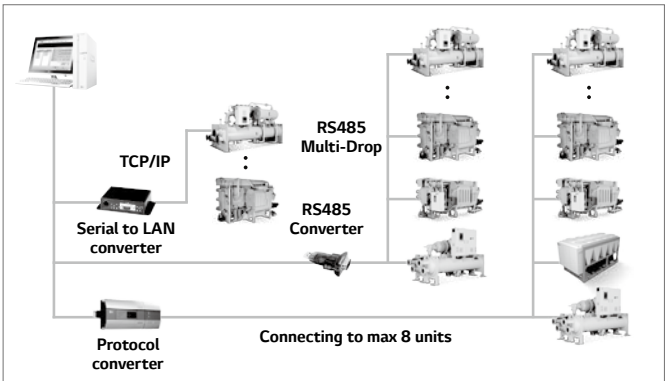
Master, slave, HMI, Relay board communicates with RS485, and in one master/slave board, there are analog input(temp. 12 channel, current 10 channel), analog output(current 4 channel), digital input(20 channel), digital output(16 channel). Relay board controls Solenoid valve in 2 comp.

BMS support function

Screw chiller's basic communication protocol is Modbus protocol, and it can be compatible with higher level communication methods.

Communication protocol support

- Communication method
  - Basic: RS-485
  - Option: Ethernet
- Protocol
  - Basic: MODBUS
  - Option: BACnet, TCP/IP



Detailed diagrams of BMS

Accessories and options

Compressor acoustic enclosure

The compressor acoustic enclosure can be provided as an option to reduce compressor sound levels.
This enclosure is constructed of painted panels and sound absorbing insulation for maximum sound attenuation. The panels and the sound foam, provide sound damping effect. This panel fastened with bolt for service.
The enclosure is factory installed option.

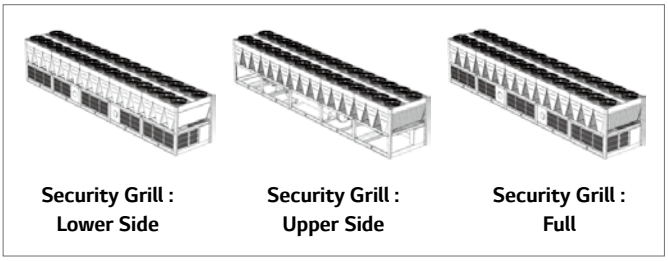
Condenser

To have better protection against corrosion caused by salty air in seashore area or acid corrosive environment, these options are recommended to extend equipment life. The following options are provided with factory mounted.

- Pre Coating
  The condenser coil is made of aluminum fins with pre-treated polyurethane coating.
- Copper fin
  The heat exchanger unit is made with copper tube condenser coils having copper fins. (This is not recommended to use in area where they may be exposed to acid corrosive environment)

Protective chiller panels

- Security grills (lower/upper/full protection): Protect the exposed condenser from flying foreign material or debris coils as well as prevent unauthorized access to internal components.



Evaporator options
Double thickness insulation

As a standard, the evaporator shell is insulated with 3/4"(19mm). As an option, it can be insulated with 1-1/2" (38mm).

General options
Flow switch accessory

Water flow detection switch is should be installed to detect water flow. The water flow switch comes with SPDT(Single Pole Double Throw) output function, 1.6MPa (232 psi) working pressure, -10°C to 120°C (-14°F to 248°F) with 1" NPT connection for upright mounting in horizontal pipe (This flow switch or equivalent must be furnished with each unit). Field mounted.

Vibration isolation

For installation on building roofs or in sensitive noise areas (hospitals, studios and some residential areas) pre-selected spring type isolators with 1" or 2" deflection are available as a factory option – shipped loose part for field installation.

Power factor correction

Provide equipment with power factor correction capacitors as required to maintain a displacement power factor of 95% at all load conditions.

NFB (Non-Fused Breaker)
power disconnect switch

A non-fused disconnect is available as a factory-installed option for all units with single point power connection units. This option is that power supply is disconnected during service & repair work as well as door interlock.

Suction service isolation valve

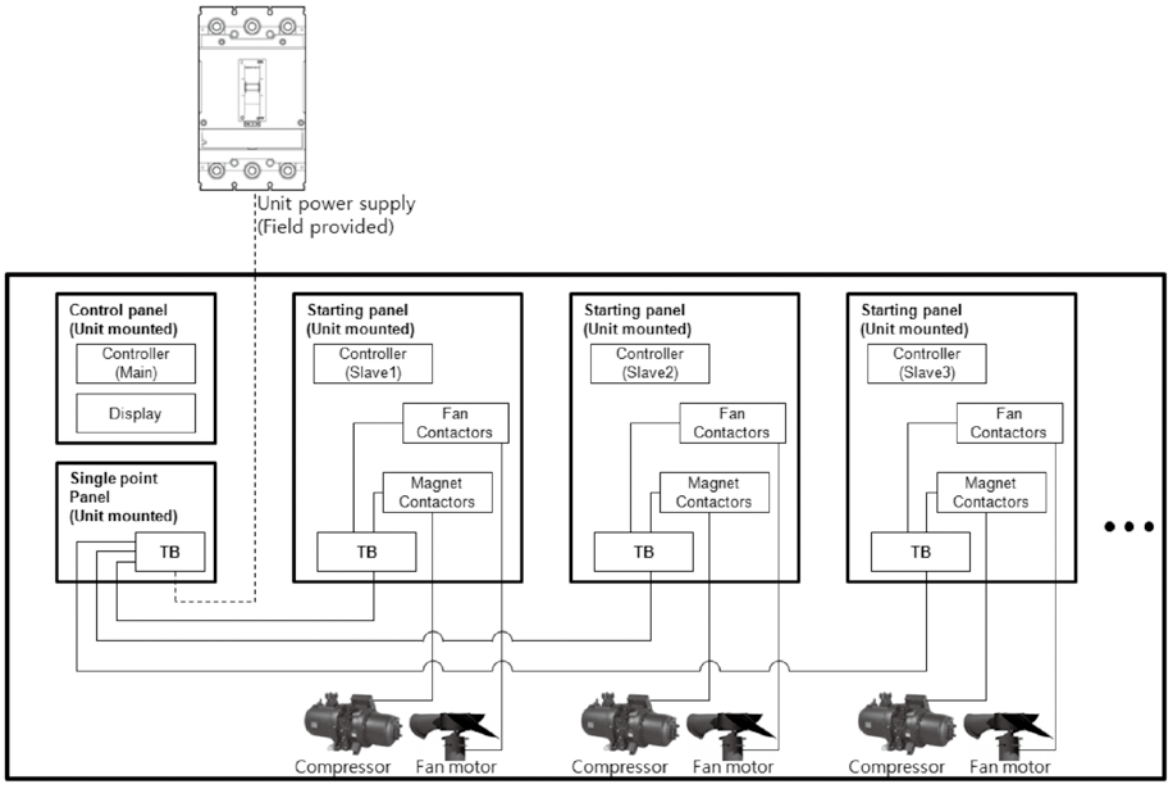
Service suction isolation valve is installed with unit for each refrigerant circuit as a standard.

Single power point connection

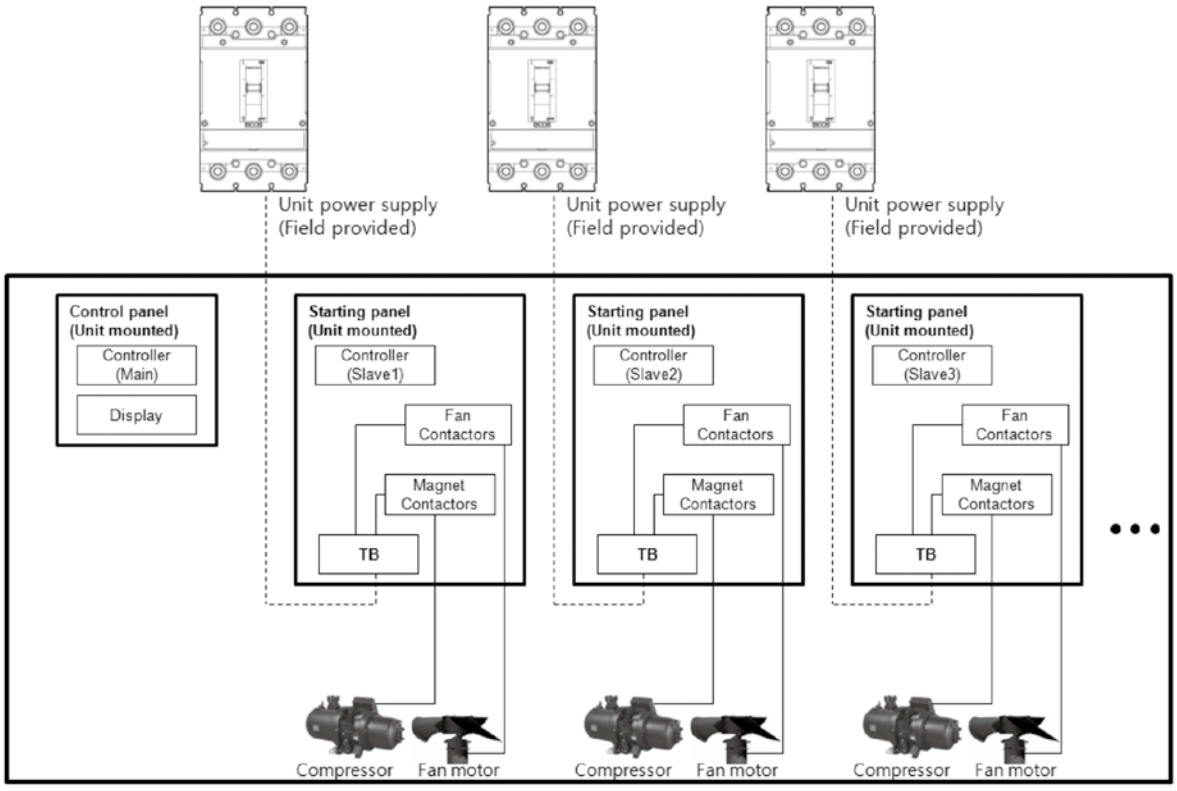
For models installed with 2,3 and 4 compressors, to minimize job site installation cost and time, single point power connection can be provided as an option. If optional single point power connection is required, terminal block connections will be supplied at the point of incoming single point connection.

Category	Optional list	Standard	Option	Remark
Refrigerant	Factory charging		√	
Operation temperature	Leaving chilled water	√		5~15°C
	Air ambient	√		5~54°C
BMS Interface	Modbus	√		
	BACnet		√	
Condenser corrosion protection	Pre coated fin		√	Polyurethane including aluminum powder
	Copper fin		√	
Protection guard	Full protection grill		√	Wire grill only
	Security grills (upper side)		√	Wire grill or louver panel
	Security grills (lower side)		√	
Evaporator	150 Psig	√		
	300 Psig		√	
	Flange	√		Exclude counter flange
	Victaulic		√	Exclude coupling
Insulations	Compressor acoustic enclosure		√	
	Double thickness insulation		√	
Others	Step-less control		√	Standard efficiency type only
	Soft starter		√	
	Suction service isolation valve	√		
	Single power point connection		√	
	NFB (Non-Fused Breaker) power disconnect switch		√	
	Power factor correction		√	
	Spring isolator		√	
	Flow switch (Pedal type)		√	Field installation
	Flow switch (Differential pressure switch)		√	Factory installation
	CE certification		√	

Single point connection



Multi point connection (Standard)



60Hz

Model		Units	MCAW008AA11	MCAW010AA11	MCAW012AA11	MCAW014AA11	MCAW016AA11
Standard Condition	Cooling capacity	kW	250	314	390	471	523
		usRT	71.1	89.3	110.9	133.9	148.7
	Input Power	kW	83.4	104	130	157.3	174.4
	COP				3.0		
General Unit Data	Number of Independent refrigerant circuits				1		
	Refrigerant Charge, R-134a	kg	110	130	160	200	220
	Oil Charge	l	16	18	20	28	28
Weight	Shipping weight	kg	3,250	3,800	4,150	4,790	5,160
	Operating weight	kg	3,326	3,890	4,251	4,909	5,285
Compressors	Compressor type				Semi-hermetic twin screw		
	Quantity	EA			1		
Condenser	Total Chiller Coil Face Area	m^2	14.8	18.5	22.2	25.9	29.6
	Number of Coils	EA	8	10	12	14	16
	Number of rows	-			3		
	Fins per inch	FPI			15		
Fans	Number	EA	8	10	12	14	16
	Fan Motor	kW	10.8	13.5	16.2	18.9	21.6
	Fan Speed	RPM			1,100		
	Fan Diameter	mm			680		
	Fan Tip Speed	m/s			35.6		
	Total Chiller Airflow	l/s	29,333	36,667	44,000	51,333	58,667
Evaporator	Evaporator type				Shell & tube		
	Water Volume	l	56	59	64	79	81
	Maximum Water Side Pressure	MPa			1		
	Maximum Refrigerant Side Pressure	Mpa			1		
	Minimum Chiller Water Flow Rate	l/s	6.7	8.2	10.7	11.5	12.5
	Maximum Chiller Water Flow Rate	l/s	26.8	32.6	42.9	46	50.2
	Water Connections	DN	100	100	100	125	125
Dimension	Length	mm	3,454	4,217	4,980	5,743	6,506
	Width	mm	2,154	2,154	2,154	2,154	2,154
	Height	mm	2,270	2,270	2,270	2,270	2,270

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH_2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.018m^2·˚C/kW (0.0001h·ft2·˚F/Btu)
3. Cooling conditions : Ambient temperature is 35˚C (95˚F),
   Chilled water temperature outlet is 6.7˚C (44˚F). Temperature difference is 5.5˚C (10˚F).
4. Due to our policy of innovation some sppecifications may be changed without prior notification.
5. All data in this table is rated in accordance with ARI Standard 550/590.

60Hz

Model		Units	MCAW020AA21	MCAW024AA21	MCAW028AA21	MCAW032AA21
Standard Condition	Cooling capacity	kW	627	780	943	1,046
		usRT	178.3	221.8	268.1	297.4
	Input Power	kW	208	260.1	314.3	348.8
	COP		3.0			
General Unit Data	Number of Independent refrigerant circuits		2			
	Refrigerant Charge, R-134a	kg	130 / 130	160 / 160	200 / 200	220 / 220
	Oil Charge	l	18 / 18	20 / 20	28 / 28	28 / 28
Weight	Shipping weight	kg	7,600	8,300	9,580	10,320
	Operating weight	kg	7,779	8,502	9,818	10,570
Compressors	Compressor type		Semi-hermetic twin screw			
	Quantity	EA	2			
Condenser	Total Chiller Coil Face Area	m^2	18.5 / 18.5	22.2 / 22.2	25.9 / 25.9	29.6 / 29.6
	Number of Coils	EA	10 / 10	12 / 12	14 / 14	16 / 16
	Number of rows	-	3			
	Fins per inch	FPI	15			
Fans	Number	EA	10 / 10	12 / 12	14 / 14	16 / 16
	Fan Motor	kW	13.5 / 13.5	16.2 / 16.2	18.9 / 18.9	21.6 / 21.6
	Fan Speed	RPM	11,00			
	Fan Diameter	mm	680			
	Fan Tip Speed	m/s	35.6			
	Total Chiller Airflow	l/s	36,667 / 36,667	44,000 / 44,000	51,333 / 51,333	58,667 / 58,667
Evaporator	Evaporator type		Shell & tube			
	Water Volume	l	59 / 59	64 / 64	79 / 79	81 / 81
	Maximum Water Side Pressure	MPa	1			
	Maximum Refrigerant Side Pressure	Mpa	1			
	Minimum Chiller Water Flow Rate	l/s	8.2 / 8.2	10.7 / 10.7	11.5 / 11.5	12.5 / 12.5
	Maximum Chiller Water Flow Rate	l/s	32.6 / 32.6	42.9 / 42.9	46 / 46	50.2 / 50.2
	Water Connections	DN	100 / 100	100 / 100	125 / 125	125 / 125
Dimension	Length	mm	8,092	9,618	11,144	12,670
	Width	mm	2,154	2,154	2,154	2,154
	Height	mm	2,270	2,270	2,270	2,270

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH_2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.018m^2·˚C/kW (0.0001h·ft2·˚F/Btu)
3. Cooling conditions : Ambient temperature is 35˚C (95˚F),
   Chilled water temperature outlet is 6.7˚C (44˚F). Temperature difference is 5.5˚C (10˚F).
4. Due to our policy of innovation some sppecifications may be changed without prior notification.
5. All data in this table is rated in accordance with ARI Standard 550/590.

50Hz

Model		Units	MCAW008AA11	MCAW010AA11	MCAW012AA11	MCAW014AA11	MCAW016AA11
Standard Condition	Cooling capacity	kW	261	324	392	472	547
		usRT	74.2	92.1	111.5	134.2	155.5
	Input Power	kW	86.2	105.7	127.1	151.3	173.2
	COP		3.0	3.1	3.1	3.1	3.2
General Unit Data	Number of Independent refrigerant circuits		1				
	Refrigerant Charge, R-134a	kg	110	140	160	200	230
	Oil Charge	l	18	20	28	28	28
Weight	Shipping weight	kg	3,420	3,830	4,400	4,900	5,220
	Operating weight	kg	3,496	3,920	4,501	5,019	5,345
Compressors	Compressor type		Semi-hermetic twin screw				
	Quantity	EA	1				
Condenser	Total Chiller Coil Face Area	m^2	14.8	18.5	22.2	25.9	29.6
	Number of Coils	EA	8	10	12	14	16
	Number of rows	-	3				
	Fins per inch	FPI	15				
Fans	Number	EA	8	10	12	14	16
	Fan Motor	kW	10.4	13	15.6	18.2	20.8
	Fan Speed	RPM	960				
	Fan Diameter	mm	680				
	Fan Tip Speed	m/s	34.2				
	Total Chiller Airflow	l/s	28,000	35,000	42,000	49,000	56,000
Evaporator	Evaporator type		Shell & tube				
	Water Volume	l	56	59	64	79	81
	Maximum Water Side Pressure	MPa	1				
	Maximum Refrigerant Side Pressure	Mpa	1				
	Minimum Chiller Water Flow Rate	l/s	6.7	8.2	10.7	11.5	12.5
	Maximum Chiller Water Flow Rate	l/s	26.8	32.6	42.9	46	50.2
	Water Connections	DN	100	100	100	125	125
Dimension	Length	mm	3,454	4,217	4,980	5,743	6,506
	Width	mm	2,154	2,154	2,154	2,154	2,154
	Height	mm	2,270	2,270	2,270	2,270	2,270

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH_2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.018m^2·˚C/kW (0.0001h·ft2·˚F/Btu)
3. Cooling conditions : Ambient temperature is 35˚C (95˚F),
   Chilled water temperature outlet is 6.7˚C (44˚F). Temperature difference is 5.5˚C (10˚F).
4. Due to our policy of innovation some sppecifications may be changed without prior notification.
5. All data in this table is rated in accordance with ARI Standard 550/590.

50Hz

Model		Units	MCAW020AA21	MCAW024AA21	MCAW028AA21	MCAW032AA21
Standard Condition	Cooling capacity	kW	649	784	944	1,093
		usRT	184.5	222.9	268.4	310.8
	Input Power	kW	211.4	254.2	302.6	346.4
	COP		3.1	3.1	3.1	3.2
General Unit Data	Number of Independent refrigerant circuits		2			
	Refrigerant Charge, R-134a	kg	140 / 140	160 / 160	200 / 200	230 / 230
	Oil Charge	l	20 / 20	28 / 28	28 / 28	28 / 28
Weight	Shipping weight	kg	7,660	8,800	9,800	10,440
	Operating weight	kg	7,839	9,002	10,038	10,690
Compressors	Compressor type		Semi-hermetic twin screw			
	Quantity	EA	2			
Condenser	Total Chiller Coil Face Area	m^2	18.5 / 18.5	22.2 / 22.2	25.9 / 25.9	29.6 / 29.6
	Number of Coils	EA	10 / 10	12 / 12	14 / 14	16 / 16
	Number of rows	-	3			
	Fins per inch	FPI	15			
Fans	Number	EA	10 / 10	12 / 12	14 / 14	16 / 16
	Fan Motor	kW	13 / 13	15.6 / 15.6	18.2 / 18.2	20.8 / 20.8
	Fan Speed	RPM	960			
	Fan Diameter	mm	680			
	Fan Tip Speed	m/s	34.2			
	Total Chiller Airflow	l/s	35,000 / 35,000	42,000 / 42,000	49,000 / 49,000	56,000 / 56,000
Evaporator	Evaporator type		Shell & tube			
	Water Volume	l	59 / 59	64 / 64	79 / 79	81 / 81
	Maximum Water Side Pressure	MPa	1			
	Maximum Refrigerant Side Pressure	Mpa	1			
	Minimum Chiller Water Flow Rate	l/s	8.2 / 8.2	10.7 / 10.7	11.5 / 11.5	12.5 / 12.5
	Maximum Chiller Water Flow Rate	l/s	32.6 / 32.6	42.9 / 42.9	46 / 46	50.2 / 50.2
	Water Connections	DN	100 / 100	100 / 100	125 / 125	125 / 125
Dimension	Length	mm	8,092	9,618	11,144	12,670
	Width	mm	2,154	2,154	2,154	2,154
	Height	mm	2,270	2,270	2,270	2,270

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH_2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.018m^2·˚C/kW (0.0001h·ft2·˚F/Btu)
3. Cooling conditions : Ambient temperature is 35˚C (95˚F),
   Chilled water temperature outlet is 6.7˚C (44˚F). Temperature difference is 5.5˚C (10˚F).
4. Due to our policy of innovation some sppecifications may be changed without prior notification.
5. All data in this table is rated in accordance with ARI Standard 550/590.

60Hz

Model		Units	MCAW008CA1A	MCAW010CA1A	MCAW012CA1A	MCAW014CA2A
Standard Condition	Cooling capacity	kW	262	316	397	450
		usRT	74	90	113	128
	Input Power	kW	90.7	114.8	141.4	155
	COP		2.9	2.8	2.8	2.9
General Unit Data	Number of Independent refrigerant circuits		1	1	1	2
	Refrigerant Charge, R-134a	kg	70	90	110	60 / 60
	Oil Charge	l	16	18	20	16 / 16
Weight	Shipping Weight	kg	2,869	3,159	3,646	4,846
	Operating Weight	kg	3,004	3,326	3,845	5,086
Compressors	Compressor type		Semi-hermetic twin screw			
	Quantity	EA	1	1	1	2
Condenser	Total Coil Face Area	m^2	14.8	14.8	18.5	11.1 / 11.1
	Number of Coils	EA	8	8	10	6 / 6
	Number of rows	-	3	3	3	3
	Fins per inch	FPI	15	15	15	15
Fans	Number	EA	8	8	10	6 / 6
	Fan Motor	kW	10.8	10.8	13.5	8.1 / 8.1
	Fan Speed	RPM	1,100	1,100	1,100	1,100
	Fan Diameter	mm	680	680	680	680
	Fan Tip Speed	m/s	39.2	39.2	39.2	39.2
	Total Airflow	l/s	33,336	33,336	41,670	25,002 / 25,002
Evaporator	Evaporator type		Shell & tube			
	Water Volume	l	42	47	48	48
	Max. Water Pressure	MPa	1	1	1	1
	Max. Refrigerant Pressure	Mpa	1	1	1	1
	Min. Water Flow Rate	l/s	5.6	6.8	8.5	9.7
	Max. Water Flow Rate	l/s	22.6	27.2	34.2	38.7
Water Connections	Water Connections	DN	100	100	125	125
	Drain(NPT)	mm	32	32	32	32
Dimension	Length	mm	3,132	3,132	3,895	4,658
	Width	mm	2,154	2,154	2,154	2,154
	Height	mm	2,131	2,131	2,131	2,131

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH_2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.018m^2·˚C/kW (0.0001h·ft2·˚F/Btu)
3. Cooling conditions : Ambient temperature is 35˚C (95˚F),
   Chilled water temperature outlet is 6.7˚C (44˚F). Temperature difference is 5.5˚C (10˚F).
4. Due to our policy of innovation some sppecifications may be changed without prior notification.
5. All data in this table is rated in accordance with ARI Standard 550/590.

60Hz

Model		Units	MCAW016CA2A	MCAW018CA2A	MCAW020CA2A	MCAW022CA2A
Standard Condition	Cooling capacity	kW	549	631	668	774
		usRT	156	179	190	220
	Input Power	kW	190.4	222.7	230.5	274.8
	COP		2.9	2.8	2.9	2.8
General Unit Data	Number of Independent refrigerant circuits		2	2	2	2
	Refrigerant Charge, R-134a	kg	70 / 80	90 / 90	90 / 90	100 / 100
	Oil Charge	l	15 / 15	18 / 18	20 / 20	20 / 20
Weight	Shipping Weight	kg	5,436	5,926	6,006	6,586
	Operating Weight	kg	5,707	6,232	6,354	6,970
Compressors	Compressor type		Semi-hermetic twin screw			
	Quantity	EA	2	2	2	2
Condenser	Total Coil Face Area	m^2	11.1 / 14.8	14.8 / 14.8	14.8 / 14.8	14.8 / 18.5
	Number of Coils	EA	6 / 8	8 / 8	8 / 8	8 / 10
	Number of rows	-	3	3	3	3
	Fins per inch	FPI	15	15	15	15
Fans	Number	EA	6 / 8	8 / 8	8 / 8	8 / 10
	Fan Motor	kW	8.1 / 10.8	10.8 / 10.8	10.8 / 10.8	10.8 / 13.5
	Fan Speed	RPM	1,100	1,100	1,100	1,100
	Fan Diameter	mm	680	680	680	680
	Fan Tip Speed	m/s	39.2	39.2	39.2	39.2
	Total Airflow	l/s	25,002 / 33,336	33,336 / 33,336	33,336 / 33,336	33,336 / 41,670
Evaporator	Evaporator type		Shell & tube			
	Water Volume	l	63	64	65	67
	Max. Water Pressure	MPa	1	1	1	1
	Max. Refrigerant Pressure	Mpa	1	1	1	1
	Min. Water Flow Rate	l/s	11.8	13.6	14.4	16.7
	Max. Water Flow Rate	l/s	47.3	54.3	57.5	66.6
Water Connections	Water Connections	DN	125	125	125	150
	Drain(NPT)	mm	32	32	32	32
Dimension	Length	mm	5,421	6,184	6,184	6,947
	Width	mm	2,154	2,154	2,154	2,154
	Height	mm	2,131	2,350	2,350	2,350

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH_2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.018m^2·°C/kW (0.0001h·ft2·°F/Btu)
3. Cooling conditions : Ambient temperature is 35°C (95°F),
   Chilled water temperature outlet is 6.7°C (44°F). Temperature difference is 5.5°C (10°F).
4. Due to our policy of innovation some sppecifications may be changed without prior notification.
5. All data in this table is rated in accordance with ARI Standard 550/590.

60Hz

Model		Units	MCAW024CA2A	MCAW026CA2A	MCAW028CA2A	MCAW030CA2A
Standard Condition	Cooling capacity	kW	822	890	979	1,046
		usRT	234	253	278	297
	Input Power	kW	284.2	304.3	337.1	361.1
	COP		2.9	2.9	2.9	2.9
General Unit Data	Number of Independent refrigerant circuits		2	2	2	2
	Refrigerant Charge, R-134a	kg	110 / 110	110 / 130	120 / 140	140 / 140
	Oil Charge	l	23 / 23	23 / 28	28 / 28	28 / 28
Weight	Shipping Weight	kg	7,036	7,509	7,935	8,496
	Operating Weight	kg	7,455	7,947	8,388	8,999
Compressors	Compressor type		Semi-hermetic twin screw			
	Quantity	EA	2	2	2	2
Condenser	Total Coil Face Area	m^2	18.5 / 18.5	18.5 / 22.2	18.5 / 22.2	22.2 / 25.9
	Number of Coils	EA	10 / 10	10 / 12	10 / 12	12 / 14
	Number of rows	-	3	3	3	3
	Fins per inch	FPI	15	15	15	15
Fans	Number	EA	10 / 10	10 / 12	10 / 12	12 / 14
	Fan Motor	kW	13.5 / 13.5	13.5 / 16.2	13.5 / 16.2	16.2 / 18.9
	Fan Speed	RPM	1,100	1,100	1,100	1,100
	Fan Diameter	mm	680	680	680	680
	Fan Tip Speed	m/s	39.2	39.2	39.2	39.2
	Total Airflow	l/s	41,670 / 41,670	41,670 / 50,004	41,670 / 50,004	50,004 / 58,338
Evaporator	Evaporator type		Shell & tube			
	Water Volume	l	78	84	87	108
	Max. Water Pressure	MPa	1	1	1	1
	Max. Refrigerant Pressure	Mpa	1	1	1	1
	Min. Water Flow Rate	l/s	17.7	19.2	21.1	22.5
	Max. Water Flow Rate	l/s	70.8	76.6	84.3	90
Water Connections	Water Connections	DN	150	150	150	150
	Drain(NPT)	mm	32	32	32	32
Dimension	Length	mm	7,710	8,473	8,473	9,999
	Width	mm	2,154	2,154	2,154	2,154
	Height	mm	2,350	2,350	2,350	2,350

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH_2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.018m^2·˚C/kW (0.0001h·ft2·˚F/Btu)
3. Cooling conditions : Ambient temperature is 35˚C (95˚F),
   Chilled water temperature outlet is 6.7˚C (44˚F). Temperature difference is 5.5˚C (10˚F).
4. Due to our policy of innovation some sppecifications may be changed without prior notification.
5. All data in this table is rated in accordance with ARI Standard 550/590.

60Hz

Model		Units	MCAW036CA3A	MCAW040CA3A	MCAW045CA4A	MCAW050CA4A
Standard Condition	Cooling capacity	kW	1,293	1,367	1,547	1,706
		usRT	368	389	440	485
	Input Power	kW	441.5	470.4	543.7	616.5
	COP		2.9	2.9	2.8	2.8
General Unit Data	Number of Independent refrigerant circuits		3	3	4	4
	Refrigerant Charge, R-134a	kg	110 / 110 / 130	120 / 120 / 120	100 / 100 / 110 / 110	110 / 110 / 120 / 120
	Oil Charge	l	23 / 23 / 28	28 / 28 / 28	20 / 20 / 20 / 20	23 / 23 / 28 / 28
Weight	Shipping Weight	kg	9,365	9,907	10,956	12,054
	Operating Weight	kg	9,995	10,597	11,723	12,901
Compressors	Compressor type		Semi-hermetic twin screw			
	Quantity	EA	3	3	4	4
Condenser	Total Coil Face Area	m^2	18.5 / 18.5 / 18.5	18.5 / 18.5 / 18.5	14.8 / 14.8 / 18.5 / 18.5	18.5 / 18.5 / 18.5 / 18.5
	Number of Coils	EA	10 / 10 / 10	10 / 10 / 10	8 / 8 / 10 / 10	10 / 10 / 10 / 10
	Number of rows	-	3	3	3	3
	Fins per inch	FPI	15	15	15	15
Fans	Number	EA	10 / 10 / 10	10 / 10 / 10	8 / 8 / 10 / 10	10 / 10 / 10 / 10
	Fan Motor	kW	13.5 / 13.5 / 13.5	13.5 / 13.5 / 13.5	10.8 / 10.8 / 13.5 / 13.5	13.5 / 13.5 / 13.5 / 13.5
	Fan Speed	RPM	1,100	1,100	1,100	1,100
	Fan Diameter	mm	680	680	680	680
	Fan Tip Speed	m/s	39.2	39.2	39.2	39.2
	Total Airflow	l/s	41,670 / 41,670 / 41,670	41,670 / 41,670 / 41,670	33,336 / 33,336 / 41,670 / 41,670	41,670 / 41,670 / 41,670 / 41,670
Evaporator	Evaporator type		Shell & tube			
	Water Volume	l	134	137	78 / 78	84 / 84
	Max. Water Pressure	MPa	1	1	1	1
	Max. Refrigerant Pressure	Mpa	1	1	1	1
	Min. Water Flow Rate	l/s	27.8	29.4	33.3	36.7
	Max. Water Flow Rate	l/s	111.3	117.7	133.2	146.8
Water Connections	Water Connections	DN	200	200	150 / 150	150 / 150
	Drain(NPT)	mm	32	32	32	32
Dimension	Length	mm	11,525	11,525	15,420	15,420
	Width	mm	2,154	2,154	2,154	2,154
	Height	mm	2,350	2,350	2,350	2,350

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH_2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.018m^2·°C/kW (0.0001h·ft2·°F/Btu)
3. Cooling conditions : Ambient temperature is 35°C (95°F),
   Chilled water temperature outlet is 6.7°C (44°F). Temperature difference is 5.5°C (10°F).
4. Due to our policy of innovation some sppecifications may be changed without prior notification.
5. All data in this table is rated in accordance with ARI Standard 550/590.

50Hz

Model		Units	MCAW008CA1A	MCAW010CA1A	MCAW012CA1A	MCAW014CA2A
Standard Condition	Cooling capacity	kW	267	324	405	468
		usRT	76	92	115	133
	Input Power	kW	94	115.9	137.4	159.2
	COP		2.8	2.8	2.9	2.9
General Unit Data	Number of Independent refrigerant circuits		1	1	1	2
	Refrigerant Charge, R-134a	kg	70	90	110	60 / 60
	Oil Charge	l	18	20	28	15 / 15
Weight	Shipping Weight	kg	3,039	3,189	3,905	5,086
	Operating Weight	kg	3,176	3,358	4,112	5,330
Compressors	Compressor type		Semi-hermetic twin screw			
	Quantity	EA	1	1	1	2
Condenser	Total Coil Face Area	m^2	14.8	14.8	18.5	11.1 / 11.1
	Number of Coils	EA	8	8	10	6 / 6
	Number of rows	-	3	3	3	3
	Fins per inch	FPI	15	15	15	15
Fans	Number	EA	8	8	10	6 / 6
	Fan Motor	kW	8.0	8.0	10.0	6.0 / 6.0
	Fan Speed	RPM	950	950	950	950
	Fan Diameter	mm	680	680	680	680
	Fan Tip Speed	m/s	32.4	32.4	32.4	32.4
	Total Airflow	l/s	28,000	28,000	35,000	21,000 / 21,000
Evaporator	Evaporator type		Shell & tube			
	Water Volume	l	42	47	48	48
	Max. Water Pressure	MPa	1	1	1	1
	Max. Refrigerant Pressure	Mpa	1	1	1	1
	Min. Water Flow Rate	l/s	5.7	7	8.7	10.1
	Max. Water Flow Rate	l/s	23	27.9	34.9	40.3
Water Connections	Water Connections	DN	100	100	125	125
	Drain(NPT)	mm	32	32	32	32
Dimension	Length	mm	3,132	3,132	3,895	4,658
	Width	mm	2,154	2,154	2,154	2,154
	Height	mm	2,131	2,131	2,131	2,131

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH_2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.018m^2·˚C/kW (0.0001h·ft2·˚F/Btu)
3. Cooling conditions : Ambient temperature is 35˚C (95˚F),
   Chilled water temperature outlet is 6.7˚C (44˚F). Temperature difference is 5.5˚C (10˚F).
4. Due to our policy of innovation some sppecifications may be changed without prior notification.
5. All data in this table is rated in accordance with ARI Standard 550/590.

50Hz

Model		Units	MCAW016CA2A	MCAW018CA2A	MCAW020CA2A	MCAW022CA2A
Standard Condition	Cooling capacity	kW	525	634	683	746
		usRT	149	180	194	212
	Input Power	kW	184.3	217.7	237.1	256.2
	COP		2.8	2.9	2.9	2.9
General Unit Data	Number of Independent refrigerant circuits		2	2	2	2
	Refrigerant Charge, R-134a	kg	70 / 70	80 / 90	90 / 90	90 / 110
	Oil Charge	l	18 / 18	23 / 20	23 / 23	23 / 28
Weight	Shipping Weight	kg	5,566	5,986	6,206	6,885
	Operating Weight	kg	5,845	6,300	6,569	7,278
Compressors	Compressor type		Semi-hermetic twin screw			
	Quantity	EA	2	2	2	2
Condenser	Total Coil Face Area	m^2	11.1 / 14.8	14.8 / 14.8	14.8 / 14.8	14.8 / 18.5
	Number of Coils	EA	6 / 8	8 / 8	8 / 8	8 / 10
	Number of rows	-	3	3	3	3
	Fins per inch	FPI	15	15	15	15
Fans	Number	EA	6 / 8	8 / 8	8 / 8	8 / 10
	Fan Motor	kW	6.0 / 8.0	8.0 / 8.0	8.0 / 8.0	8.0 / 10.0
	Fan Speed	RPM	950	950	950	950
	Fan Diameter	mm	680	680	680	680
	Fan Tip Speed	m/s	32.4	32.4	32.4	32.4
	Total Airflow	l/s	21,000 / 28,000	28,000 / 28,000	28,000 / 28,000	28,000 / 35,000
Evaporator	Evaporator type		Shell & tube			
	Water Volume	l	63	64	65	67
	Max. Water Pressure	MPa	1	1	1	1
	Max. Refrigerant Pressure	Mpa	1	1	1	1
	Min. Water Flow Rate	l/s	11.3	13.6	14.7	16.1
	Max. Water Flow Rate	l/s	45.2	54.6	58.8	64.2
Water Connections	Water Connections	DN	125	125	125	150
	Drain(NPT)	mm	32	32	32	32
Dimension	Length	mm	5,421	6,184	6,184	6,947
	Width	mm	2,154	2,154	2,154	2,154
	Height	mm	2,131	2,350	2,350	2,350

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH_2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.018m^2·°C/kW (0.0001h·ft2·°F/Btu)
3. Cooling conditions : Ambient temperature is 35°C (95°F),
   Chilled water temperature outlet is 6.7°C (44°F). Temperature difference is 5.5°C (10°F).
4. Due to our policy of innovation some sppecifications may be changed without prior notification.
5. All data in this table is rated in accordance with ARI Standard 550/590.

50Hz

Model		Units	MCAW024CA2A	MCAW026CA2A	MCAW028CA2A	MCAW030CA3A
Standard Condition	Cooling capacity	kW	833	902	981	1,047
		usRT	237	256	279	298
	Input Power	kW	284.8	310.8	335.4	356.9
	COP		2.9	2.9	2.9	2.9
General Unit Data	Number of Independent refrigerant circuits		2	2	2	3
	Refrigerant Charge, R-134a	kg	110 / 120	120 / 120	120 / 140	90 / 100 / 100
	Oil Charge	l	28 / 28	28 / 28	28 / 28	23 / 23 / 23
Weight	Shipping Weight	kg	7,565	7,925	8,076	9,326
	Operating Weight	kg	7,988	8,363	8,529	9,856
Compressors	Compressor type		Semi-hermetic twin screw			
	Quantity	EA	2	2	2	3
Condenser	Total Coil Face Area	m^2	18.5 / 18.5	18.5 / 22.2	18.5 / 22.2	14.8 / 18.5 / 18.5
	Number of Coils	EA	10 / 10	10 / 12	10 / 12	8 / 10 / 10
	Number of rows	-	3	3	3	3
	Fins per inch	FPI	15	15	15	15
Fans	Number	EA	10 / 10	10 / 12	10 / 12	8 / 10 / 10
	Fan Motor	kW	10.0 / 10.0	10.0 / 12.0	10.0 / 12.0	8.0 / 10.0 / 10.0
	Fan Speed	RPM	950	950	950	950
	Fan Diameter	mm	680	680	680	680
	Fan Tip Speed	m/s	32.4	32.4	32.4	32.4
	Total Airflow	l/s	35,000 / 35,000	35,000 / 42,000	35,000 / 42,000	28,000 / 35,000 / 35,000
Evaporator	Evaporator type		Shell & tube			
	Water Volume	l	78	84	87	108
	Max. Water Pressure	MPa	1	1	1	1
	Max. Refrigerant Pressure	Mpa	1	1	1	1
	Min. Water Flow Rate	l/s	17.9	19.4	21.1	22.5
	Max. Water Flow Rate	l/s	71.7	77.6	84.4	90.1
Water Connections	Water Connections	DN	150	150	150	150
	Drain(NPT)	mm	32	32	32	32
Dimension	Length	mm	7,710	8,473	8,473	10,762
	Width	mm	2,154	2,154	2,154	2,154
	Height	mm	2,350	2,350	2,350	2,350

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH_2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.018m^2·˚C/kW (0.0001h·ft2·˚F/Btu)
3. Cooling conditions : Ambient temperature is 35˚C (95˚F),
   Chilled water temperature outlet is 6.7˚C (44˚F). Temperature difference is 5.5˚C (10˚F).
4. Due to our policy of innovation some sppecifications may be changed without prior notification.
5. All data in this table is rated in accordance with ARI Standard 550/590.

50Hz

Model		Units	MCAW036CA3A	MCAW040CA3A	MCAW045CA4A	MCAW050CA4A
Standard Condition	Cooling capacity	kW	1,189	1,304	1,580	1,739
		usRT	338	371	449	494
	Input Power	kW	409.6	451.9	541.6	602.5
	COP		2.9	2.9	2.9	2.9
General Unit Data	Number of Independent refrigerant circuits		3	3	4	4
	Refrigerant Charge, R-134a	kg	110 / 110 / 110	120 / 120 / 120	110 / 110 / 110 / 110	120 / 120 / 120 / 120
	Oil Charge	l	28 / 28 / 28	28 / 28 / 28	28 / 28 / 28 / 28	28 / 28 / 28 / 28
Weight	Shipping Weight	kg	9,783	10,150	12,012	12,836
	Operating Weight	kg	10,413	10,840	12,779	13,663
Compressors	Compressor type		Semi-hermetic twin screw			
	Quantity	EA	3	3	4	4
Condenser	Total Coil Face Area	m^2	18.5 / 18.5 / 18.5	18.5 / 18.5 / 18.5	14.8 / 14.8 / 18.5 / 18.5	18.5 / 18.5 / 18.5 / 18.5
	Number of Coils	EA	10 / 10 / 10	10 / 10 / 10	8 / 8 / 10 / 10	10 / 10 / 10 / 10
	Number of rows	-	3	3	3	3
	Fins per inch	FPI	15	15	15	15
Fans	Number	EA	10 / 10 / 10	10 / 10 / 10	8 / 8 / 10 / 10	10 / 10 / 10 / 10
	Fan Motor	kW	10.0 / 10.0 / 10.0	10.0 / 10.0 / 10.0	8.0 / 8.0 / 10.0 / 10.0	10.0 / 10.0 / 10.0 / 10.0
	Fan Speed	RPM	950	950	950	950
	Fan Diameter	mm	680	680	680	680
	Fan Tip Speed	m/s	32.4	32.4	32.4	32.4
	Total Airflow	l/s	35,000 / 35,000 / 35,000	35,000 / 35,000 / 35,000	28,000 / 28,000 / 35,000 / 35,000	35,000 / 35,000 / 35,000 / 35,000
Evaporator	Evaporator type		Shell & tube			
	Water Volume	l	134	137	78 / 78	84 / 84
	Max. Water Pressure	MPa	1	1	1	1
	Max. Refrigerant Pressure	Mpa	1	1	1	1
	Min. Water Flow Rate	l/s	25.6	28.1	34	37.4
	Max. Water Flow Rate	l/s	102.3	112.2	136	149.7
Water Connections	Water Connections	DN	200	200	150 / 150	150 / 150
	Drain(NPT)	mm	32	32	32	32
Dimension	Length	mm	11,525	11,525	15,420	15,420
	Width	mm	2,154	2,154	2,154	2,154
	Height	mm	2,350	2,350	2,350	2,350

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH_2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.018m^2·˚C/kW (0.0001h·ft2·˚F/Btu)
3. Cooling conditions : Ambient temperature is 35˚C (95˚F),
   Chilled water temperature outlet is 6.7˚C (44˚F). Temperature difference is 5.5˚C (10˚F).
4. Due to our policy of innovation some sppecifications may be changed without prior notification.
5. All data in this table is rated in accordance with ARI Standard 550/590.

60Hz

MCAW008AA11

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	264.2	69.2	250.3	75.2	235.4	82.0	221.4	88.7	206.0	96.3	187.4	105.5
12 / 7	282.7	70.5	268	76.6	252.2	83.6	237.5	90.4	221.5	98.0	202.1	107.3
14 / 9	302.1	71.8	286.4	78.1	269.7	85.3	254.3	92.1	237.6	99.7	217.4	109.1
16 / 11	322.4	73.3	305.7	79.7	287.9	87.0	271.9	93.8	254.5	101.5	233.3	111
18 / 13	343.5	343.5	343.5	343.5	343.5	343.5	343.5	343.5	343.5	343.5	343.5	343.5

MCAW010AA11

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	331.8	86.7	314.4	94.2	295.7	102.8	278	111.2	258.7	120.6	235.3	132.1
12 / 7	355.1	88.3	336.6	96	316.7	104.8	298.2	113.2	278.1	122.7	253.7	134.4
14 / 9	379.4	90.0	359.7	97.9	338.7	106.8	319.4	115.4	298.4	124.9	272.9	136.7
16 / 11	404.8	91.8	383.8	99.8	361.6	109.0	341.4	117.6	319.6	127.2	293	139.1
18 / 13	431.2	93.6	409	101.9	385.4	111.2	364.4	119.9	341.7	129.5	313.9	141.6

MCAW012AA11

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	412.9	108.1	390.9	117.6	367.3	128.4	345.3	138.9	321.1	150.6	291.9	165
12 / 7	441.8	110.3	418.4	119.9	393.4	130.9	370.3	141.5	345.2	153.4	314.6	168
14 / 9	471.9	112.5	447	122.4	420.5	133.6	396.4	144.3	370.3	156.2	338.3	171
16 / 11	503.4	114.8	476.9	124.9	448.9	136.4	423.7	147.2	396.5	159.1	363.1	174
18 / 13	536.1	117.2	508	127.6	478.3	139.3	452.1	150.1	423.8	162.1	388.9	177.2

MCAW014AA11

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	498.9	130.6	472.4	142.1	443.8	155.2	417.1	167.9	388.0	182.1	352.3	199.5
12 / 7	533.4	133.2	505.2	145	475.0	158.4	447.1	171.2	416.7	185.5	379.5	203.2
14 / 9	569.5	136.0	539.5	148	507.5	161.7	478.4	174.7	446.8	189.0	407.9	206.9
16 / 11	607.1	138.8	575.2	151.2	541.3	165.2	510.9	178.2	478.1	192.6	437.5	210.7
18 / 13	646.1	141.9	612.3	154.5	576.5	168.8	544.8	181.9	510.7	196.4	468.4	214.7

MCAW016AA11

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	553.2	145.0	524.1	157.7	492.7	172.2	463.3	186.3	431.1	202.1	392	221.5
12 / 7	591.7	147.8	560.7	160.8	527.4	175.6	496.7	189.9	463.2	205.8	422.4	225.4
14 / 9	631.9	150.8	598.9	164.1	563.7	179.2	531.6	193.6	496.7	209.6	454.1	229.4
16 / 11	673.7	153.9	638.7	167.5	601.4	183.0	567.9	197.5	531.7	213.5	487.1	233.6
18 / 13	717.3	157.1	680.1	171.1	640.7	186.9	605.8	201.5	568.2	217.6	521.6	237.9

Note:
1. PI - Power Input include compressors and condenser fans
2. Interpolation between points is permissible. Extrapolation is not permitted.
3. Due to our policy of innovation some sppecifications may be changed without prior notification.

60Hz

MCAW020AA21

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	662.5	173.4	627.8	188.3	590.4	205.5	555.2	222.4	516.6	241.2	469.9	264.3
12 / 7	709.0	176.6	672.1	192	632.4	209.5	595.5	226.5	555.4	245.5	506.6	268.8
14 / 9	757.6	180.0	718.3	195.7	676.3	213.6	637.7	230.8	595.9	249.8	545	273.5
16 / 11	808.3	183.6	766.5	199.7	722.0	217.9	681.7	235.2	638.2	254.4	585	278.3
18 / 13	861.1	187.3	816.7	203.7	769.6	222.4	727.6	239.8	682.4	259.0	626.8	283.2

MCAW024AA21

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	825.8	216.3	781.8	235.2	734.7	256.8	690.5	277.8	642.3	301.3	583.8	330.2
12 / 7	883.5	220.6	836.8	239.9	786.8	262.0	740.5	283.2	690.3	306.8	629.2	336
14 / 9	943.9	225.0	894.1	244.8	841.1	267.3	792.8	288.7	740.5	312.5	676.7	342
16 / 11	1,006.8	229.6	953.9	249.9	897.7	272.9	847.3	294.4	792.9	318.3	726.2	348.2
18 / 13	1,072.2	234.5	1,016.1	255.2	956.7	278.7	904.1	300.4	847.6	324.4	777.9	354.6

MCAW028AA21

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	998.8	260.9	945.7	283.9	888.6	310.1	835.2	335.5	776.8	363.8	705.4	398.6
12 / 7	1,068.0	266.2	1,011.6	289.7	951.0	316.5	895.2	342.1	834.4	370.6	759.9	405.9
14 / 9	1,140.2	271.7	1,080.2	295.8	1,016.0	323.2	957.8	349	894.5	377.6	816.8	413.3
16 / 11	1,215.4	277.4	1,151.6	302.2	1,083.7	330.1	1,022.9	356.1	957.2	384.9	876	421
18 / 13	1,293.6	283.5	1,225.9	308.8	1,154.1	337.4	1,090.8	363.5	1,022.6	392.4	937.8	429

MCAW032AA21

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,106.4	289.9	1,048.2	315.3	985.4	344.3	926.6	372.6	862.2	404.1	783.9	442.9
12 / 7	1,183.4	295.6	1,121.4	321.6	1,054.9	351.3	993.4	379.8	926.4	411.5	844.7	450.8
14 / 9	1,263.7	301.6	1,197.8	328.2	1,127.3	358.5	1,063.1	387.2	993.4	419.1	908.1	458.9
16 / 11	1,347.4	307.8	1,277.4	335.1	1,202.8	366.0	1,135.8	394.9	1,063.4	427.0	974.3	467.2
18 / 13	1,434.5	314.2	1,360.2	342.2	1,281.4	373.8	1,211.6	402.9	1,136.3	435.2	1,043.3	475.8

Note:
1. PI - Power Input include compressors and condenser fans
2. Interpolation between points is permissible. Extrapolation is not permitted.
3. Due to our policy of innovation some sppecifications may be changed without prior notification.

50Hz

MCAW008AA11

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	276.5	71.3	261.8	77.5	245.9	84.7	231.1	91.6	214.9	99.3	195.1	108.8
12 / 7	295.7	72.7	280.1	79.1	263.2	86.4	247.7	93.4	230.9	101.1	210.2	110.7
14 / 9	315.8	74.2	299.1	80.8	281.3	88.2	265.1	95.3	247.5	103.1	226	112.8
16 / 11	336.6	75.8	318.9	82.5	300.0	90.1	283.2	97.2	264.9	105.0	242.4	114.9
18 / 13	358.4	77.4	339.5	84.3	319.6	92.1	302	99.2	283.1	107.1	259.5	117

MCAW010AA11

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	343.1	87.5	324.8	95.1	305.3	103.8	287	112.3	267.0	121.7	242.7	133.4
12 / 7	366.9	89.2	347.5	97	326.8	106.0	307.7	114.5	286.9	124.0	261.5	135.8
14 / 9	391.8	91.0	371.2	99.1	349.2	108.2	329.2	116.8	307.6	126.3	281.1	138.2
16 / 11	417.7	92.9	395.8	101.2	372.5	110.5	351.7	119.1	329.2	128.7	301.6	140.8
18 / 13	444.6	94.9	421.4	103.4	396.8	112.9	375.1	121.6	351.8	131.2	322.9	143.4

MCAW012AA11

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	415.4	105.2	393.2	114.4	369.3	124.9	347.1	135	322.8	146.3	293.2	160.2
12 / 7	444.3	107.3	420.7	116.7	395.4	127.4	372.1	137.7	346.8	149.0	315.9	163.1
14 / 9	474.5	109.5	449.3	119.2	422.5	130.1	398.2	140.4	371.9	151.9	339.6	166.1
16 / 11	505.9	111.8	479.2	121.7	450.8	132.9	425.4	143.3	398.1	154.8	364.3	169.2
18 / 13	538.6	114.3	510.2	124.4	480.2	135.8	453.8	146.2	425.4	157.8	390.1	172.4

MCAW014AA11

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	500.3	125.0	473.6	136	444.9	148.6	418.2	160.6	389.0	174.0	353.3	190.5
12 / 7	534.8	127.6	506.4	138.9	476.0	151.7	448.1	163.8	417.8	177.3	380.5	194
14 / 9	570.8	130.3	540.6	141.9	508.4	155.0	479.3	167.2	447.7	180.7	408.8	197.7
16 / 11	608.2	133.2	576.2	145	542.1	158.4	511.7	170.7	479.0	184.3	438.3	201.4
18 / 13	647.2	136.1	613.2	148.3	577.1	161.9	545.5	174.3	511.5	187.9	469.1	205.3

MCAW016AA11

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	579.8	143.1	548.9	155.7	515.7	170.0	484.9	183.8	451.2	199.0	410	217.9
12 / 7	619.6	146.1	586.8	159	551.6	173.7	519.4	187.5	484.5	202.9	441.5	222
14 / 9	661.0	149.2	626.2	162.5	588.9	177.4	555.4	191.4	519.1	206.8	474.2	226.2
16 / 11	704.2	152.5	667.2	166.1	627.8	181.4	592.9	195.4	555.1	210.9	508.3	230.5
18 / 13	749.0	155.9	709.8	169.8	668.2	185.5	631.8	199.6	592.7	215.2	543.8	235

Note:
1. PI - Power Input include compressors and condenser fans
2. Interpolation between points is permissible. Extrapolation is not permitted.
3. Due to our policy of innovation some sppecifications may be changed without prior notification.

50Hz

MCAW020AA21

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	687.2	174.9	650.7	190.2	611.5	207.7	574.9	224.6	534.9	243.5	486.2	266.7
12 / 7	734.9	178.4	696.1	194.1	654.5	211.9	616.3	229	574.7	248.0	523.9	271.5
14 / 9	784.7	182.1	743.4	198.1	699.4	216.4	659.5	233.6	616.2	252.7	563.1	276.5
16 / 11	836.6	185.9	792.8	202.4	746.1	221.0	704.5	238.3	659.5	257.5	604	281.6
18 / 13	890.6	189.9	844.1	206.8	794.8	225.8	751.4	243.2	704.6	262.5	646.7	286.8

MCAW024AA21

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	830.7	210.3	786.4	228.7	738.7	249.7	694.2	270	645.6	292.6	586.5	320.4
12 / 7	888.6	214.6	841.3	233.4	790.7	254.9	744.3	275.3	693.7	298.1	631.9	326.2
14 / 9	948.9	219.0	898.6	238.3	845.0	260.2	796.5	280.8	743.8	303.7	679.3	332.2
16 / 11	1,011.8	223.7	958.3	243.4	901.6	265.8	850.9	286.5	796.2	309.5	728.7	338.4
18 / 13	1,077.2	228.5	1,020.4	248.8	960.4	271.6	907.6	292.5	850.7	315.6	780.2	344.7

MCAW028AA21

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,000.6	250.1	947.2	272.1	889.8	297.1	836.4	321.2	778.0	347.9	706.6	381
12 / 7	1,069.6	255.3	1,012.9	277.8	952.0	303.4	896.2	327.7	835.5	354.6	761	388
14 / 9	1,141.6	260.7	1,081.2	283.8	1,016.7	309.9	958.6	334.4	895.5	361.5	817.6	395.3
16 / 11	1,216.5	266.3	1,152.4	290	1,084.1	316.7	1,023.5	341.3	957.9	368.5	876.7	402.8
18 / 13	1,294.4	272.3	1,226.3	296.5	1,154.2	323.8	1,091	348.6	1,023.0	375.9	938.1	410.5

MCAW032AA21

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,158.4	286.2	1,096.8	311.4	1,030.4	340.1	968.9	367.5	901.7	398.1	819.3	435.8
12 / 7	1,238.0	292.2	1,172.4	318	1,102.1	347.3	1,037.9	375	968.0	405.8	882.1	444
14 / 9	1,320.9	298.5	1,251.2	324.9	1,176.8	354.9	1,109.8	382.8	1,037.2	413.7	947.5	452.4
16 / 11	1,407.1	305.0	1,333.2	332.1	1,254.5	362.7	1,184.7	390.8	1,109.3	421.9	1,015.7	461
18 / 13	1,496.8	311.8	1,418.3	339.7	1,335.2	370.9	1,262.6	399.2	1,184.4	430.4	1,086.7	470

Note:
1. PI - Power Input include compressors and condenser fans
2. Interpolation between points is permissible. Extrapolation is not permitted.
3. Due to our policy of innovation some sppecifications may be changed without prior notification.

60Hz

MCAW008CA1A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	277.0	75.2	262.4	81.7	246.7	89.2	229.9	97.8	211.6	107.3	191.8	117.9
12 / 7	296.8	76.6	281.2	83.3	264.6	90.9	246.7	99.6	227.5	109.3	206.8	120
14 / 9	317.6	78.1	300.9	84.9	283.3	92.7	264.4	101.6	244.2	111.4	222.4	122.2
16 / 11	339.2	79.6	321.5	86.6	302.8	94.6	282.8	103.6	261.5	113.6	238.7	124.5
18 / 13	361.8	81.2	343	88.3	323.1	96.5	302	105.7	279.6	115.8	255.7	126.9

MCAW010CA1A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	337.3	94.2	318.4	102.8	298.1	112.6	276.2	123.6	252.6	135.7	227	149
12 / 7	360.8	96.4	340.6	105.2	319.0	115.2	295.9	126.4	271.0	138.7	244.3	152.2
14 / 9	385.3	98.6	363.7	107.6	340.8	117.9	316.4	129.3	290.3	141.8	262.2	155.5
16 / 11	410.7	101.0	387.8	110.2	363.5	120.7	337.7	132.3	310.2	145.1	280.9	158.9
18 / 13	437.1	103.5	412.8	113	387.1	123.6	359.8	135.5	330.9	148.4	300.2	162.5

MCAW012CA1A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	423.4	116.1	399.8	126.6	374.5	138.7	347.3	152.2	317.9	167.1	286.1	183.4
12 / 7	452.8	118.7	427.6	129.6	400.8	141.9	372	155.6	341.1	170.8	307.8	187.4
14 / 9	483.4	121.5	456.6	132.6	428.1	145.2	397.7	159.2	365.2	174.7	330.4	191.5
16 / 11	515.2	124.4	486.7	135.8	456.5	148.7	424.4	163	390.2	178.6	353.8	195.7
18 / 13	548.2	127.4	517.9	139.2	486.0	152.3	452.2	166.9	416.2	182.8	378.1	200.1

MCAW014CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	478.5	127.7	452.3	139.1	424.2	152.2	394	166.8	361.3	183.1	326	200.9
12 / 7	512.0	130.5	484	142.1	454.2	155.5	422.2	170.4	387.8	186.9	350.9	205
14 / 9	546.9	133.3	517.1	145.3	485.4	158.9	451.6	174.1	415.5	190.9	376.8	209.3
16 / 11	583.3	136.3	551.6	148.6	518.0	162.5	482.3	178	444.3	195.1	403.7	213.7
18 / 13	621.1	139.4	587.4	152	551.8	166.2	514.2	182	474.2	199.4	431.7	218.2

Note:
1. PI - Power Input include compressors and condenser fans
2. Interpolation between points is permissible. Extrapolation is not permitted.
3. Due to our policy of innovation some sppecifications may be changed without prior notification.

60Hz

MCAW016CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	585.5	156.6	552.9	170.7	517.8	186.7	480.1	204.7	439.5	224.5	395.5	246.2
12 / 7	626.1	160.1	591.2	174.6	554.0	191.0	514.2	209.3	471.4	229.5	425.4	251.5
14 / 9	668.3	163.9	631.1	178.7	591.7	195.5	549.6	214.1	504.6	234.6	456.4	257
16 / 11	712.2	167.8	672.7	183	630.9	200.1	586.4	219.1	539.1	240.0	488.7	262.6
18 / 13	757.8	171.9	715.8	187.5	671.5	205.0	624.7	224.3	575.0	245.5	522.3	268.5

MCAW018CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	672.5	182.9	635.2	199.5	595.1	218.4	552	239.6	505.4	263.1	454.9	288.8
12 / 7	719.0	187.0	679.2	204.1	636.7	223.4	591.1	245	542.1	268.9	489.3	294.9
14 / 9	767.4	191.3	725.1	208.8	680.0	228.6	631.9	250.6	580.3	274.8	525	301.3
16 / 11	817.8	195.8	772.8	213.8	725.0	234.0	674.2	256.4	620.0	281.1	562.2	307.8
18 / 13	870.1	200.6	822.3	219	771.7	239.6	718.2	262.5	661.2	287.5	600.7	314.7

MCAW020CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	713.6	189.1	673.5	206.3	630.4	225.8	584.1	247.7	534.0	271.7	480	298
12 / 7	762.4	193.6	719.7	211.3	674.0	231.2	625	253.5	572.4	278.0	515.9	304.6
14 / 9	813.2	198.3	767.7	216.4	719.3	236.9	667.6	259.5	612.3	284.4	553.1	311.4
16 / 11	866.0	203.2	817.6	221.8	766.3	242.7	711.8	265.8	653.7	291.1	591.8	318.5
18 / 13	920.7	208.4	869.3	227.5	815.1	248.8	757.6	272.4	696.6	298.1	631.9	325.8

MCAW022CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	829.1	224.9	781.7	245.6	730.8	269.0	676.2	295.1	617.3	323.8	553.7	355
12 / 7	885.3	230.5	834.8	251.8	780.9	275.7	723.2	302.3	661.3	331.5	594.9	363.1
14 / 9	943.7	236.4	889.9	258.2	832.8	282.7	772	309.8	706.9	339.4	637.5	371.6
16 / 11	1,004.2	242.6	947.2	264.9	886.7	290.0	822.5	317.6	754.3	347.7	681.7	380.3
18 / 13	1,067.0	249.0	1,006.4	272	942.5	297.6	874.9	325.7	803.3	356.4	727.4	389.4

Note:
1. PI - Power Input include compressors and condenser fans
2. Interpolation between points is permissible. Extrapolation is not permitted.
3. Due to our policy of innovation some sppecifications may be changed without prior notification.

60Hz

MCAW024CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	877.7	233.3	828.4	254.5	775.6	278.5	718.8	305.5	657.5	335.2	591.4	367.6
12 / 7	938.1	238.8	885.5	260.5	829.5	285.1	769.4	312.6	705.0	342.8	635.7	375.7
14 / 9	1,001.0	244.5	945	266.8	885.5	292.0	822.1	319.9	754.3	350.6	681.8	384
16 / 11	1,066.3	250.5	1,006.7	273.4	943.7	299.1	876.8	327.6	805.6	358.8	729.7	392.7
18 / 13	1,134.1	256.8	1,070.8	280.3	1,004.1	306.5	933.5	335.6	858.7	367.3	779.3	401.6

MCAW026CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	949.0	250.0	896.2	272.6	839.6	298.3	778.7	327.1	713.0	358.9	642	393.7
12 / 7	1,014.4	255.8	958.1	279	898.1	305.3	833.7	334.6	764.6	367.0	690.2	402.2
14 / 9	1,082.5	261.8	1,022.5	285.6	958.8	312.5	890.9	342.4	818.2	375.3	740.4	411
16 / 11	1,153.2	268.1	1,089.5	292.5	1,022.0	320.0	950.3	350.4	873.9	383.9	792.4	420.1
18 / 13	1,226.7	274.7	1,159	299.7	1,087.5	327.8	1,011.9	358.9	931.7	392.8	846.5	429.6

MCAW028CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,049.2	275.9	989.1	301.3	924.7	329.9	855.4	361.7	780.7	396.6	700.3	434.6
12 / 7	1,120.0	282.9	1,056	309	987.6	338.2	914.5	370.7	836.1	406.2	751.9	444.7
14 / 9	1,193.4	290.3	1,125.3	317	1,053.0	346.9	975.8	380	893.4	416.2	805.5	455.2
16 / 11	1,269.6	298.0	1,197.3	325.4	1,120.7	356.0	1,039.3	389.8	952.9	426.5	860.9	466.1
18 / 13	1,348.4	306.0	1,271.7	334.2	1,190.7	365.5	1,105.1	399.9	1,014.4	437.2	918.3	477.3

MCAW030CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,115.0	296.6	1,053.2	323.4	986.9	354.0	915.5	388.3	838.5	426.1	755.2	467.5
12 / 7	1,191.5	303.4	1,125.7	330.9	1,055.4	362.2	980	397.1	899.0	435.6	811.9	477.6
14 / 9	1,271.2	310.5	1,201.1	338.8	1,126.6	370.8	1,047.1	406.4	962.0	445.5	870.8	488.1
16 / 11	1,354.1	317.9	1,279.6	347	1,200.6	379.7	1,116.7	416	1,027.3	455.7	932	498.9
18 / 13	1,440.0	325.8	1,360.9	355.6	1,277.5	389.0	1,189	425.9	1,095.2	466.4	995.5	510.1

Note:
1. PI - Power Input include compressors and condenser fans
2. Interpolation between points is permissible. Extrapolation is not permitted.
3. Due to our policy of innovation some sppecifications may be changed without prior notification.

60Hz

MCAW036CA3A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,383.3	362.0	1,304.7	395	1,220.5	432.3	1,130	473.9	1,032.5	519.7	927.3	569.5
12 / 7	1,476.8	370.8	1,393	404.7	1,303.8	442.9	1,208.2	485.3	1,105.8	531.8	995.8	582.4
14 / 9	1,573.9	380.0	1,484.9	414.8	1,390.3	453.9	1,289.5	497.1	1,181.9	544.4	1,066.9	595.7
16 / 11	1,674.8	389.7	1,580.2	425.4	1,480.1	465.3	1,373.8	509.4	1,260.8	557.5	1,140.6	609.5
18 / 13	1,779.2	399.9	1,678.9	436.5	1,573.1	477.3	1,461.1	522.2	1,342.6	571.1	1,216.9	623.8

MCAW040CA3A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,467.4	384.9	1,382.3	420.3	1,291.2	460.1	1,193.4	504.4	1,088.2	552.9	974.9	605.4
12 / 7	1,565.5	394.8	1,474.9	431.2	1,378.4	471.9	1,275.1	517.1	1,164.6	566.4	1,046.2	619.7
14 / 9	1,667.4	405.2	1,571	442.5	1,468.7	484.2	1,359.9	530.2	1,243.8	580.4	1,120	634.5
16 / 11	1,772.9	416.1	1,670.6	454.4	1,562.4	497.1	1,447.6	544	1,325.8	594.9	1,196.4	649.8
18 / 13	1,882.0	427.6	1,773.6	466.9	1,659.2	510.5	1,538.4	558.3	1,410.7	610.1	1,275.5	665.7

MCAW045CA4A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,658.1	445.4	1,562.7	486.2	1,460.6	532.3	1,351.1	583.7	1,233.2	640.2	1,106.3	701.7
12 / 7	1,770.9	456.5	1,669.2	498.4	1,561.0	545.5	1,445.3	597.9	1,321.4	655.4	1,188.6	717.8
14 / 9	1,888.3	468.1	1,780	511.1	1,665.2	559.3	1,543.1	612.7	1,412.9	671.2	1,274	734.4
16 / 11	2,010.0	480.3	1,895	524.4	1,773.4	573.7	1,644.6	628.2	1,507.9	687.5	1,362.6	751.7
18 / 13	2,136.2	493.2	2,014.1	538.4	1,885.6	588.8	1,749.8	644.2	1,606.3	704.6	1,454.3	769.6

MCAW050CA4A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,827.2	504.5	1,722.7	551	1,610.6	603.7	1,490	662.4	1,359.9	727.1	1,219.3	797.5
12 / 7	1,951.6	516.9	1,840.2	564.7	1,721.3	618.6	1,593.9	678.5	1,457.1	744.3	1,310.1	815.7
14 / 9	2,080.9	529.9	1,962.3	579	1,836.2	634.1	1,701.7	695.2	1,558.0	762.1	1,404.2	834.6
16 / 11	2,215.1	543.6	2,089	594	1,955.5	650.3	1,813.6	712.6	1,662.6	780.5	1,501.7	854.1
18 / 13	2,354.1	558.0	2,220.3	609.7	2,079.1	667.2	1,929.5	730.7	1,771.0	799.8	1,602.8	874.3

Note:
1. PI - Power Input include compressors and condenser fans
2. Interpolation between points is permissible. Extrapolation is not permitted.
3. Due to our policy of innovation some sppecifications may be changed without prior notification.

50Hz

MCAW008CA1A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	283.9	77.5	268.4	84.4	251.7	92.3	233.7	101.2	214.3	111.0	193.2	121.8
12 / 7	303.9	79.2	287.3	86.2	269.6	94.3	250.6	103.3	230.1	113.3	208	124.3
14 / 9	324.7	80.9	307	88.1	288.2	96.4	268.1	105.6	246.5	115.7	223.4	126.9
16 / 11	346.3	82.7	327.5	90.1	307.5	98.5	286.3	107.9	263.7	118.2	239.4	129.5
18 / 13	368.8	84.5	348.8	92.2	327.7	100.8	305.3	110.3	281.4	120.8	256.1	132.2

MCAW010CA1A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	348.4	94.8	328	103.6	306.1	113.4	282.6	124.3	257.4	136.3	230.2	149.3
12 / 7	372.0	97.3	350.2	106.3	327.0	116.3	302.2	127.5	275.7	139.6	247.2	152.8
14 / 9	396.4	99.9	373.3	109.1	348.7	119.4	322.5	130.7	294.6	143.1	264.9	156.5
16 / 11	421.8	102.6	397.2	112	371.1	122.6	343.5	134.1	314.3	146.7	283.2	160.3
18 / 13	448.0	105.4	421.9	115.1	394.4	125.9	365.3	137.7	334.6	150.5	302.1	164.2

MCAW012CA1A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	434.7	112.6	409.6	122.9	382.7	134.5	353.7	147.3	322.5	161.4	288.9	176.6
12 / 7	464.1	115.5	437.3	126.1	408.8	137.9	378.2	151	345.4	165.3	310.3	180.8
14 / 9	494.5	118.5	466.1	129.4	435.8	141.5	403.6	154.8	369.2	169.3	332.4	185
16 / 11	526.1	121.7	495.9	132.8	463.9	145.2	429.9	158.8	393.7	173.6	355.3	189.5
18 / 13	558.8	125.0	526.7	136.4	492.8	149.1	457	162.9	419.1	178.0	379	194.1

MCAW014CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	501.4	130.7	472.7	142.5	441.9	155.9	408.8	170.8	373.1	187.2	334.6	204.9
12 / 7	535.5	133.9	504.9	146	472.2	159.7	437.2	174.9	399.7	191.5	359.5	209.6
14 / 9	570.9	137.2	538.3	149.7	503.7	163.7	466.8	179.2	427.4	196.1	385.3	214.4
16 / 11	607.6	140.8	573	153.6	536.3	167.9	497.4	183.6	456.1	200.8	412	219.4
18 / 13	645.7	144.5	608.9	157.6	570.2	172.2	529.2	188.3	485.8	205.8	439.7	224.5

Note:
1. PI - Power Input include compressors and condenser fans
2. Interpolation between points is permissible. Extrapolation is not permitted.
3. Due to our policy of innovation some sppecifications may be changed without prior notification.

50Hz

MCAW016CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	562.4	151.3	530.1	165	495.6	180.5	458.4	197.8	418.3	216.8	375.1	237.5
12 / 7	600.9	155.0	566.5	169.1	529.8	184.9	490.5	202.5	448.4	221.8	403.2	242.8
14 / 9	640.8	158.8	604.2	173.3	565.3	189.5	523.8	207.4	479.6	227.0	432.3	248.3
16 / 11	682.3	162.9	643.4	177.7	602.2	194.2	558.4	212.5	511.9	232.5	462.5	254
18 / 13	725.4	167.1	684	182.3	640.4	199.2	594.3	217.8	545.5	238.1	493.8	259.9

MCAW018CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	679.7	178.5	640.6	194.8	598.8	213.1	553.8	233.5	505.3	255.9	453.1	280.3
12 / 7	725.6	183.0	684	199.7	639.6	218.4	592.1	239.2	541.2	262.0	486.6	286.7
14 / 9	773.3	187.6	729	204.8	682.0	224.0	631.9	245.2	578.4	268.4	521.4	293.4
16 / 11	822.7	192.5	775.7	210.1	726.0	229.8	673.1	251.4	617.0	274.9	557.3	300.3
18 / 13	873.9	197.7	824.1	215.7	771.5	235.8	715.8	257.9	656.9	281.8	594.6	307.5

MCAW020CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	735.6	193.9	692.2	211.8	645.7	231.8	595.7	253.9	541.9	278.0	484	304.1
12 / 7	784.5	199.1	738.3	217.5	688.9	238.0	636.2	260.5	579.7	285.1	519.2	311.5
14 / 9	835.0	204.6	785.9	223.4	733.7	244.4	678.1	267.4	618.8	292.4	555.6	319.2
16 / 11	887.4	210.4	835.2	229.7	780.0	251.1	721.4	274.6	659.3	300.0	593.3	327.2
18 / 13	941.4	216.4	886.1	236.3	827.8	258.2	766.2	282.1	701.0	307.9	632.1	335.4

MCAW022CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	802.0	209.8	755.1	229	704.9	250.6	651	274.5	592.9	300.7	530.4	329
12 / 7	855.7	215.3	805.8	235	752.6	257.1	695.6	281.5	634.6	308.1	569.3	336.8
14 / 9	911.3	221.0	858.3	241.3	801.9	263.9	741.9	288.7	677.8	315.8	609.6	344.9
16 / 11	968.9	227.1	912.6	247.9	853.0	271.0	789.7	296.3	722.5	323.8	651.2	353.3
18 / 13	1,028.5	233.4	968.7	254.8	905.7	278.4	839.1	304.2	768.7	332.1	694.2	362.1

Note:
1. PI - Power Input include compressors and condenser fans
2. Interpolation between points is permissible. Extrapolation is not permitted.
3. Due to our policy of innovation some sppecifications may be changed without prior notification.

50Hz

MCAW024CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	896.0	233.3	843.4	254.6	787.2	278.5	726.8	305.1	661.9	334.1	592.2	365.5
12 / 7	955.9	239.4	900	261.3	840.4	285.8	776.6	312.9	708.5	342.4	635.6	374.2
14 / 9	1,018.1	245.8	958.6	268.3	895.5	293.4	828.3	321	756.7	351.0	680.5	383.3
16 / 11	1,082.5	252.6	1,019.3	275.7	952.5	301.3	881.7	329.4	806.6	359.9	727	392.7
18 / 13	1,149.1	259.7	1082	283.4	1,011.4	309.6	936.9	338.2	858.2	369.2	775	402.4

MCAW026CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	969.1	254.5	912.7	277.8	852.3	304.0	787.3	333.1	717.5	364.9	642.3	399.4
12 / 7	1,034.1	261.1	974	285.1	909.9	311.9	841.4	341.5	768.0	373.9	689.4	408.9
14 / 9	1,101.4	268.0	1,037.6	292.6	969.7	320.1	897.5	350.3	820.4	383.2	738.3	418.7
16 / 11	1,171.2	275.3	1,103.4	300.5	1,031.6	328.6	955.5	359.4	874.6	392.8	788.8	428.8
18 / 13	1,243.4	283.0	1,171.5	308.8	1,095.6	337.5	1,015.5	368.9	930.7	402.9	841	439.4

MCAW028CA2A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,059.1	274.2	995.8	299.4	928.0	327.6	855.3	358.6	777.2	392.4	693.5	428.8
12 / 7	1,128.6	281.8	1,061.2	307.8	989.4	336.6	912.8	368.3	830.9	402.7	743.5	439.6
14 / 9	1,200.4	289.9	1,128.9	316.6	1,053.0	346.1	972.3	378.4	886.4	413.3	795.1	450.7
16 / 11	1,274.7	298.4	1,198.8	325.8	1,118.6	356.0	1,033.7	388.9	943.7	424.4	848.4	462.3
18 / 13	1,351.3	307.4	1,270.9	335.4	1,186.3	366.3	1097	399.8	1,002.7	435.9	903.3	474.3

MCAW030CA3A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,119.4	293.4	1,055.9	319.8	987.9	349.7	914.9	383.1	836.3	419.8	751.5	459.8
12 / 7	1,195.5	300.3	1,127.9	327.4	1,055.8	358.0	978.7	392	896.1	429.3	807.4	469.9
14 / 9	1,274.8	307.5	1,202.8	335.3	1,126.4	366.6	1045	401.3	958.2	439.2	865.4	480.4
16 / 11	1,357.0	315.1	1,280.5	343.6	1,199.7	375.6	1,113.9	410.9	1,022.7	449.5	925.6	491.2
18 / 13	1,442.3	323.1	1,361.2	352.3	1,275.6	385.0	1,185.2	421	1,089.5	460.2	988	502.5

Note:
1. PI - Power Input include compressors and condenser fans
2. Interpolation between points is permissible. Extrapolation is not permitted.
3. Due to our policy of innovation some sppecifications may be changed without prior notification.

50Hz

MCAW036CA3A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,275.1	335.9	1,201.5	366.5	1,122.6	401.0	1,038	439.3	946.8	481.4	848.7	527.2
12 / 7	1,361.1	344.2	1,282.6	375.6	1,199.0	410.9	1,109.6	450	1,013.9	492.8	911.2	539.2
14 / 9	1,450.3	352.9	1,366.8	385.2	1,278.2	421.3	1,183.9	461.1	1,083.4	504.7	976.1	551.7
16 / 11	1,542.8	362.1	1,454.2	395.2	1,360.4	432.1	1,261	472.7	1,155.4	517.0	1,043.2	564.7
18 / 13	1,638.7	371.8	1,544.6	405.7	1,445.5	443.4	1,340.8	484.8	1,230.0	529.8	1,112.8	578.1

MCAW040CA3A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,406.8	369.6	1,322.7	403.5	1,232.8	441.6	1,136.4	483.6	1,033.0	529.3	922.2	578.8
12 / 7	1,499.5	379.6	1,410	414.5	1,314.7	453.5	1,213.2	496.3	1,104.7	542.8	988.9	593
14 / 9	1,595.5	390.2	1,500.4	426.1	1,399.6	465.9	1,292.6	509.5	1,178.8	556.9	1,057.8	607.7
16 / 11	1,694.8	401.3	1,593.9	438.1	1,487.4	478.9	1,374.7	523.3	1,255.4	571.4	1,129.1	623
18 / 13	1,797.3	413.1	1,690.5	450.8	1,578.0	492.4	1,459.5	537.8	1,334.5	586.6	1,202.7	638.9

MCAW045CA4A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,706.8	443.2	1,604.1	483.8	1,494.3	529.1	1,376.7	579	1,250.4	633.3	1,115	691.8
12 / 7	1,819.4	455.5	1,710.1	497.3	1,593.8	543.6	1,469.7	594.5	1,337.2	649.7	1,195.7	709
14 / 9	1,935.9	468.6	1,819.8	511.4	1,696.6	558.8	1,565.9	610.7	1,426.8	666.8	1,279.1	726.9
16 / 11	2,056.3	482.3	1,933.1	526.2	1,802.9	574.7	1,665.2	627.5	1,519.4	684.5	1,365.1	745.5
18 / 13	2,180.6	496.7	2,050	541.7	1,912.5	591.3	1,767.7	645.1	1,614.9	703.0	1,453.9	764.7

MCAW050CA4A

Chilled Water Inlet/Outlet (°C)	Air temperature on condenser (°C)											
	25		30		35		40		45		50	
	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)	Capa. (kW)	PI (kW)
10 / 5	1,875.7	492.6	1,763.9	538	1,644.4	588.8	1,516.1	644.8	1,378.3	705.9	1,230.4	771.9
12 / 7	1,999.7	506.1	1,880.8	552.7	1,754.1	604.7	1,618.8	661.9	1,474.2	724.0	1,319.7	791
14 / 9	2,128.2	520.3	2,001.8	568.2	1,867.7	621.4	1,725.2	679.7	1,573.5	742.8	1,412	810.7
16 / 11	2,261.0	535.2	2,126.9	584.4	1,985.2	638.8	1,835.1	698.2	1,676.0	762.4	1,507.4	831.2
18 / 13	2,398.1	551.0	2,256.1	601.4	2,106.4	657.0	1,948.5	717.5	1,781.8	782.8	1,605.9	852.5

Note:
1. PI - Power Input include compressors and condenser fans
2. Interpolation between points is permissible. Extrapolation is not permitted.
3. Due to our policy of innovation some sppecifications may be changed without prior notification.

380V / 60Hz

Single point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW008AA11	Circuit1	380	1,220	128	407	8	2.8	150	429	246	425	291
MCAW010AA11	Circuit1		1,445	160	482	10	2.8	188	510	309	534	365
MCAW012AA11	Circuit1		1,605	195	535	12	2.8	229	569	372	642	439
MCAW014AA11	Circuit1		2,470	234	823	14	2.8	274	863	454	787	538
MCAW016AA11	Circuit1		2,875	258	958	16	2.8	303	1,003	499	862	590
MCAW020AA21	Circuit1		1,445	160	482	10	2.8	376	669	562	787	618
	Circuit2		1,445	160	482	10	2.8					
MCAW024AA21	Circuit1		1,605	195	535	12	2.8	458	764	676	946	743
	Circuit2		1,605	195	535	12	2.8					
MCAW028AA21	Circuit1		2,470	234	823	14	2.8	547	1,097	826	1,158	909
	Circuit2		2,470	234	823	14	2.8					
MCAW032AA21	Circuit1		2,875	258	958	16	2.8	605	1,261	907	1,270	998
	Circuit2		2,875	258	958	16	2.8					

Multi point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW020AA21	Circuit1	380	1,445	132	482	10	2.8	160	510	309	534	365
	Circuit2		1,445	132	482	10	2.8	160	510	309	534	365
MCAW024AA21	Circuit1		1,605	161	535	12	2.8	195	569	372	642	439
	Circuit2		1,605	161	535	12	2.8	195	569	372	642	439
MCAW028AA21	Circuit1		2,470	194	823	14	2.8	233	863	454	787	538
	Circuit2		2,470	194	823	14	2.8	233	863	454	787	538
MCAW032AA21	Circuit1		2,875	213	958	16	2.8	258	1,003	499	862	590
	Circuit2		2,875	213	958	16	2.8	258	1,003	499	862	590

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

380V / 50Hz

Single point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW008AA11	Circuit1	380	1,220	135	407	8	3.7	165	436	263	451	310
MCAW010AA11	Circuit1		1,330	165	443	10	3.7	202	480	318	543	375
MCAW012AA11	Circuit1		1,990	200	663	12	3.7	245	708	389	665	458
MCAW014AA11	Circuit1		2,355	238	785	14	3.7	290	837	461	788	543
MCAW016AA11	Circuit1		2,625	272	875	16	3.7	331	934	525	898	619
MCAW020AA21	Circuit1		1,330	165	443	10	3.7	403	645	580	805	637
	Circuit2		1,330	165	443	10	3.7					
MCAW024AA21	Circuit1		1,990	200	663	12	3.7	490	908	710	986	779
	Circuit2		1,990	200	663	12	3.7					
MCAW028AA21	Circuit1		2,355	238	785	14	3.7	579	1,075	840	1,167	922
	Circuit2		2,355	238	785	14	3.7					
MCAW032AA21	Circuit1		2,625	272	875	16	3.7	662	1,206	957	1,330	1,051
	Circuit2		2,625	272	875	16	3.7					

Multi point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW020AA21	Circuit1	380	1,330	165	443	10	3.7	202	480	318	543	375
	Circuit2		1,330	165	443	10	3.7	202	480	318	543	375
MCAW024AA21	Circuit1		1,990	200	663	12	3.7	245	708	389	665	458
	Circuit2		1,990	200	663	12	3.7	245	708	389	665	458
MCAW028AA21	Circuit1		2,355	238	785	14	3.7	290	837	461	788	543
	Circuit2		2,355	238	785	14	3.7	290	837	461	788	543
MCAW032AA21	Circuit1		2,625	272	875	16	3.7	331	934	525	898	619
	Circuit2		2,625	272	875	16	3.7	331	934	525	898	619

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

415V / 50Hz

Single point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW008AA11	Circuit1	415	1,160	124	387	8	3.4	151	414	241	413	284
MCAW010AA11	Circuit1		1,250	151	417	10	3.4	185	451	291	497	343
MCAW012AA11	Circuit1		1,850	183	617	12	3.4	224	657	357	609	420
MCAW014AA11	Circuit1		2,590	218	863	14	3.4	265	911	422	722	497
MCAW016AA11	Circuit1		2,865	249	955	16	3.4	303	1,009	481	822	566
MCAW020AA21	Circuit1		1,250	151	417	10	3.4	369	601	531	737	583
	Circuit2		1,250	151	417	10	3.4					
MCAW024AA21	Circuit1		1,850	183	617	12	3.4	448	841	650	903	713
	Circuit2		1,850	183	617	12	3.4					
MCAW028AA21	Circuit1		2,590	218	863	14	3.4	1,129	769	1,069	844	909
	Circuit2		2,590	218	863	14	3.4					
MCAW032AA21	Circuit1		2,865	249	955	16	3.4	1,258	877	1,218	962	998
	Circuit2		2,865	249	955	16	3.4					

Multi point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW020AA21	Circuit1	415	1,250	151	417	10	3.4	185	451	291	497	343
	Circuit2		1,250	151	417	10	3.4	185	451	291	497	343
MCAW024AA21	Circuit1		1,850	183	617	12	3.4	224	657	357	609	420
	Circuit2		1,850	183	617	12	3.4	224	657	357	609	420
MCAW028AA21	Circuit1		2,590	218	863	14	3.4	265	911	422	722	497
	Circuit2		2,590	218	863	14	3.4	265	911	422	722	497
MCAW032AA21	Circuit1		2,865	249	955	16	3.4	303	1,009	481	822	566
	Circuit2		2,865	249	955	16	3.4	303	1,009	481	822	566

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

400V / 50Hz

Single point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW008AA11	Circuit1	400	1,285	128	428	8	3.5	156	456	250	428	295
MCAW010AA11	Circuit1		1,390	156	463	10	3.5	192	498	302	516	356
MCAW012AA11	Circuit1		2,080	190	693	12	3.5	233	736	370	632	435
MCAW014AA11	Circuit1		2,480	226	827	14	3.5	275	876	438	749	516
MCAW016AA11	Circuit1		2,745	258	915	16	3.5	314	971	499	853	588
MCAW020AA21	Circuit1		1,390	156	463	10	3.5	383	655	551	765	605
	Circuit2		1,390	156	463	10	3.5					
MCAW024AA21	Circuit1		2,080	190	693	12	3.5	465	926	674	937	740
	Circuit2		2,080	190	693	12	3.5					
MCAW028AA21	Circuit1		2,480	226	827	14	3.5	550	1,102	798	1,109	876
	Circuit2		2,480	226	827	14	3.5					
MCAW032AA21	Circuit1		2,745	258	915	16	3.5	629	1,229	909	1,264	998
	Circuit2		2,745	258	915	16	3.5					

Multi point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW020AA21	Circuit1	400	1,390	156	463	10	3.5	192	498	302	516	356
	Circuit2		1,390	156	463	10	3.5	192	498	302	516	356
MCAW024AA21	Circuit1		2,080	190	693	12	3.5	233	736	370	632	435
	Circuit2		2,080	190	693	12	3.5	233	736	370	632	435
MCAW028AA21	Circuit1		2,480	226	827	14	3.5	275	876	438	749	516
	Circuit2		2,480	226	827	14	3.5	275	876	438	749	516
MCAW032AA21	Circuit1		2,745	258	915	16	3.5	314	971	499	853	588
	Circuit2		2,745	258	915	16	3.5	314	971	499	853	588

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

440V / 60Hz

Single point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW008AA11	Circuit1	440	1,035	111	345	8	2.4	130	364	213	367	251
MCAW010AA11	Circuit1		1,220	138	407	10	2.4	162	431	267	461	315
MCAW012AA11	Circuit1		1,330	169	443	12	2.4	198	472	321	555	379
MCAW014AA11	Circuit1		1,990	202	663	14	2.4	236	697	392	679	464
MCAW016AA11	Circuit1		2,230	223	743	16	2.4	261	782	310	527	364
MCAW020AA21	Circuit1		1,220	138	407	10	2.4	324	569	485	680	534
	Circuit2		1,220	138	407	10	2.4					
MCAW024AA21	Circuit1		1,330	169	443	12	2.4	395	641	584	817	642
	Circuit2		1,330	169	443	12	2.4					
MCAW028AA21	Circuit1		1,990	202	663	14	2.4	472	900	713	1,000	785
	Circuit2		1,990	202	663	14	2.4					
MCAW032AA21	Circuit1		2,230	223	743	16	2.4	523	1,005	566	783	620
	Circuit2		2,230	223	743	16	2.4					

Multi point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW020AA21	Circuit1	440	1,220	132	407	10	2.4	156	431	267	461	315
	Circuit2		1,220	132	407	10	2.4	156	431	267	461	315
MCAW024AA21	Circuit1		1,330	161	443	12	2.4	190	472	321	555	379
	Circuit2		1,330	161	443	12	2.4	190	472	321	555	379
MCAW028AA21	Circuit1		1,990	194	663	14	2.4	227	697	392	679	464
	Circuit2		1,990	194	663	14	2.4	227	697	392	679	464
MCAW032AA21	Circuit1		2,230	213	743	16	2.4	252	782	310	527	364
	Circuit2		2,230	213	743	16	2.4	252	782	310	527	364

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

460V / 60Hz

Single point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW008AA11	Circuit1	460	1,080	106	360	8	2.3	119	379	203	351	240
MCAW010AA11	Circuit1		1,285	132	428	10	2.3	149	451	255	441	302
MCAW012AA11	Circuit1		1,390	161	463	12	2.3	181	491	307	530	363
MCAW014AA11	Circuit1		2,080	194	693	14	2.3	217	726	375	650	444
MCAW016AA11	Circuit1		2,330	213	777	16	2.3	240	814	412	712	487
MCAW020AA21	Circuit1		1,285	132	428	10	2.3	297	583	464	650	511
	Circuit2		1,285	132	428	10	2.3					
MCAW024AA21	Circuit1		1,390	161	463	12	2.3	362	652	558	782	614
	Circuit2		1,390	161	463	12	2.3					
MCAW028AA21	Circuit1		2,080	194	693	14	2.3	433	919	682	957	751
	Circuit2		2,080	194	693	14	2.3					
MCAW032AA21	Circuit1		2,330	213	777	16	2.3	479	1,027	749	1,049	824
	Circuit2		2,330	213	777	16	2.3					

Multi point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW020AA21	Circuit1	460	1,285	132	428	10	2.3	155	451	255	441	302
	Circuit2		1,285	132	428	10	2.3	155	451	255	441	302
MCAW024AA21	Circuit1		1,390	161	463	12	2.3	189	491	307	530	363
	Circuit2		1,390	161	463	12	2.3	189	491	307	530	363
MCAW028AA21	Circuit1		2,080	194	693	14	2.3	226	726	375	650	444
	Circuit2		2,080	194	693	14	2.3	226	726	375	650	444
MCAW032AA21	Circuit1		2,330	213	777	16	2.3	250	814	412	712	487
	Circuit2		2,330	213	777	16	2.3	250	814	412	712	487

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

480V / 60Hz

Single point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW008AA11	Circuit1	480	940	101	313	8	2.2	119	331	195	337	230
MCAW010AA11	Circuit1		1,160	127	387	10	2.2	149	409	245	423	289
MCAW012AA11	Circuit1		1,250	155	417	12	2.2	181	443	294	508	348
MCAW014AA11	Circuit1		1,850	185	617	14	2.2	217	648	360	623	426
MCAW016AA11	Circuit1		2,045	204	682	16	2.2	240	717	395	682	467
MCAW020AA21	Circuit1		1,160	127	387	10	2.2	297	535	445	623	489
	Circuit2		1,160	127	387	10	2.2					
MCAW024AA21	Circuit1		1,250	155	417	12	2.2	362	598	535	749	588
	Circuit2		1,250	155	417	12	2.2					
MCAW028AA21	Circuit1		1,850	185	617	14	2.2	433	833	654	917	720
	Circuit2		1,850	185	617	14	2.2					
MCAW032AA21	Circuit1		2,045	204	682	16	2.2	479	921	718	1,005	790
	Circuit2		2,045	204	682	16	2.2					

Multi point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW020AA21	Circuit1	480	1,160	132	387	10	2.2	154	409	245	423	289
	Circuit2		1,160	132	387	10	2.2	154	409	245	423	289
MCAW024AA21	Circuit1		1,250	161	417	12	2.2	188	443	294	508	348
	Circuit2		1,250	161	417	12	2.2	188	443	294	508	348
MCAW028AA21	Circuit1		1,850	194	617	14	2.2	225	648	360	623	426
	Circuit2		1,850	194	617	14	2.2	225	648	360	623	426
MCAW032AA21	Circuit1		2,045	213	682	16	2.2	248	717	395	682	467
	Circuit2		2,045	213	682	16	2.2	248	717	395	682	467

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

380V / 60Hz

Single point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW008BA1A	Circuit1	380	1,220	126	407	8	2.8	148	429	246	425	291
MCAW010BA1A	Circuit1		1,445	163	482	8	2.8	185	504	304	528	360
MCAW012BA1A	Circuit1		1,605	196	535	10	2.8	224	563	366	637	434
MCAW014BA2A	Circuit1		1,220	124	407	6	2.8	282	548	407	572	448
	Circuit2		1,220	124	407	6	2.8					
MCAW016BA2A	Circuit1		1,115	147	372	6	2.8	330	532	488	687	537
	Circuit2		1,115	144	372	8	2.8					
MCAW018BA2A	Circuit1		1,445	163	482	8	2.8	370	667	551	776	607
	Circuit2		1,445	163	482	8	2.8					
MCAW020BA2A	Circuit1		1,605	177	535	8	2.8	406	742	592	835	652
	Circuit2		1,605	184	535	8	2.8					
MCAW022BA2A	Circuit1		1,605	121	535	8	2.8	371	757	659	930	727
	Circuit2		1,605	200	535	10	2.8					
MCAW024BA2A	Circuit1		1,880	216	627	10	2.8	488	871	714	1,006	787
	Circuit2		1,880	216	627	10	2.8					
MCAW026BA2A	Circuit1		1,880	216	627	10	2.8	519	896	759	1,052	832
	Circuit2		2,470	241	823	12	2.8					
MCAW028BA2A	Circuit1		2,470	256	823	10	2.8	586	1,120	840	1,172	923
	Circuit2		2,875	268	958	12	2.8					
MCAW030BA3A	Circuit1		2,875	274	958	12	2.8	610	1,255	890	1,253	981
	Circuit2		2,875	263	958	14	2.8					
MCAW036BA3A	Circuit1		1,880	216	627	10	2.8	762	1,117	816	1,032	870
	Circuit2		1,880	216	627	10	2.8					
	Circuit3		2,470	246	823	10	2.8					
MCAW040BA3A	Circuit1		2,470	256	823	10	2.8	852	1,363	916	1,172	980
	Circuit2		2,470	256	823	10	2.8					
	Circuit3		2,470	256	823	10	2.8					
MCAW045BA4A	Circuit1		1,605	208	535	8	2.8	909	1,157	961	1,169	1,013
	Circuit2		1,605	208	535	8	2.8					
	Circuit3		1,605	196	535	10	2.8					
	Circuit4		1,605	196	535	10	2.8					
MCAW050BA4A	Circuit1		1,880	225	627	10	2.8	1,074	1,392	1,131	1,356	1,187
	Circuit2		1,880	225	627	10	2.8					
	Circuit3		2,470	256	823	10	2.8					
	Circuit4		2,470	256	823	10	2.8					

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

380V / 60Hz

Multi point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW014BA2A	Circuit1	380	1,220	124	407	6	2.8	141	423	224	390	266
	Circuit2		1,220	124	407	6	2.8	141	423	224	390	266
MCAW016BA2A	Circuit1		1,115	147	372	6	2.8	164	388	266	465	316
	Circuit2		1,115	144	372	8	2.8	166	394	272	471	321
MCAW018BA2A	Circuit1		1,445	163	482	8	2.8	185	504	304	528	360
	Circuit2		1,445	163	482	8	2.8	185	504	304	528	360
MCAW020BA2A	Circuit1		1,605	177	535	8	2.8	200	557	326	569	387
	Circuit2		1,605	184	535	8	2.8	207	557	326	569	387
MCAW022BA2A	Circuit1		1,605	121	535	8	2.8	143	557	361	631	428
	Circuit2		1,605	200	535	10	2.8	228	563	366	637	434
MCAW024BA2A	Circuit1		1,880	216	627	10	2.8	244	655	394	686	467
	Circuit2		1,880	216	627	10	2.8	244	655	394	686	467
MCAW026BA2A	Circuit1		1,880	216	627	10	2.8	244	655	394	686	467
	Circuit2		2,470	241	823	12	2.8	275	857	449	781	532
MCAW028BA2A	Circuit1		2,470	256	823	10	2.8	284	851	443	775	526
	Circuit2		2,875	268	958	12	2.8	302	992	488	851	578
MCAW030BA2A	Circuit1		2,875	274	958	12	2.8	307	992	488	851	578
	Circuit2		2,875	263	958	14	2.8	302	998	493	856	584
MCAW036BA3A	Circuit1		1,880	216	627	10	2.8	244	655	394	686	467
	Circuit2		1,880	216	627	10	2.8	244	655	394	686	467
	Circuit3		2,470	246	823	10	2.8	274	851	443	775	526
MCAW040BA3A	Circuit1		2,470	256	823	10	2.8	284	851	443	775	526
	Circuit2		2,470	256	823	10	2.8	284	851	443	775	526
	Circuit3		2,470	256	823	10	2.8	284	851	443	775	526
MCAW045BA4A	Circuit1		1,605	208	535	8	2.8	231	557	361	631	428
	Circuit2		1,605	208	535	8	2.8	231	557	361	631	428
	Circuit3		1,605	196	535	10	2.8	224	563	366	637	434
	Circuit4		1,605	196	535	10	2.8	224	563	366	637	434
MCAW050BA4A	Circuit1		1,880	225	627	10	2.8	253	655	394	686	467
	Circuit2		1,880	225	627	10	2.8	253	655	394	686	467
	Circuit3		2,470	256	823	10	2.8	284	851	443	775	526
	Circuit4		2,470	256	823	10	2.8	284	851	443	775	526

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

380V / 50Hz

Single point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW008BA1A	Circuit1	380	1,220	135	407	8	3.7	165	436	263	451	310
MCAW010BA1A	Circuit1		1,330	168	443	8	3.7	198	473	311	536	367
MCAW012BA1A	Circuit1		1,990	202	663	10	3.7	239	700	382	658	451
MCAW014BA2A	Circuit1		875	119	292	6	3.7	282	433	417	583	459
	Circuit2		875	119	292	6	3.7					
MCAW016BA2A	Circuit1		1,220	140	407	6	3.7	327	564	473	660	520
	Circuit2		1,220	135	407	8	3.7					
MCAW018BA2A	Circuit1		1,330	161	443	8	3.7	388	641	557	775	612
	Circuit2		1,330	168	443	8	3.7					
MCAW020BA2A	Circuit1		1,510	182	503	8	3.7	423	715	607	850	667
	Circuit2		1,510	182	503	8	3.7					
MCAW022BA2A	Circuit1		1,510	179	503	8	3.7	451	739	647	890	708
	Circuit2		1,990	206	663	10	3.7					
MCAW024BA2A	Circuit1		1,990	206	663	10	3.7	508	928	720	996	789
	Circuit2		2,230	228	743	10	3.7					
MCAW026BA2A	Circuit1		2,230	228	743	10	3.7	557	1,028	785	1,087	861
	Circuit2		2,355	248	785	12	3.7					
MCAW028BA2A	Circuit1		2,230	228	743	10	3.7	591	1,062	831	1,132	906
	Circuit2		2,625	282	875	12	3.7					
MCAW030BA3A	Circuit1		1,510	182	503	8	3.7	636	884	682	864	727
	Circuit2		1,510	175	503	10	3.7					
	Circuit3		1,510	175	503	10	3.7					
MCAW036BA3A	Circuit1		1,990	209	663	10	3.7	732	1,112	784	994	837
	Circuit2		1,990	206	663	10	3.7					
	Circuit3		1,990	206	663	10	3.7					
MCAW040BA3A	Circuit1		2,230	228	743	10	3.7	795	1,237	852	1,080	909
	Circuit2		2,230	228	743	10	3.7					
	Circuit3		2,230	228	743	10	3.7					
MCAW045BA4A	Circuit1		1,990	209	663	8	3.7	964	1,314	1,016	1,225	1,068
	Circuit2		1,990	209	663	8	3.7					
	Circuit3		1,990	206	663	10	3.7					
	Circuit4		1,990	206	663	10	3.7					
MCAW050BA4A	Circuit1		2,230	228	743	10	3.7	1,060	1,465	1,117	1,346	1,174
	Circuit2		2,230	228	743	10	3.7					
	Circuit3		2,230	228	743	10	3.7					
	Circuit4		2,230	228	743	10	3.7					

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

380V / 50Hz

Multi point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW014BA2A	Circuit1	380	875	119	292	6	3.7	141	314	229	395	271
	Circuit2		875	119	292	6	3.7	141	314	229	395	271
MCAW016BA2A	Circuit1		1,220	140	407	6	3.7	162	429	256	443	303
	Circuit2		1,220	135	407	8	3.7	165	436	263	451	310
MCAW018BA2A	Circuit1		1,330	161	443	8	3.7	190	473	302	521	357
	Circuit2		1,330	168	443	8	3.7	198	473	311	536	367
MCAW020BA2A	Circuit1		1,510	182	503	8	3.7	212	533	334	577	395
	Circuit2		1,510	182	503	8	3.7	212	533	334	577	395
MCAW022BA2A	Circuit1		1,510	179	503	8	3.7	208	533	334	577	395
	Circuit2		1,990	206	663	10	3.7	243	700	382	658	451
MCAW024BA2A	Circuit1		1,990	206	663	10	3.7	243	700	382	658	451
	Circuit2		2,230	228	743	10	3.7	265	780	414	715	489
MCAW026BA2A	Circuit1		2,230	228	743	10	3.7	265	780	414	715	489
	Circuit2		2,355	248	785	12	3.7	292	829	454	781	535
MCAW028BA2A	Circuit1		2,230	228	743	10	3.7	265	780	414	715	489
	Circuit2		2,625	282	875	12	3.7	326	919	511	883	604
MCAW030BA2A	Circuit1		1,510	182	503	8	3.7	212	533	334	577	395
	Circuit2		1,510	175	503	10	3.7	212	540	341	584	402
	Circuit3		1,510	175	503	10	3.7	212	540	341	584	402
MCAW036BA3A	Circuit1		1,990	209	663	10	3.7	246	700	382	658	451
	Circuit2		1,990	206	663	10	3.7	243	700	382	658	451
	Circuit3		1,990	206	663	10	3.7	243	700	382	658	451
MCAW040BA3A	Circuit1		2,230	228	743	10	3.7	265	780	414	715	489
	Circuit2		2,230	228	743	10	3.7	265	780	414	715	489
	Circuit3		2,230	228	743	10	3.7	265	780	414	715	489
MCAW045BA4A	Circuit1		1,990	209	663	8	3.7	239	693	375	651	444
	Circuit2		1,990	209	663	8	3.7	239	693	375	651	444
	Circuit3		1,990	206	663	10	3.7	243	700	382	658	451
	Circuit4		1,990	206	663	10	3.7	243	700	382	658	451
MCAW050BA4A	Circuit1		2,230	228	743	10	3.7	265	780	414	715	489
	Circuit2		2,230	228	743	10	3.7	265	780	414	715	489
	Circuit3		2,230	228	743	10	3.7	265	780	414	715	489
	Circuit4		2,230	228	743	10	3.7	265	780	414	715	489

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

400V / 50Hz

Single point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW008BA1A	Circuit1	400	1,285	128	428	8	3.5	156	456	250	428	295
MCAW010BA1A	Circuit1		1,390	160	463	8	3.5	188	491	295	509	349
MCAW012BA1A	Circuit1		2,080	192	693	10	3.5	227	728	363	625	428
MCAW014BA2A	Circuit1		915	113	305	6	3.5	268	439	396	554	436
	Circuit2		915	113	305	6	3.5					
MCAW016BA2A	Circuit1		1,285	133	428	6	3.5	310	578	449	627	493
	Circuit2		1,285	128	428	8	3.5					
MCAW018BA2A	Circuit1		1,390	153	463	8	3.5	369	651	529	737	581
	Circuit2		1,390	160	463	8	3.5					
MCAW020BA2A	Circuit1		1,580	173	527	8	3.5	402	728	576	807	634
	Circuit2		1,580	173	527	8	3.5					
MCAW022BA2A	Circuit1		1,580	170	527	8	3.5	428	750	614	845	672
	Circuit2		2,080	196	693	10	3.5					
MCAW024BA2A	Circuit1		2,080	196	693	10	3.5	483	945	684	947	750
	Circuit2		2,330	217	777	10	3.5					
MCAW026BA2A	Circuit1		2,330	217	777	10	3.5	529	1,047	746	1,032	818
	Circuit2		2,480	235	827	12	3.5					
MCAW028BA2A	Circuit1		2,330	217	777	10	3.5	562	1,079	789	1,076	861
	Circuit2		2,745	268	915	12	3.5					
MCAW030BA3A	Circuit1		1,580	173	527	8	3.5	604	888	648	821	691
	Circuit2		1,580	167	527	10	3.5					
	Circuit3		1,580	167	527	10	3.5					
MCAW036BA3A	Circuit1		2,080	199	693	10	3.5	695	1,120	745	944	795
	Circuit2		2,080	196	693	10	3.5					
	Circuit3		2,080	196	693	10	3.5					
MCAW040BA3A	Circuit1		2,330	217	777	10	3.5	756	1,245	810	1,026	864
	Circuit2		2,330	217	777	10	3.5					
	Circuit3		2,330	217	777	10	3.5					
MCAW045BA4A	Circuit1		2,080	199	693	8	3.5	915	1,311	965	1,164	1,015
	Circuit2		2,080	199	693	8	3.5					
	Circuit3		2,080	196	693	10	3.5					
	Circuit4		2,080	196	693	10	3.5					
MCAW050BA4A	Circuit1		2,330	217	777	10	3.5	1,007	1,462	1,062	1,278	1,116
	Circuit2		2,330	217	777	10	3.5					
	Circuit3		2,330	217	777	10	3.5					
	Circuit4		2,330	217	777	10	3.5					

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

400V / 50Hz

Multi point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW014BA2A	Circuit1	400	915	113	305	6	3.5	134	326	218	375	257
	Circuit2		915	113	305	6	3.5	134	326	218	375	257
MCAW016BA2A	Circuit1		1,285	133	428	6	3.5	154	449	243	421	288
	Circuit2		1,285	128	428	8	3.5	156	456	250	428	295
MCAW018BA2A	Circuit1		1,390	153	463	8	3.5	181	491	287	495	339
	Circuit2		1,390	160	463	8	3.5	188	491	295	509	349
MCAW020BA2A	Circuit1		1,580	173	527	8	3.5	201	555	317	548	375
	Circuit2		1,580	173	527	8	3.5	201	555	317	548	375
MCAW022BA2A	Circuit1		1,580	170	527	8	3.5	198	555	317	548	375
	Circuit2		2,080	196	693	10	3.5	231	728	363	625	428
MCAW024BA2A	Circuit1		2,080	196	693	10	3.5	231	728	363	625	428
	Circuit2		2,330	217	777	10	3.5	252	812	393	679	465
MCAW026BA2A	Circuit1		2,330	217	777	10	3.5	252	812	393	679	465
	Circuit2		2,480	235	827	12	3.5	277	869	431	742	509
MCAW028BA2A	Circuit1		2,330	217	777	10	3.5	252	812	393	679	465
	Circuit2		2,745	268	915	12	3.5	310	957	485	839	573
MCAW030BA2A	Circuit1		1,580	173	527	8	3.5	201	555	317	548	375
	Circuit2		1,580	167	527	10	3.5	202	562	324	555	382
	Circuit3		1,580	167	527	10	3.5	202	562	324	555	382
MCAW036BA3A	Circuit1		2,080	199	693	10	3.5	234	728	363	625	428
	Circuit2		2,080	196	693	10	3.5	231	728	363	625	428
	Circuit3		2,080	196	693	10	3.5	231	728	363	625	428
MCAW040BA3A	Circuit1		2,330	217	777	10	3.5	252	812	393	679	465
	Circuit2		2,330	217	777	10	3.5	252	812	393	679	465
	Circuit3		2,330	217	777	10	3.5	252	812	393	679	465
MCAW045BA4A	Circuit1		2,080	199	693	8	3.5	227	721	356	618	421
	Circuit2		2,080	199	693	8	3.5	227	721	356	618	421
	Circuit3		2,080	196	693	10	3.5	231	728	363	625	428
	Circuit4		2,080	196	693	10	3.5	231	728	363	625	428
MCAW050BA4A	Circuit1		2,330	217	777	10	3.5	252	812	393	679	465
	Circuit2		2,330	217	777	10	3.5	252	812	393	679	465
	Circuit3		2,330	217	777	10	3.5	252	812	393	679	465
	Circuit4		2,330	217	777	10	3.5	252	812	393	679	465

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

415V / 50Hz

Single point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW008BA1A	Circuit1	415	1,160	124	387	8	3.4	151	414	241	413	284
MCAW010BA1A	Circuit1		1,250	154	417	8	3.4	181	444	285	491	336
MCAW012BA1A	Circuit1		1,850	185	617	10	3.4	219	651	350	602	413
MCAW014BA2A	Circuit1		850	109	283	6	3.4	258	413	382	534	420
	Circuit2		850	109	283	6	3.4					
MCAW016BA2A	Circuit1		1,160	128	387	6	3.4	299	531	433	604	476
	Circuit2		1,160	124	387	8	3.4					
MCAW018BA2A	Circuit1		1,250	147	417	8	3.4	355	598	510	710	560
	Circuit2		1,250	154	417	8	3.4					
MCAW020BA2A	Circuit1		1,405	167	468	8	3.4	388	662	556	778	611
	Circuit2		1,405	167	468	8	3.4					
MCAW022BA2A	Circuit1		1,405	164	468	8	3.4	413	684	592	815	648
	Circuit2		1,850	188	617	10	3.4					
MCAW024BA2A	Circuit1		1,850	188	617	10	3.4	465	859	660	912	723
	Circuit2		2,045	209	682	10	3.4					
MCAW026BA2A	Circuit1		2,045	209	682	10	3.4	510	942	719	995	788
	Circuit2		2,590	227	863	12	3.4					
MCAW028BA2A	Circuit1		2,045	209	682	10	3.4	541	973	761	1,037	830
	Circuit2		2,865	258	955	12	3.4					
MCAW030BA3A	Circuit1		1,405	167	468	8	3.4	583	816	624	791	666
	Circuit2		1,405	161	468	10	3.4					
	Circuit3		1,405	161	468	10	3.4					
MCAW036BA3A	Circuit1		1,850	192	617	10	3.4	670	1,027	718	910	766
	Circuit2		1,850	188	617	10	3.4					
	Circuit3		1,850	188	617	10	3.4					
MCAW040BA3A	Circuit1		2,045	209	682	10	3.4	728	1,133	780	989	833
	Circuit2		2,045	209	682	10	3.4					
	Circuit3		2,045	209	682	10	3.4					
MCAW045BA4A	Circuit1		1,850	192	617	8	3.4	882	1,212	930	1,122	978
	Circuit2		1,850	192	617	8	3.4					
	Circuit3		1,850	188	617	10	3.4					
	Circuit4		1,850	188	617	10	3.4					
MCAW050BA4A	Circuit1		2,045	209	682	10	3.4	971	1,342	1,023	1,232	1,075
	Circuit2		2,045	209	682	10	3.4					
	Circuit3		2,045	209	682	10	3.4					
	Circuit4		2,045	209	682	10	3.4					

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
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   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

415V / 50Hz

Multi point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW014BA2A	Circuit1	415	850	109	283	6	3.4	129	304	210	362	248
	Circuit2		850	109	283	6	3.4	129	304	210	362	248
MCAW016BA2A	Circuit1		1,160	128	387	6	3.4	149	407	234	406	277
	Circuit2		1,160	124	387	8	3.4	151	414	241	413	284
MCAW018BA2A	Circuit1		1,250	147	417	8	3.4	174	444	277	477	327
	Circuit2		1,250	154	417	8	3.4	181	444	285	491	336
MCAW020BA2A	Circuit1		1,405	167	468	8	3.4	194	495	306	528	361
	Circuit2		1,405	167	468	8	3.4	194	495	306	528	361
MCAW022BA2A	Circuit1		1,405	164	468	8	3.4	191	495	306	528	361
	Circuit2		1,850	188	617	10	3.4	222	651	350	602	413
MCAW024BA2A	Circuit1		1,850	188	617	10	3.4	222	651	350	602	413
	Circuit2		2,045	209	682	10	3.4	243	716	379	655	448
MCAW026BA2A	Circuit1		2,045	209	682	10	3.4	243	716	379	655	448
	Circuit2		2,590	227	863	12	3.4	267	904	415	715	490
MCAW028BA2A	Circuit1		2,045	209	682	10	3.4	243	716	379	655	448
	Circuit2		2,865	258	955	12	3.4	299	996	467	809	553
MCAW030BA2A	Circuit1		1,405	167	468	8	3.4	194	495	306	528	361
	Circuit2		1,405	161	468	10	3.4	194	502	312	535	368
	Circuit3		1,405	161	468	10	3.4	194	502	312	535	368
MCAW036BA3A	Circuit1		1,850	192	617	10	3.4	226	651	350	602	413
	Circuit2		1,850	188	617	10	3.4	222	651	350	602	413
	Circuit3		1,850	188	617	10	3.4	222	651	350	602	413
MCAW040BA3A	Circuit1		2,045	209	682	10	3.4	243	716	379	655	448
	Circuit2		2,045	209	682	10	3.4	243	716	379	655	448
	Circuit3		2,045	209	682	10	3.4	243	716	379	655	448
MCAW045BA4A	Circuit1		1,850	192	617	8	3.4	219	644	343	596	406
	Circuit2		1,850	192	617	8	3.4	219	644	343	596	406
	Circuit3		1,850	188	617	10	3.4	222	651	350	602	413
	Circuit4		1,850	188	617	10	3.4	222	651	350	602	413
MCAW050BA4A	Circuit1		2,045	209	682	10	3.4	243	716	379	655	448
	Circuit2		2,045	209	682	10	3.4	243	716	379	655	448
	Circuit3		2,045	209	682	10	3.4	243	716	379	655	448
	Circuit4		2,045	209	682	10	3.4	243	716	379	655	448

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

440V / 60Hz

Single point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW008BA1A	Circuit1	440	1,035	108	345	8	2.4	128	364	213	367	251
MCAW010BA1A	Circuit1		1,220	141	407	8	2.4	160	426	262	456	311
MCAW012BA1A	Circuit1		1,330	169	443	10	2.4	193	468	316	550	375
MCAW014BA2A	Circuit1		1,035	107	345	6	2.4	244	467	351	494	387
	Circuit2		1,035	107	345	6	2.4					
MCAW016BA2A	Circuit1		875	127	292	6	2.4	285	431	421	594	464
	Circuit2		875	124	292	8	2.4					
MCAW018BA2A	Circuit1		1,220	141	407	8	2.4	320	567	476	670	524
	Circuit2		1,220	141	407	8	2.4					
MCAW020BA2A	Circuit1		1,330	153	443	8	2.4	351	622	511	721	563
	Circuit2		1,330	159	443	8	2.4					
MCAW022BA2A	Circuit1		1,330	104	443	8	2.4	320	635	569	803	628
	Circuit2		1,330	172	443	10	2.4					
MCAW024BA2A	Circuit1		1,510	187	503	10	2.4	421	714	616	869	680
	Circuit2		1,510	187	503	10	2.4					
MCAW026BA2A	Circuit1		1,510	187	503	10	2.4	448	736	656	908	719
	Circuit2		1,990	208	663	12	2.4					
MCAW028BA2A	Circuit1		1,990	221	663	10	2.4	506	919	629	916	701
	Circuit2		2,230	232	743	12	2.4					
MCAW030BA3A	Circuit1		2,230	236	743	12	2.4	527	1,000	551	768	606
	Circuit2		2,230	227	743	14	2.4					
MCAW036BA3A	Circuit1		1,510	187	503	10	2.4	658	927	705	891	751
	Circuit2		1,510	187	503	10	2.4					
	Circuit3		1,990	212	663	10	2.4					
MCAW040BA3A	Circuit1		1,990	221	663	10	2.4	736	1,130	791	1,012	846
	Circuit2		1,990	221	663	10	2.4					
	Circuit3		1,990	221	663	10	2.4					
MCAW045BA4A	Circuit1		1,330	180	443	8	2.4	785	981	830	1,009	875
	Circuit2		1,330	180	443	8	2.4					
	Circuit3		1,330	169	443	10	2.4					
	Circuit4		1,330	169	443	10	2.4					
MCAW050BA4	Circuit1		1,510	194	503	10	2.4	928	1,164	977	1,171	1,025
	Circuit2		1,510	194	503	10	2.4					
	Circuit3		1,990	221	663	10	2.4					
	Circuit4		1,990	221	663	10	2.4					

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

440V / 60Hz

Multi point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW014BA2A	Circuit1	440	1,035	107	345	6	2.4	122	360	194	337	229
	Circuit2		1,035	107	345	6	2.4	122	360	194	337	229
MCAW016BA2A	Circuit1		875	127	292	6	2.4	141	306	230	402	273
	Circuit2		875	124	292	8	2.4	144	311	235	407	278
MCAW018BA2A	Circuit1		1,220	141	407	8	2.4	160	426	262	456	311
	Circuit2		1,220	141	407	8	2.4	160	426	262	456	311
MCAW020BA2A	Circuit1		1,330	153	443	8	2.4	172	463	282	492	334
	Circuit2		1,330	159	443	8	2.4	179	463	282	492	334
MCAW022BA2A	Circuit1		1,330	104	443	8	2.4	123	463	311	545	370
	Circuit2		1,330	172	443	10	2.4	197	468	316	550	375
MCAW024BA2A	Circuit1		1,510	187	503	10	2.4	211	528	340	592	403
	Circuit2		1,510	187	503	10	2.4	211	528	340	592	403
MCAW026BA2A	Circuit1		1,510	187	503	10	2.4	211	528	340	592	403
	Circuit2		1,990	208	663	12	2.4	237	692	388	675	459
MCAW028BA2A	Circuit1		1,990	221	663	10	2.4	245	688	383	670	455
	Circuit2		2,230	232	743	12	2.4	261	772	300	517	355
MCAW030BA2A	Circuit1		2,230	236	743	12	2.4	265	772	300	517	355
	Circuit2		2,230	227	743	14	2.4	261	777	305	522	360
MCAW036BA3A	Circuit1		1,510	187	503	10	2.4	211	528	340	592	403
	Circuit2		1,510	187	503	10	2.4	211	528	340	592	403
	Circuit3		1,990	212	663	10	2.4	237	688	383	670	455
MCAW040BA3A	Circuit1		1,990	221	663	10	2.4	245	688	383	670	455
	Circuit2		1,990	221	663	10	2.4	245	688	383	670	455
	Circuit3		1,990	221	663	10	2.4	245	688	383	670	455
MCAW045BA4A	Circuit1		1,330	180	443	8	2.4	199	463	311	545	370
	Circuit2		1,330	180	443	8	2.4	199	463	311	545	370
	Circuit3		1,330	169	443	10	2.4	193	468	316	550	375
	Circuit4		1,330	169	443	10	2.4	193	468	316	550	375
MCAW050BA4A	Circuit1		1,510	194	503	10	2.4	219	528	340	592	403
	Circuit2		1,510	194	503	10	2.4	219	528	340	592	403
	Circuit3		1,990	221	663	10	2.4	245	688	383	670	455
	Circuit4		1,990	221	663	10	2.4	245	688	383	670	455

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

460V / 60Hz

Single point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW008BA1A	Circuit1	460	1,080	104	360	8	2.3	122	379	203	351	240
MCAW010BA1A	Circuit1		1,285	134	428	8	2.3	153	447	251	437	297
MCAW012BA1A	Circuit1		1,390	162	463	10	2.3	185	486	302	526	358
MCAW014BA2A	Circuit1		1,080	103	360	6	2.3	233	477	336	473	370
	Circuit2		1,080	103	360	6	2.3					
MCAW016BA2A	Circuit1		915	121	305	6	2.3	273	438	403	568	444
	Circuit2		915	119	305	8	2.3					
MCAW018BA2A	Circuit1		1,285	134	428	8	2.3	306	581	455	641	502
	Circuit2		1,285	134	428	8	2.3					
MCAW020BA2A	Circuit1		1,390	146	463	8	2.3	336	634	489	690	539
	Circuit2		1,390	152	463	8	2.3					
MCAW022BA2A	Circuit1		1,390	100	463	8	2.3	306	647	544	768	600
	Circuit2		1,390	165	463	10	2.3					
MCAW024BA2A	Circuit1		1,580	178	527	10	2.3	403	728	590	831	650
	Circuit2		1,580	178	527	10	2.3					
MCAW026BA2A	Circuit1		1,580	178	527	10	2.3	429	749	627	869	688
	Circuit2		2,080	199	693	12	2.3					
MCAW028BA2A	Circuit1		2,080	211	693	10	2.3	484	938	694	968	762
	Circuit2		2,330	222	777	12	2.3					
MCAW030BA3A	Circuit1		2,330	226	777	12	2.3	504	1,022	735	1,035	810
	Circuit2		2,330	217	777	14	2.3					
MCAW036BA3A	Circuit1		1,580	178	527	10	2.3	629	931	674	853	719
	Circuit2		1,580	178	527	10	2.3					
	Circuit3		2,080	203	693	10	2.3					
MCAW040BA3A	Circuit1		2,080	211	693	10	2.3	704	1,139	757	968	810
	Circuit2		2,080	211	693	10	2.3					
	Circuit3		2,080	211	693	10	2.3					
MCAW045BA4A	Circuit1		1,390	172	463	8	2.3	751	977	794	966	837
	Circuit2		1,390	172	463	8	2.3					
	Circuit3		1,390	162	463	10	2.3					
	Circuit4		1,390	162	463	10	2.3					
MCAW050BA4A	Circuit1		1,580	186	527	10	2.3	888	1,159	934	1,120	981
	Circuit2		1,580	186	527	10	2.3					
	Circuit3		2,080	211	693	10	2.3					
	Circuit4		2,080	211	693	10	2.3					

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

460V / 60Hz

Multi point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW014BA2A	Circuit1	460	1,080	103	360	6	2.3	117	374	185	322	219
	Circuit2		1,080	103	360	6	2.3	117	374	185	322	219
MCAW016BA2A	Circuit1		915	121	305	6	2.3	135	319	220	384	261
	Circuit2		915	119	305	8	2.3	137	324	224	389	266
MCAW018BA2A	Circuit1		1,285	134	428	8	2.3	153	447	251	437	297
	Circuit2		1,285	134	428	8	2.3	153	447	251	437	297
MCAW020BA2A	Circuit1		1,390	146	463	8	2.3	165	482	270	470	320
	Circuit2		1,390	152	463	8	2.3	171	482	270	470	320
MCAW022BA2A	Circuit1		1,390	100	463	8	2.3	118	482	298	521	354
	Circuit2		1,390	165	463	10	2.3	188	486	302	526	358
MCAW024BA2A	Circuit1		1,580	178	527	10	2.3	202	550	325	567	386
	Circuit2		1,580	178	527	10	2.3	202	550	325	567	386
MCAW026BA2A	Circuit1		1,580	178	527	10	2.3	202	550	325	567	386
	Circuit2		2,080	199	693	12	2.3	227	721	371	645	439
MCAW028BA2A	Circuit1		2,080	211	693	10	2.3	235	716	366	641	435
	Circuit2		2,330	222	777	12	2.3	249	804	403	703	478
MCAW030BA2A	Circuit1		2,330	226	777	12	2.3	254	804	403	703	478
	Circuit2		2,330	217	777	14	2.3	250	809	407	707	482
MCAW036BA3A	Circuit1		1,580	178	527	10	2.3	202	550	325	567	386
	Circuit2		1,580	178	527	10	2.3	202	550	325	567	386
	Circuit3		2,080	203	693	10	2.3	226	716	366	641	435
MCAW040BA3A	Circuit1		2,080	211	693	10	2.3	235	716	366	641	435
	Circuit2		2,080	211	693	10	2.3	235	716	366	641	435
	Circuit3		2,080	211	693	10	2.3	235	716	366	641	435
MCAW045BA4A	Circuit1		1,390	172	463	8	2.3	190	482	298	521	354
	Circuit2		1,390	172	463	8	2.3	190	482	298	521	354
	Circuit3		1,390	162	463	10	2.3	185	486	302	526	358
	Circuit4		1,390	162	463	10	2.3	185	486	302	526	358
MCAW050BA4A	Circuit1		1,580	186	527	10	2.3	209	550	325	567	386
	Circuit2		1,580	186	527	10	2.3	209	550	325	567	386
	Circuit3		2,080	211	693	10	2.3	235	716	366	641	435
	Circuit4		2,080	211	693	10	2.3	235	716	366	641	435

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

480V / 60Hz

Single point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW008BA1A	Circuit1	480	940	99	313	8	2.2	117	331	195	337	230
MCAW010BA1A	Circuit1		1,160	129	387	8	2.2	147	404	240	418	285
MCAW012BA1A	Circuit1		1,250	155	417	10	2.2	177	439	290	504	343
MCAW014BA2A	Circuit1		940	98	313	6	2.2	223	425	322	453	355
	Circuit2		940	98	313	6	2.2					
MCAW016BA2A	Circuit1		850	116	283	6	2.2	261	411	386	544	426
	Circuit2		850	114	283	8	2.2					
MCAW018BA2A	Circuit1		1,160	129	387	8	2.2	293	533	436	614	480
	Circuit2		1,160	129	387	8	2.2					
MCAW020BA2A	Circuit1		1,250	140	417	8	2.2	322	580	468	661	516
	Circuit2		1,250	146	417	8	2.2					
MCAW022BA2A	Circuit1		1,250	95	417	8	2.2	293	592	522	736	575
	Circuit2		1,250	158	417	10	2.2					
MCAW024BA2A	Circuit1		1,405	171	468	10	2.2	386	662	565	797	623
	Circuit2		1,405	171	468	10	2.2					
MCAW026BA2A	Circuit1		1,405	171	468	10	2.2	411	681	601	833	659
	Circuit2		1,850	191	617	12	2.2					
MCAW028BA2A	Circuit1		1,850	203	617	10	2.2	464	851	665	928	731
	Circuit2		2,045	212	682	12	2.2					
MCAW030BA3A	Circuit1		2,045	217	682	12	2.2	483	917	705	992	776
	Circuit2		2,045	208	682	14	2.2					
MCAW036BA3A	Circuit1		1,405	171	468	10	2.2	603	856	646	817	689
	Circuit2		1,405	171	468	10	2.2					
	Circuit3		1,850	195	617	10	2.2					
MCAW040BA3A	Circuit1		1,850	203	617	10	2.2	675	1,044	725	928	776
	Circuit2		1,850	203	617	10	2.2					
	Circuit3		1,850	203	617	10	2.2					
MCAW045BA4A	Circuit1		1,250	165	417	8	2.2	719	909	761	925	802
	Circuit2		1,250	165	417	8	2.2					
	Circuit3		1,250	155	417	10	2.2					
	Circuit4		1,250	155	417	10	2.2					
MCAW050BA4A	Circuit1		1,405	178	468	10	2.2	851	1,074	895	1,073	940
	Circuit2		1,405	178	468	10	2.2					
	Circuit3		1,850	203	617	10	2.2					
	Circuit4		1,850	203	617	10	2.2					

Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

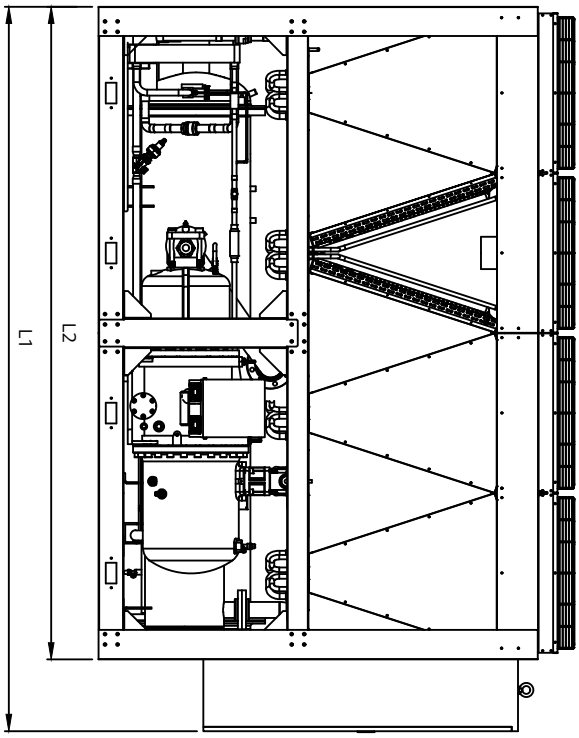
480V / 60Hz

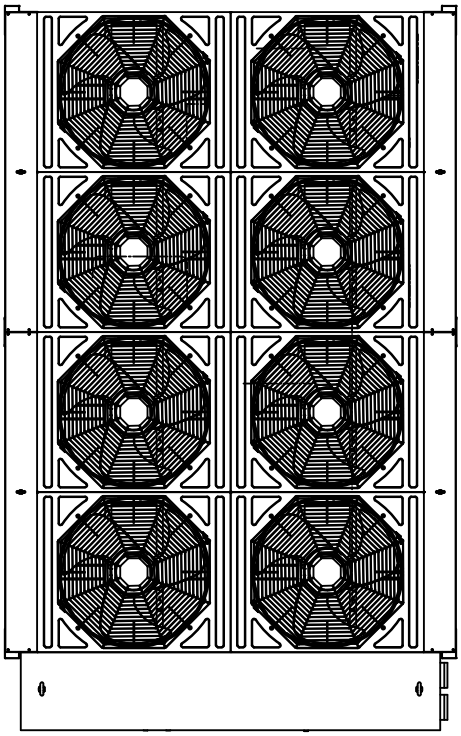
Multi point connection

Model		Voltage	Compressor			Fan		Total RLA	Max current	MCA	MOCP	Recommend fuse size
			LRA	RLA	Start Current	No	RLA					
MCAW014BA2A	Circuit1	480	940	98	313	6	2.2	112	327	177	309	210
	Circuit2		940	98	313	6	2.2	112	327	177	309	210
MCAW016BA2A	Circuit1		850	116	283	6	2.2	130	297	211	368	250
	Circuit2		850	114	283	8	2.2	132	301	215	373	254
MCAW018BA2A	Circuit1		1,160	129	387	8	2.2	147	404	240	418	285
	Circuit2		1,160	129	387	8	2.2	147	404	240	418	285
MCAW020BA2A	Circuit1		1,250	140	417	8	2.2	158	434	258	451	306
	Circuit2		1,250	146	417	8	2.2	164	434	258	451	306
MCAW022BA2A	Circuit1		1,250	95	417	8	2.2	113	434	285	499	339
	Circuit2		1,250	158	417	10	2.2	180	439	290	504	343
MCAW024BA2A	Circuit1		1,405	171	468	10	2.2	193	491	312	543	369
	Circuit2		1,405	171	468	10	2.2	193	491	312	543	369
MCAW026BA2A	Circuit1		1,405	171	468	10	2.2	193	491	312	543	369
	Circuit2		1,850	191	617	12	2.2	218	643	355	618	421
MCAW028BA2A	Circuit1		1,850	203	617	10	2.2	225	639	351	614	417
	Circuit2		2,045	212	682	12	2.2	239	708	386	673	458
MCAW030BA2A	Circuit1		2,045	217	682	12	2.2	243	708	386	673	458
	Circuit2		2,045	208	682	14	2.2	239	713	390	678	462
MCAW036BA3A	Circuit1		1,405	171	468	10	2.2	193	491	312	543	369
	Circuit2		1,405	171	468	10	2.2	193	491	312	543	369
	Circuit3		1,850	195	617	10	2.2	217	639	351	614	417
MCAW040BA3A	Circuit1		1,850	203	617	10	2.2	225	639	351	614	417
	Circuit2		1,850	203	617	10	2.2	225	639	351	614	417
	Circuit3		1,850	203	617	10	2.2	225	639	351	614	417
MCAW045BA4A	Circuit1		1,250	165	417	8	2.2	183	434	285	499	339
	Circuit2		1,250	165	417	8	2.2	183	434	285	499	339
	Circuit3		1,250	155	417	10	2.2	177	439	290	504	343
	Circuit4		1,250	155	417	10	2.2	177	439	290	504	343
MCAW050BA4A	Circuit1		1,405	178	468	10	2.2	200	491	312	543	369
	Circuit2		1,405	178	468	10	2.2	200	491	312	543	369
	Circuit3		1,850	203	617	10	2.2	225	639	351	614	417
	Circuit4		1,850	203	617	10	2.2	225	639	351	614	417

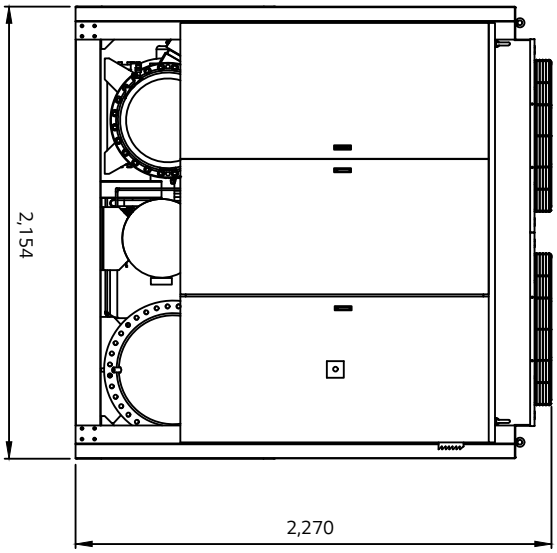
Note:
1. Standard conditions :
   Entering chilled water / Leaving chilled water temperature is 12 / 7˚C
   Air temperature is 35 ˚C
2. Symbols :
   LRA : Locked Rotor Amphere
   RLA : Rated Load Amphere
   MCA : Minimum Circuit Amphere
   MOCP : Maximum OverCurrent Protection
   Total RLA : Current when all compressor and fan running
   Start Current : Starting current of one compressor
   Max current : Largest compressor starting current after all other compressor and motors running

80~160RT / 60, 50Hz





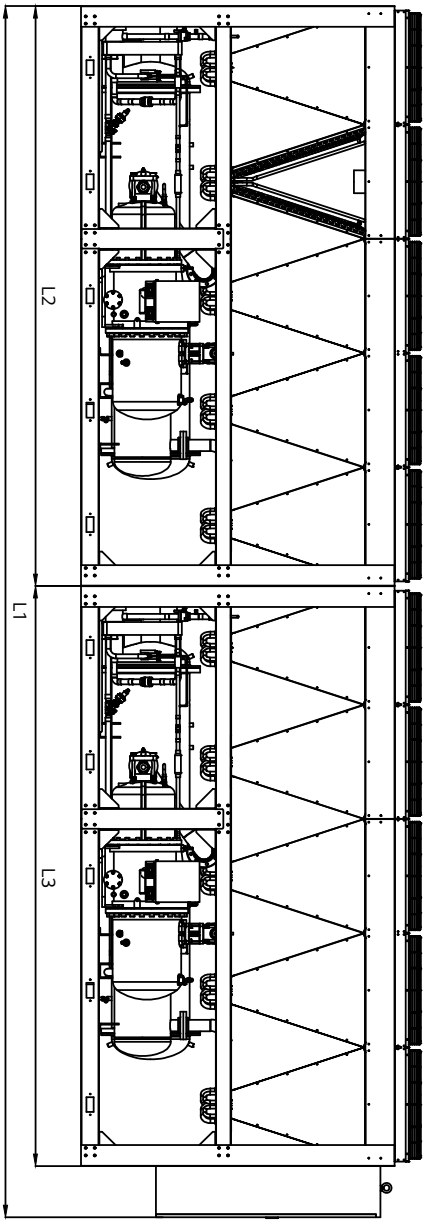
Depending on the model name, the number of Fans are different.
Refer to SPEC SHEET.

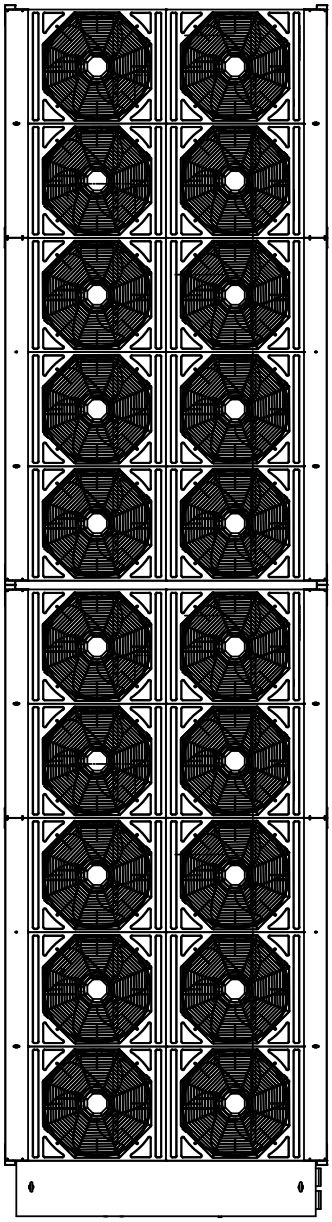


Unit: mm

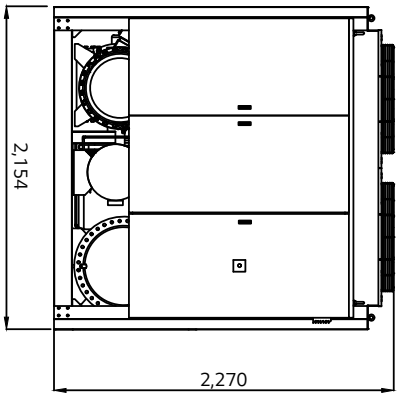
Model name	L1	L2
MCAW008AA11	3,454	3,112
MCAW010AA11	4,217	3,875
MCAW012AA11	4,980	4,638
MCAW014AA11	5,743	5,403
MCAW016AA11	6,506	6,164

200~320RT / 60, 50Hz





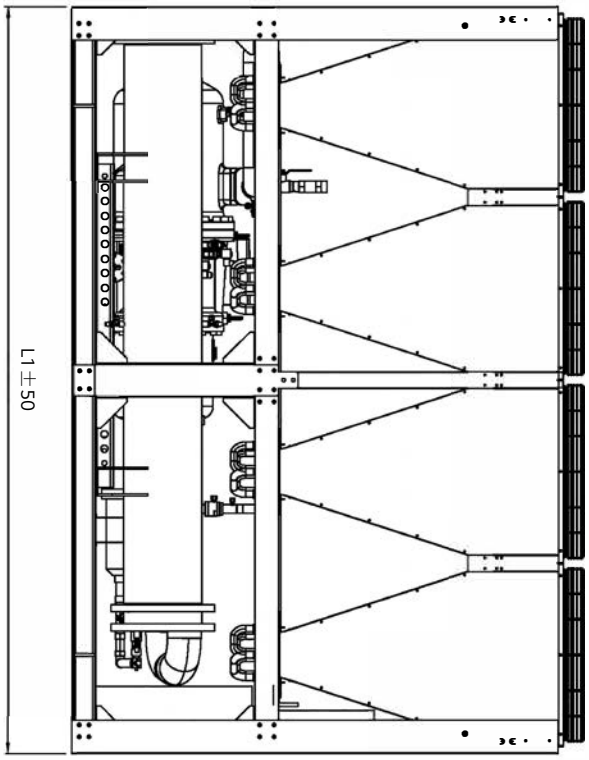
Depending on the model name, the number of Fans are different.
Refer to SPEC SHEET.

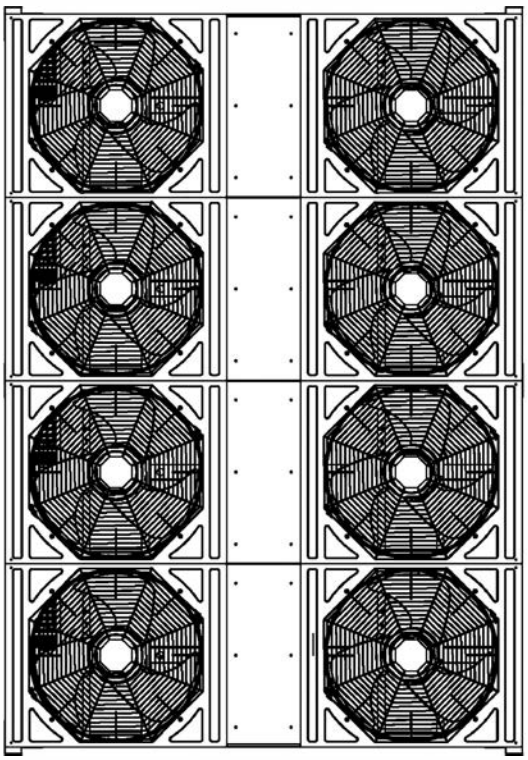


Unit: mm

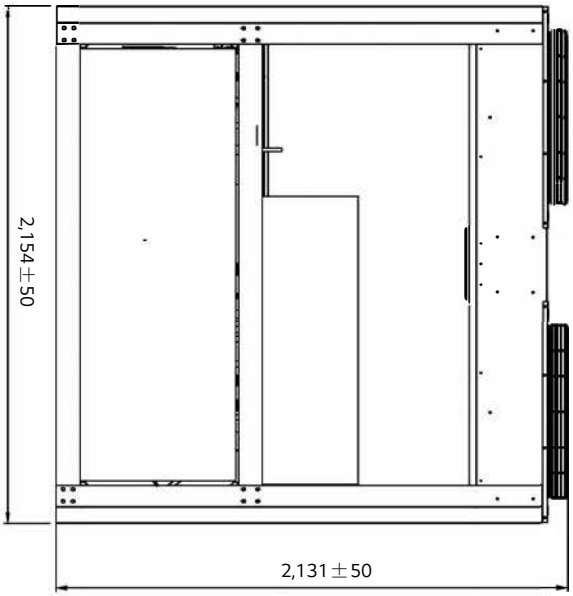
Model name	L1	L2	L3
MCAW020AA21	8,092	3,875	3,875
MCAW024AA21	9,618	4,638	4,638
MCAW028AA21	11,144	5,403	5,403
MCAW032AA21	12,670	6,164	6,164

80~140RT / 60, 50Hz





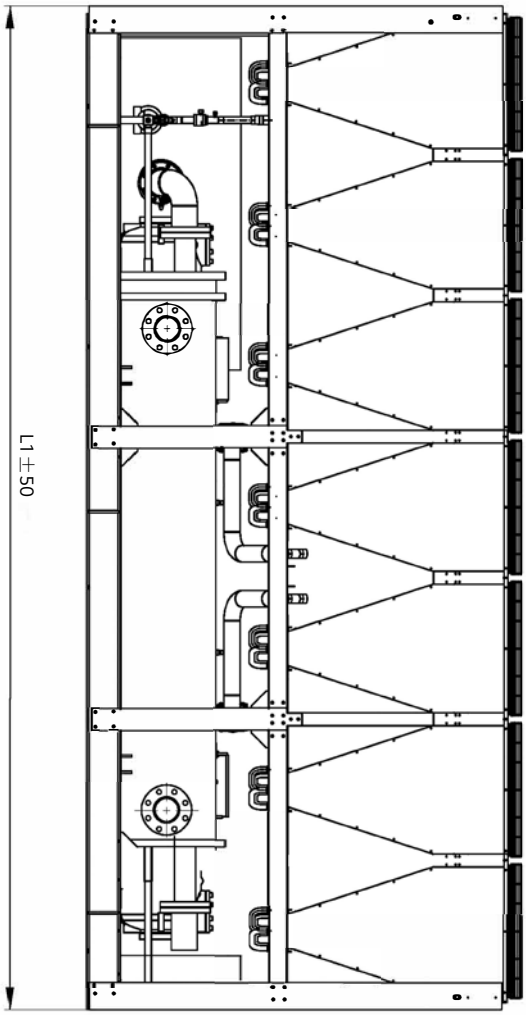
Depending on the model name, the number of Fans are different.
Refer to SPEC SHEET.

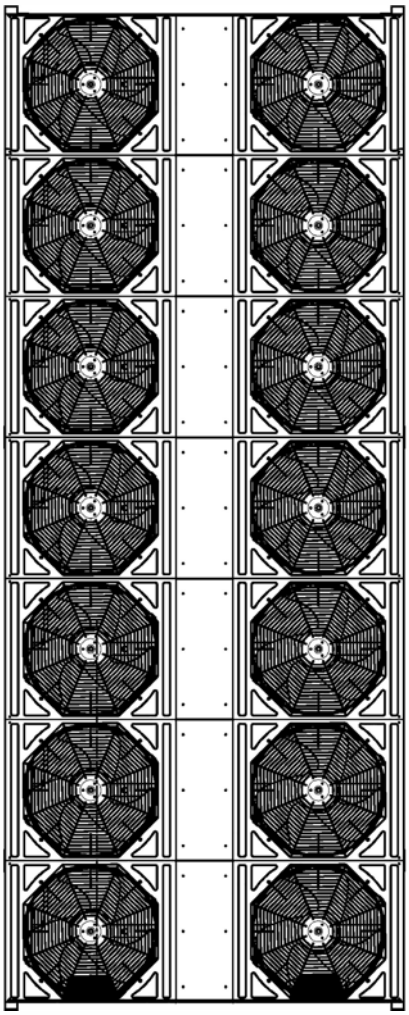


Unit: mm

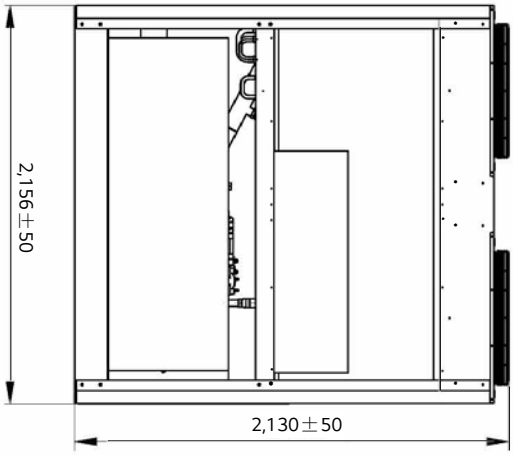
Model name	L1
MCAW008CA1A	3,112
MCAW010CA1A	3,112
MCAW012CA1A	3,875
MCAW014CA2A	4,638

160~220RT / 60, 50Hz





Depending on the model name, the number of Fans are different.
Refer to SPEC SHEET.

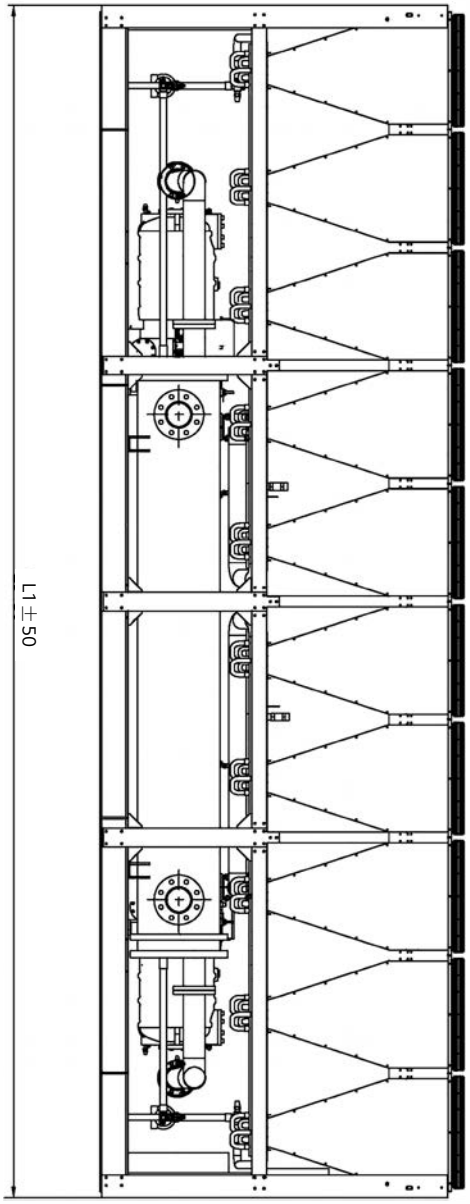


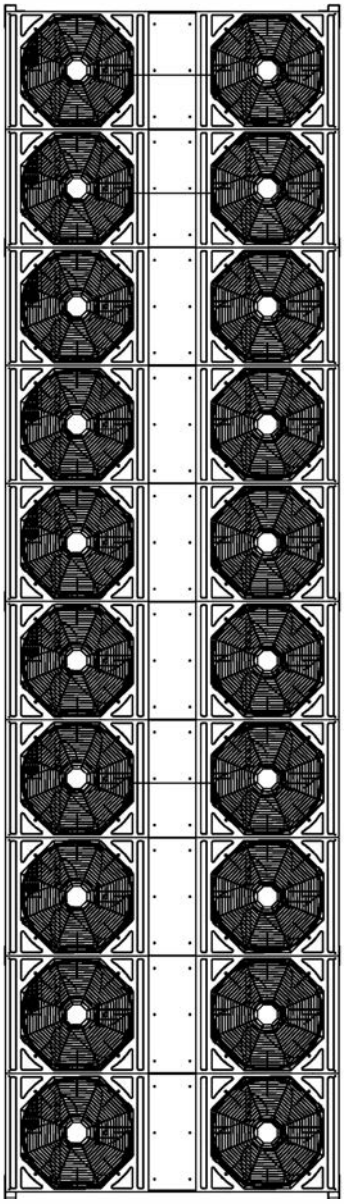
Unit: mm

Model name	L1
MCAW016CA2A	5,421
MCAW018CA2A	6,184
MCAW020CA2A	6,184
MCAW022CA2A	6,947

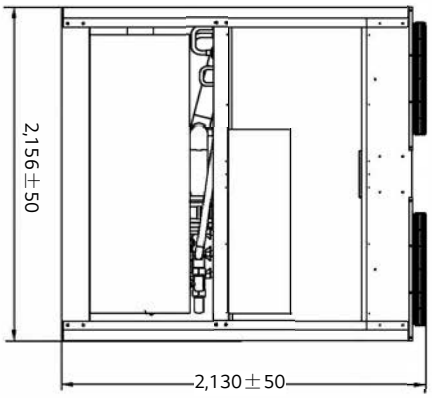
Outline dimension | Standard efficiency type

240~280RT / 60, 50Hz





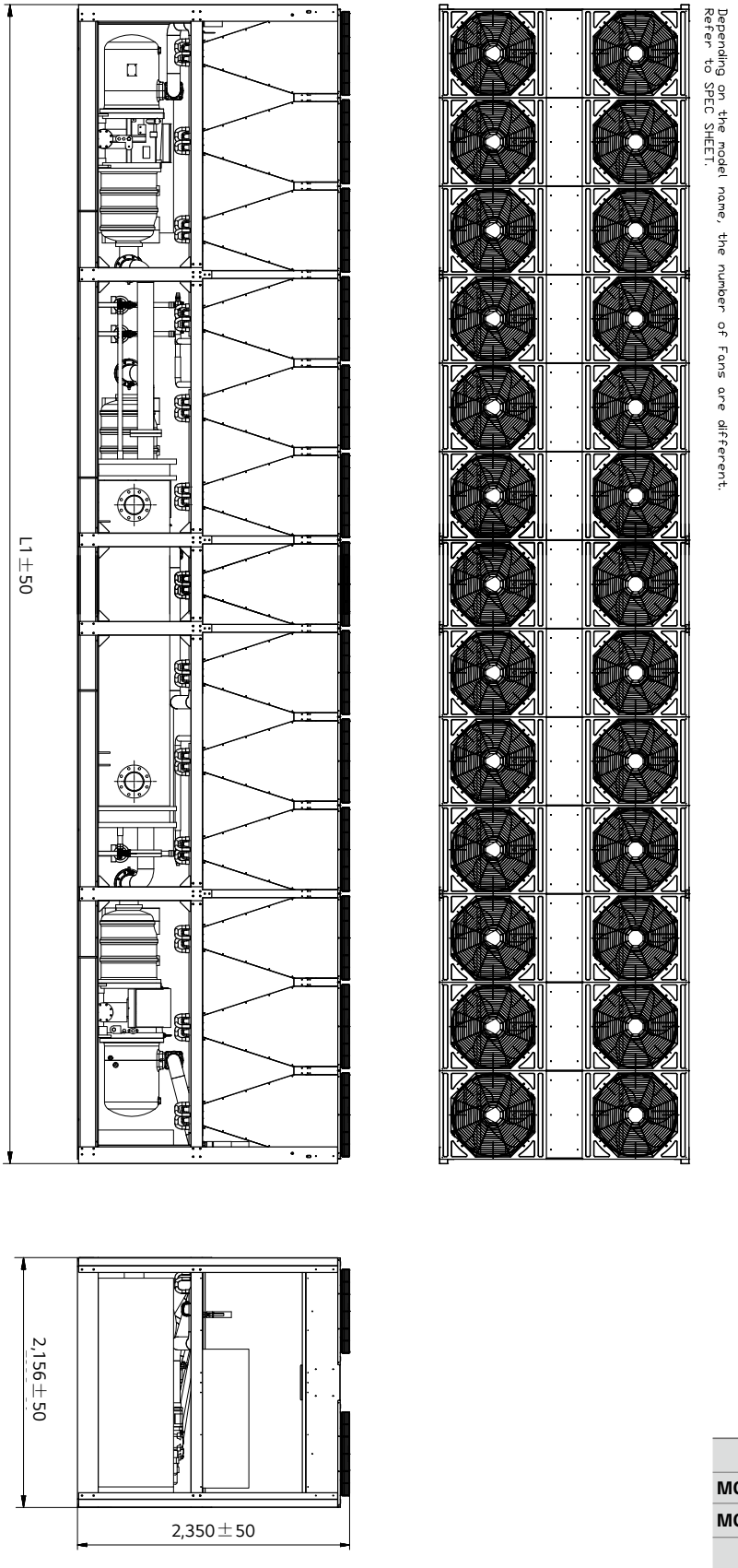
Depending on the model name, the number of Fans are different.
Refer to SPEC SHEET.



Unit: mm

Model name	L1
MCAW024CA2A	7,710
MCAW026CA2A	8,473
MCAW028CA2A	8,473

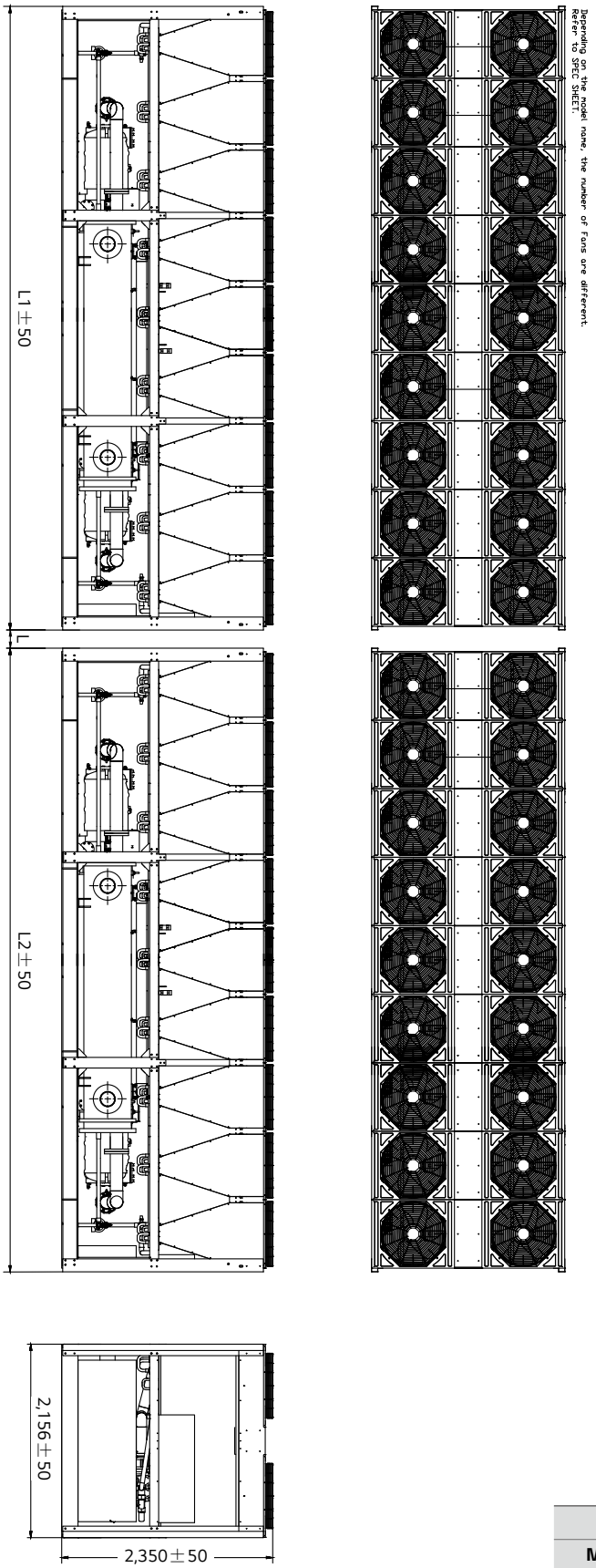
300~400RT / 60, 50Hz



Unit: mm

Model name	L1
MCAW030CA2A(60Hz)	9,999
MCAW030CA3A(50Hz)	9,999
MCAW036CA3A	11,525
MCAW040CA3A	11,525

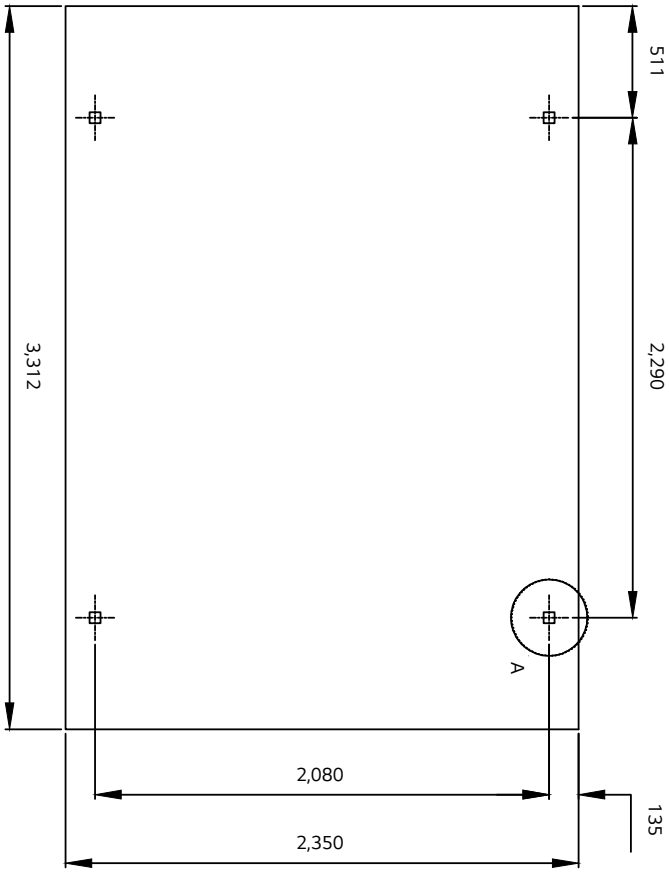
450~500RT / 60, 50Hz

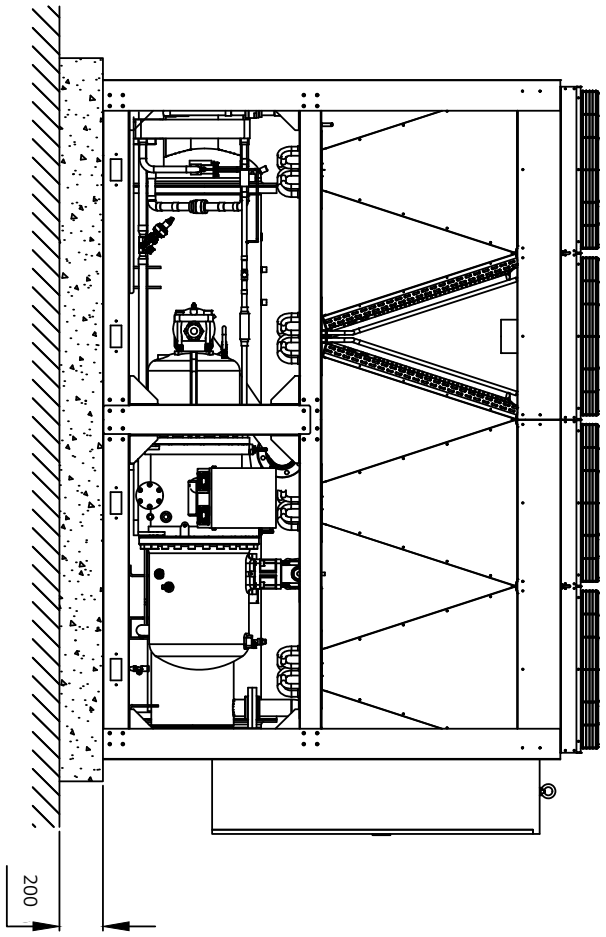


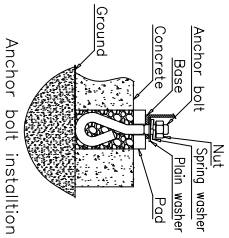
Unit: mm

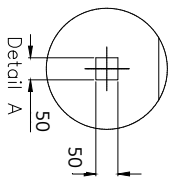
Model name	L1	L2
MCAW045CA4A	6,947	6,947
MCAW050CA4A	7,710	7,710

80RT / 60, 50Hz

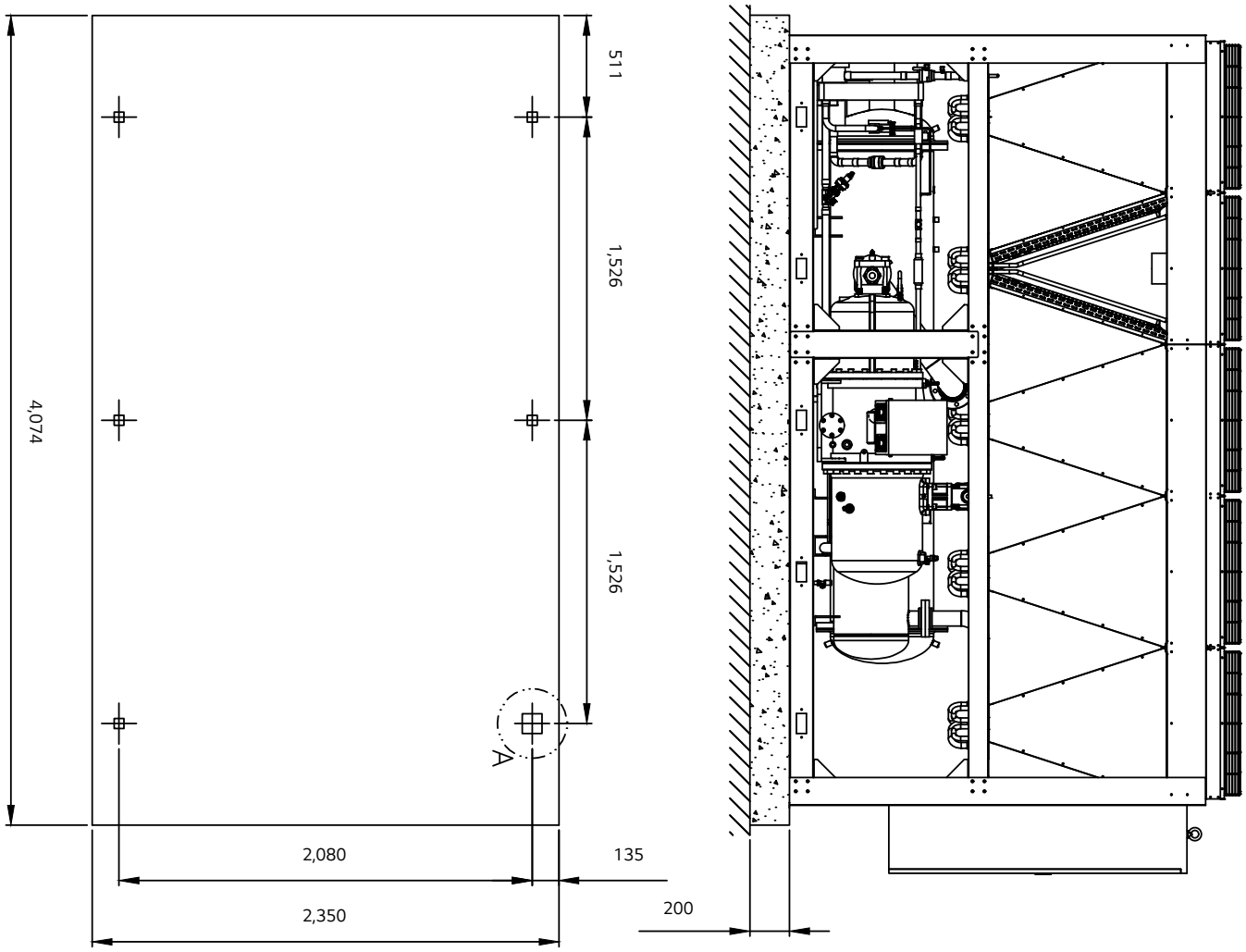

511
2,290
3,312
A
2,080
2,350
135

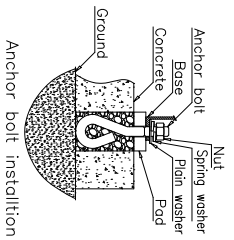

200

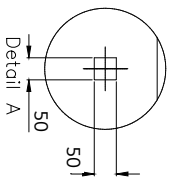

Ground
Concrete
Anchor bolt
Base
Nut
Spring washer
Plain washer
Pad
Anchor bolt installtion


Detail A
50
50

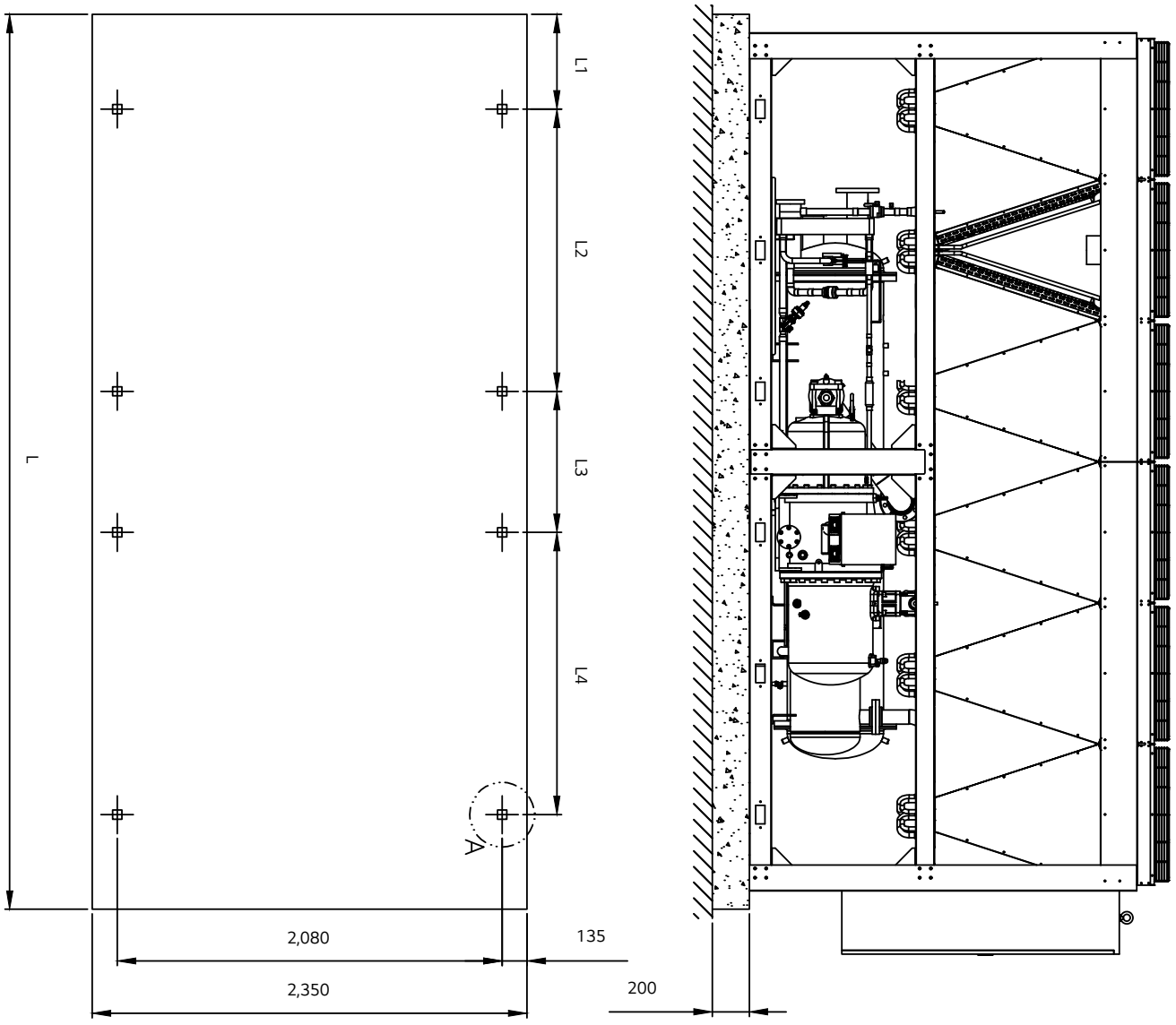
100RT / 60, 50Hz

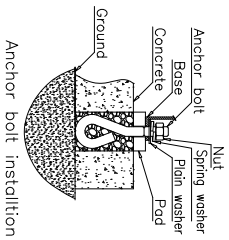


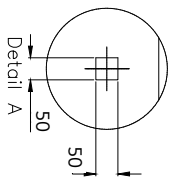




120~160RT / 60, 50Hz



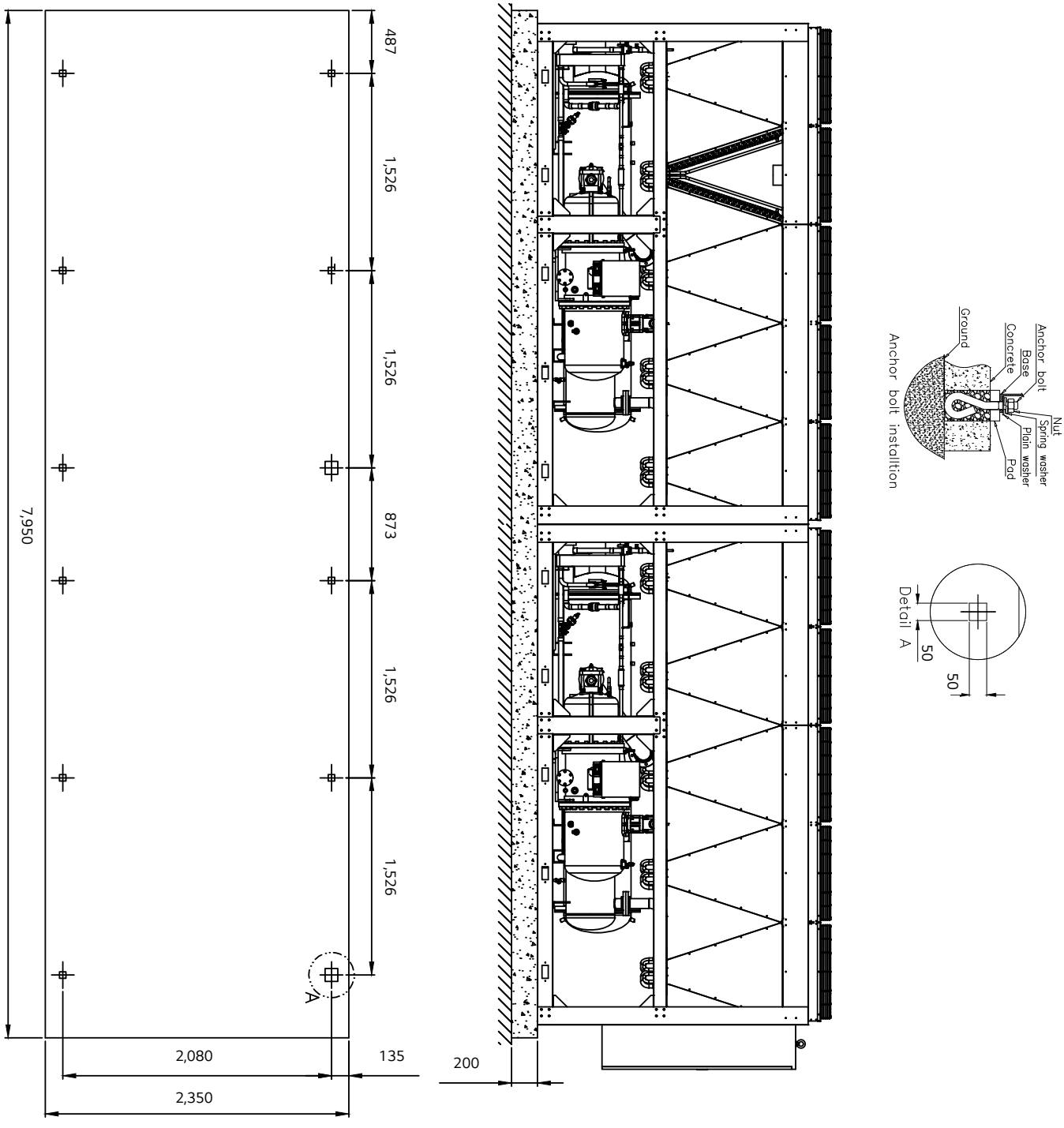




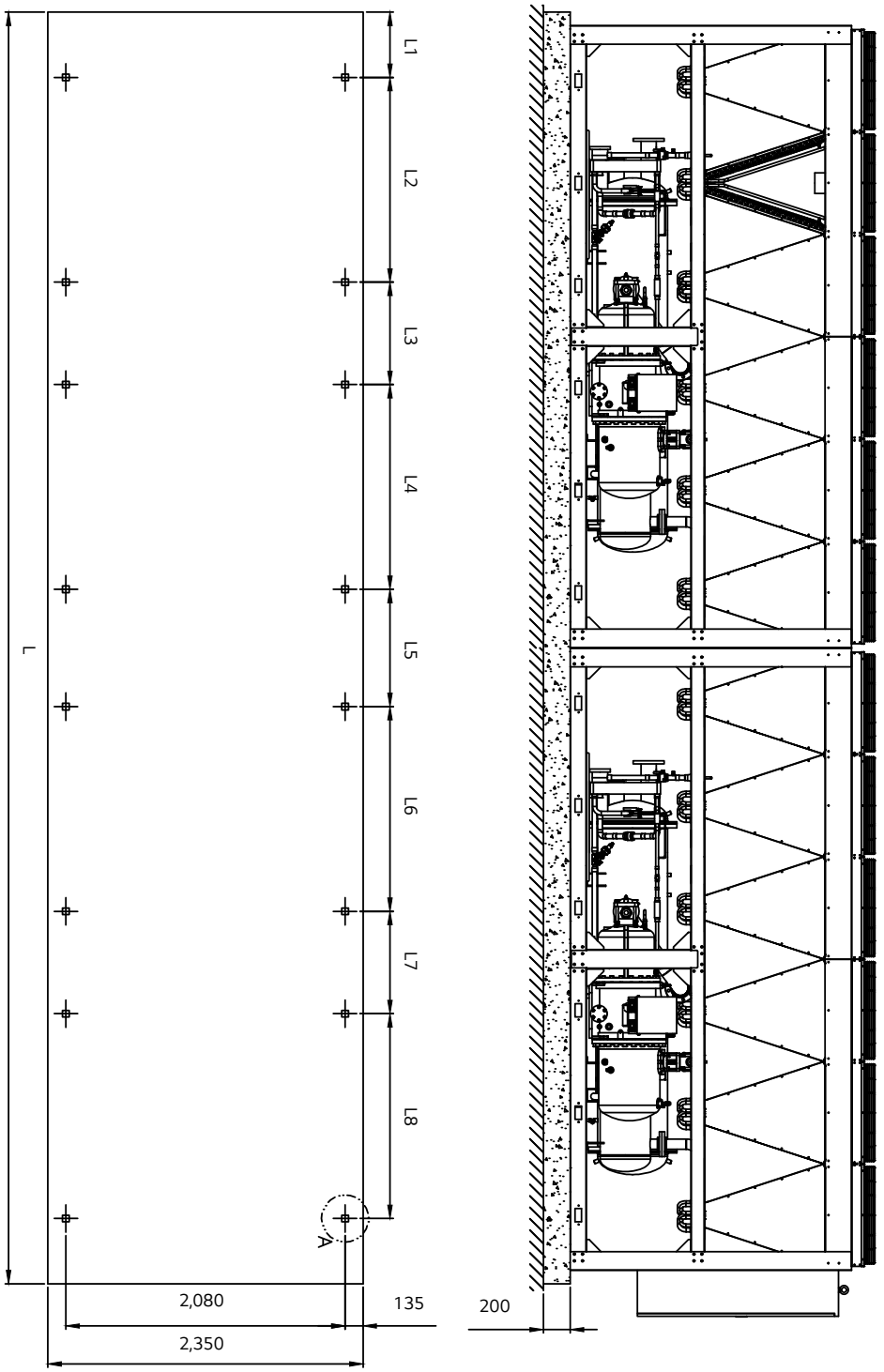
Unit: mm

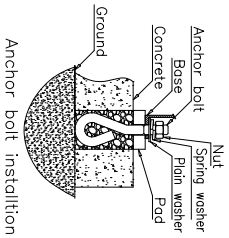
Model name	L	L1	L2	L3	L4
MCAW012AA11	4,838	512	1,526	763	1,526
MCAW014AA11	5,602	511	1,526	1,526	1,526
MCAW016AA11	6,363	511	1,526	2,289	1,526

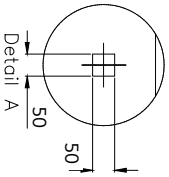
200RT / 60, 50Hz



240~320RT / 60, 50Hz



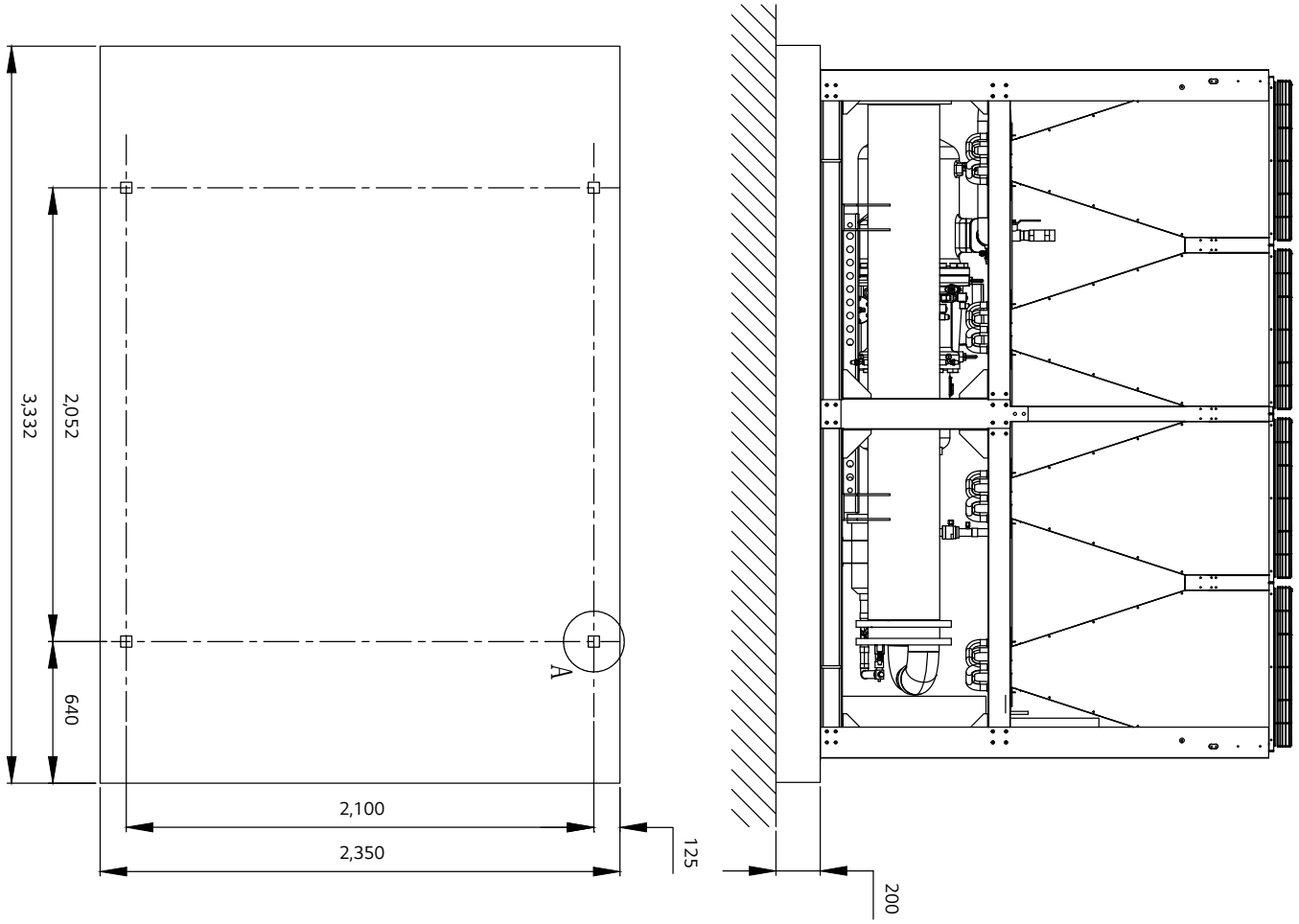


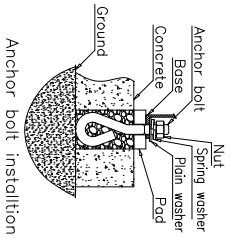


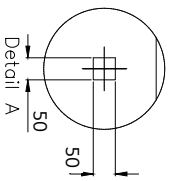
Unit: mm

Model name	L	L1	L2	L3	L4	L5	L6	L7	L8
MCAW024AA21	9,476	487	1,526	763	1,526	873	1,526	763	1,526
MCAW028AA21	11,002	486	1,528	1,526	1,526	871	1,528	1,526	1,526
MCAW032AA21	12,528	487	1,526	2,289	1,526	873	1,526	2,289	1,526

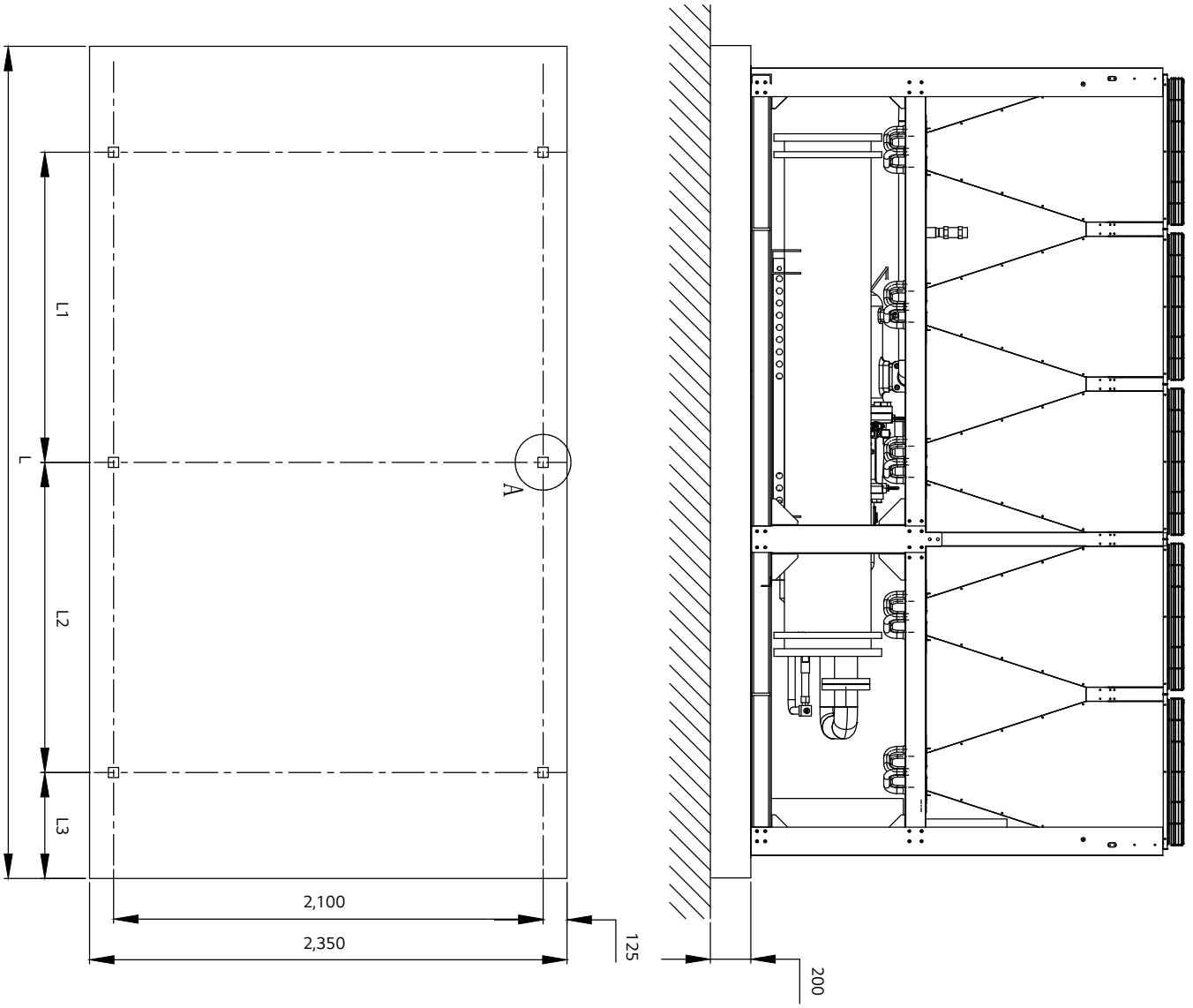
80~100RT / 60, 50Hz

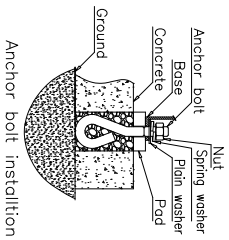


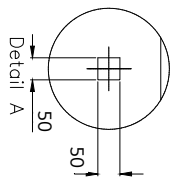




120~140RT / 60, 50Hz



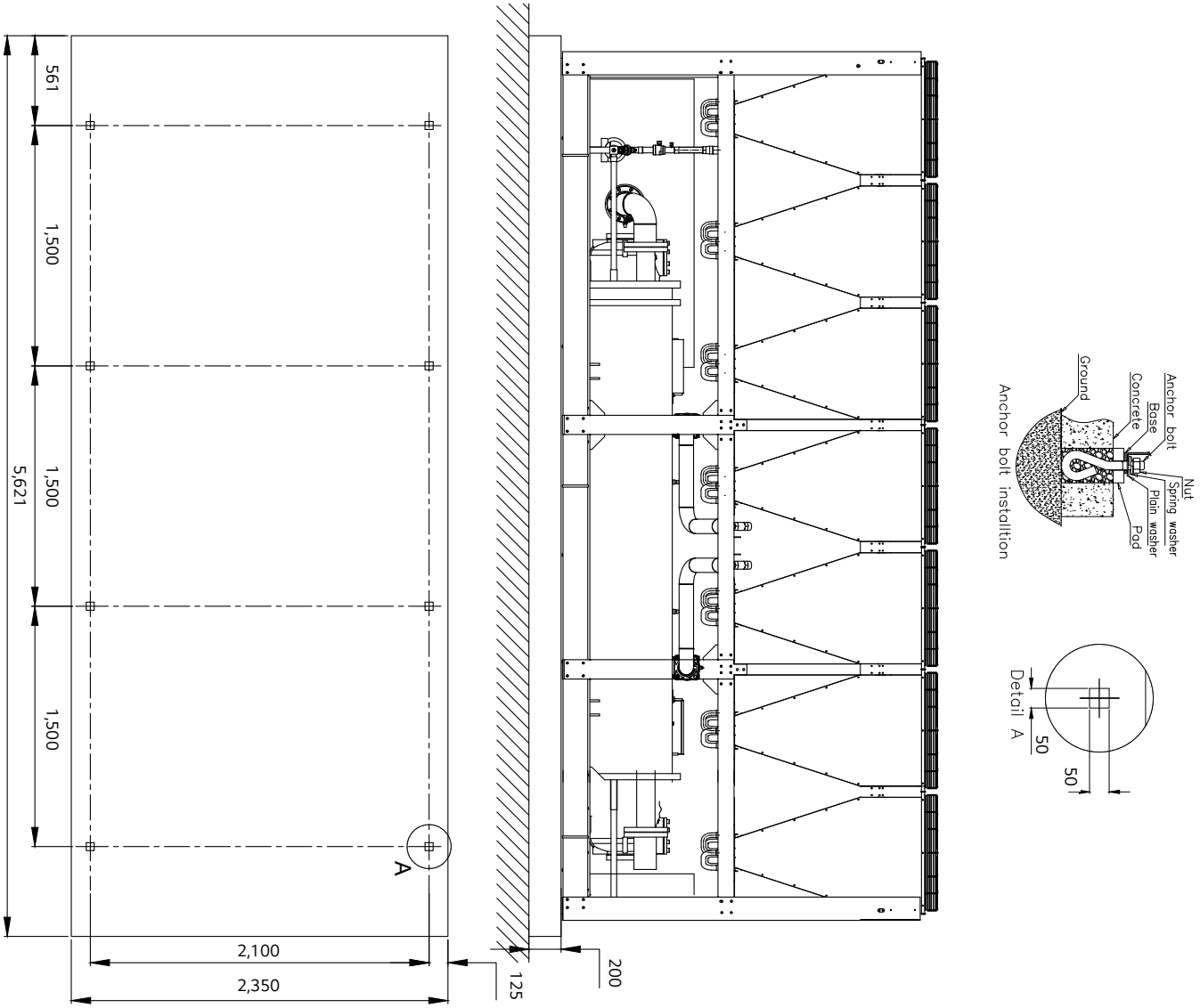




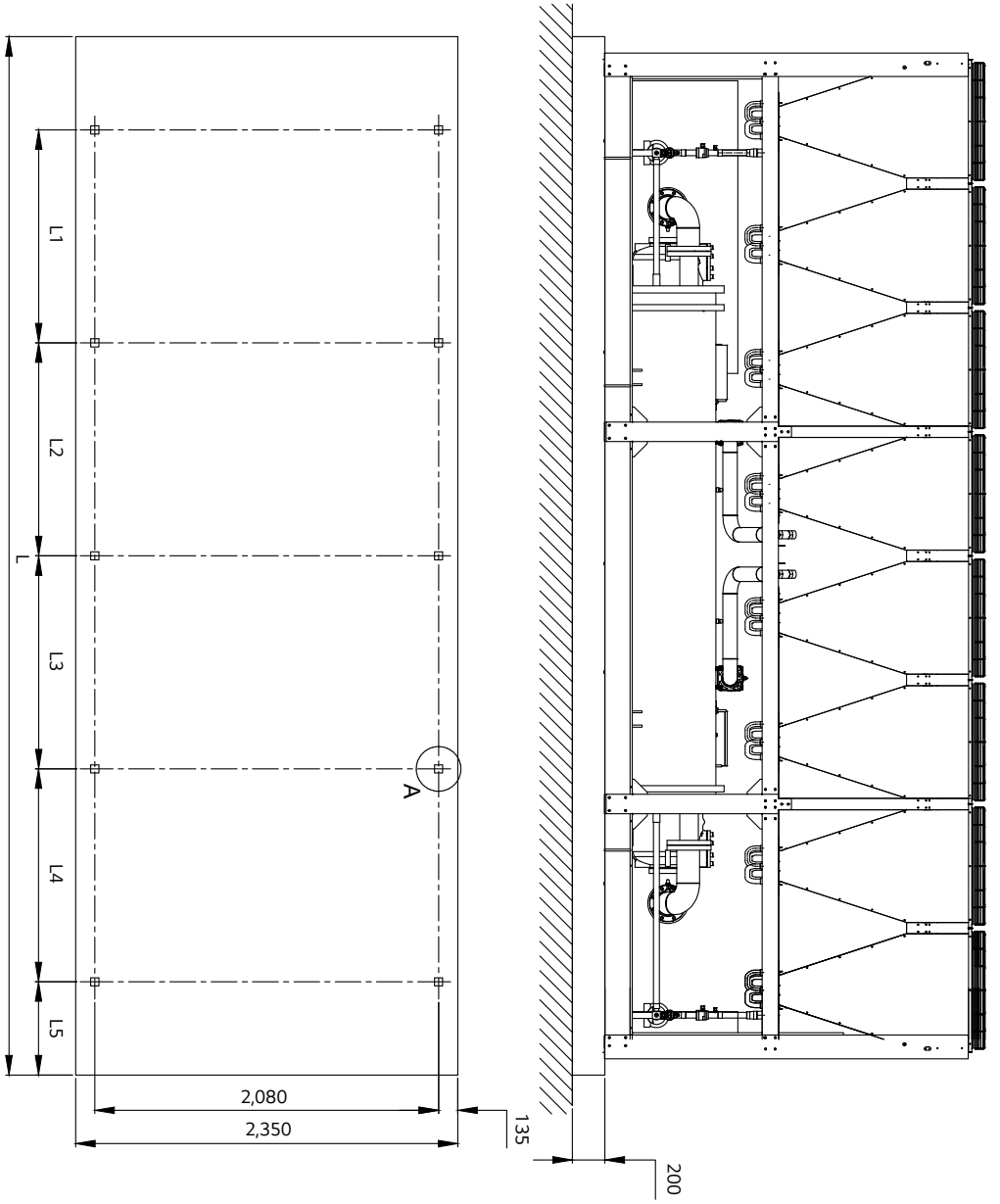
Unit: mm

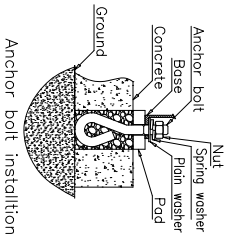
Model name	L	L1	L2	L3
MCAW012CA1A	4,095	1,526	1,526	521
MCAW014CA2A	4,858	2,290	1,526	521

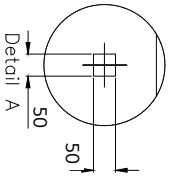
160RT / 60, 50Hz



180~220RT / 60, 50Hz



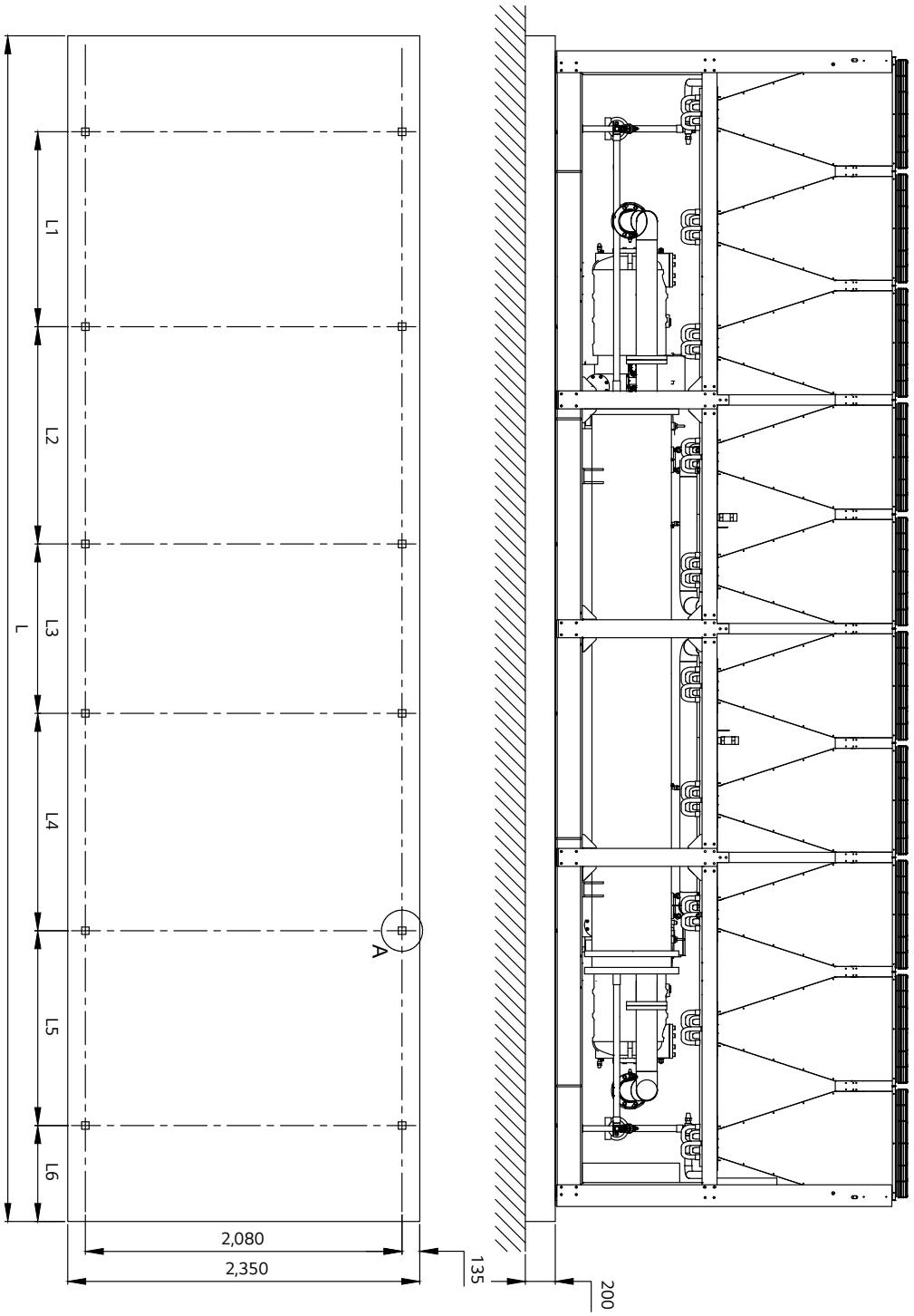


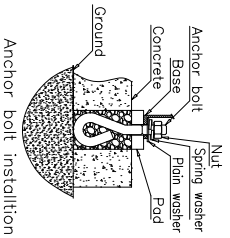


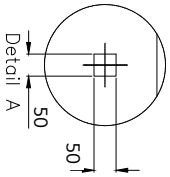
Unit: mm

Model name	L	L1	L2	L3	L4	L5
MCAW018CA2A	6,384	1,309	1,310	1,310	1,309	573
MCAW020CA2A	6,384	1,309	1,310	1,310	1,309	573
MCAW022CA2A	7,147	1,500	1,500	1,500	1,500	573

240~300RT / 60, 50Hz



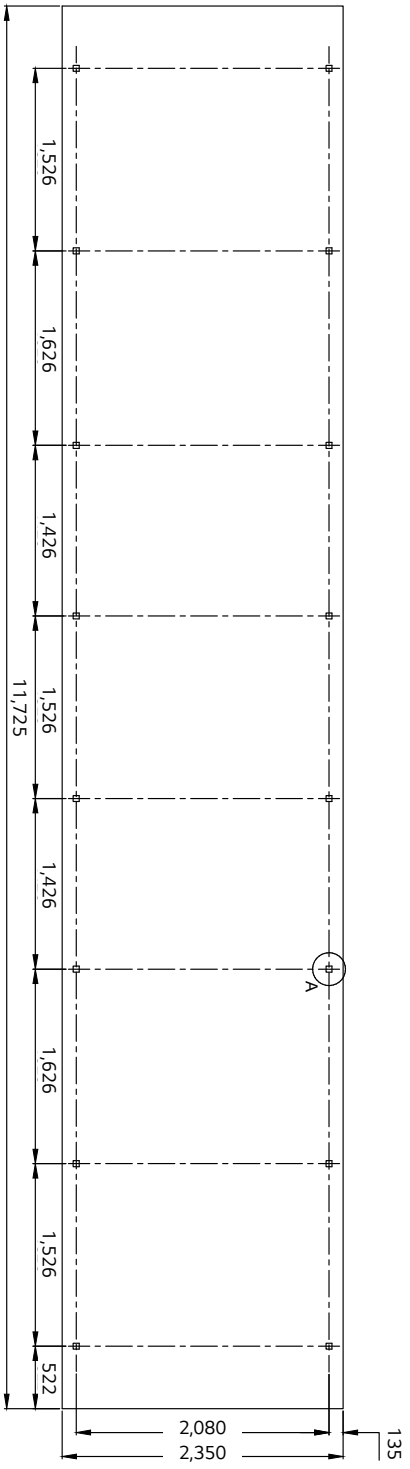


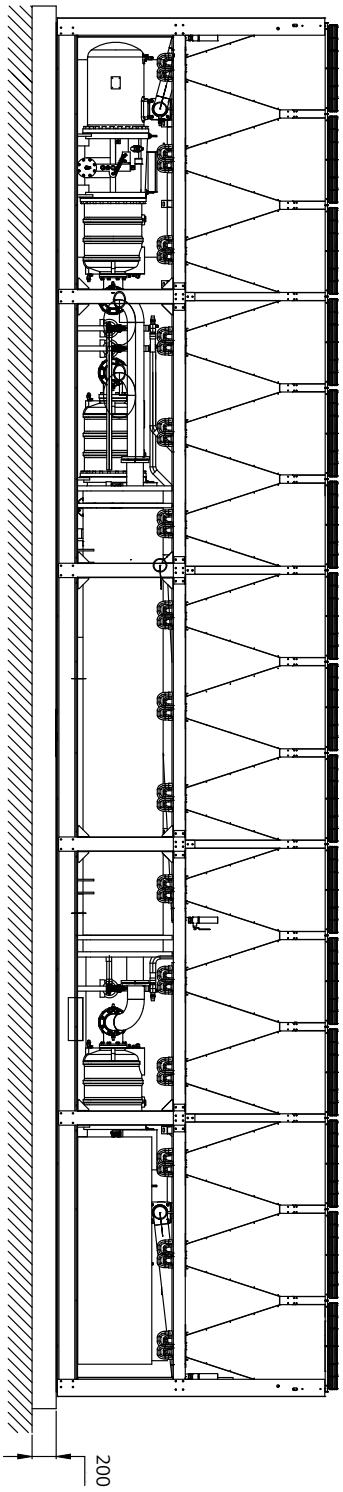


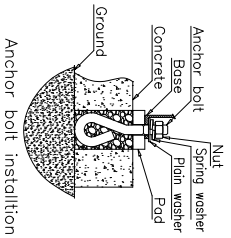
Unit: mm

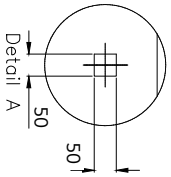
Model name	L	L1	L2	L3	L4	L5	L6
MCAW024CA2A	7,910	1,300	1,450	1,130	1,450	1,300	640
MCAW026CA2A	8,673	1,500	1,500	1,500	1,500	1,500	587
MCAW028CA2A	8,673	1,500	1,500	1,500	1,500	1,500	587
MCAW030CA2A(60Hz)	9,955	1,718	1,719	1,719	1,719	1,718	681
MCAW030CA3A(50Hz)	9,955	1,718	1,719	1,719	1,719	1,718	681

360~400RT / 60, 50Hz

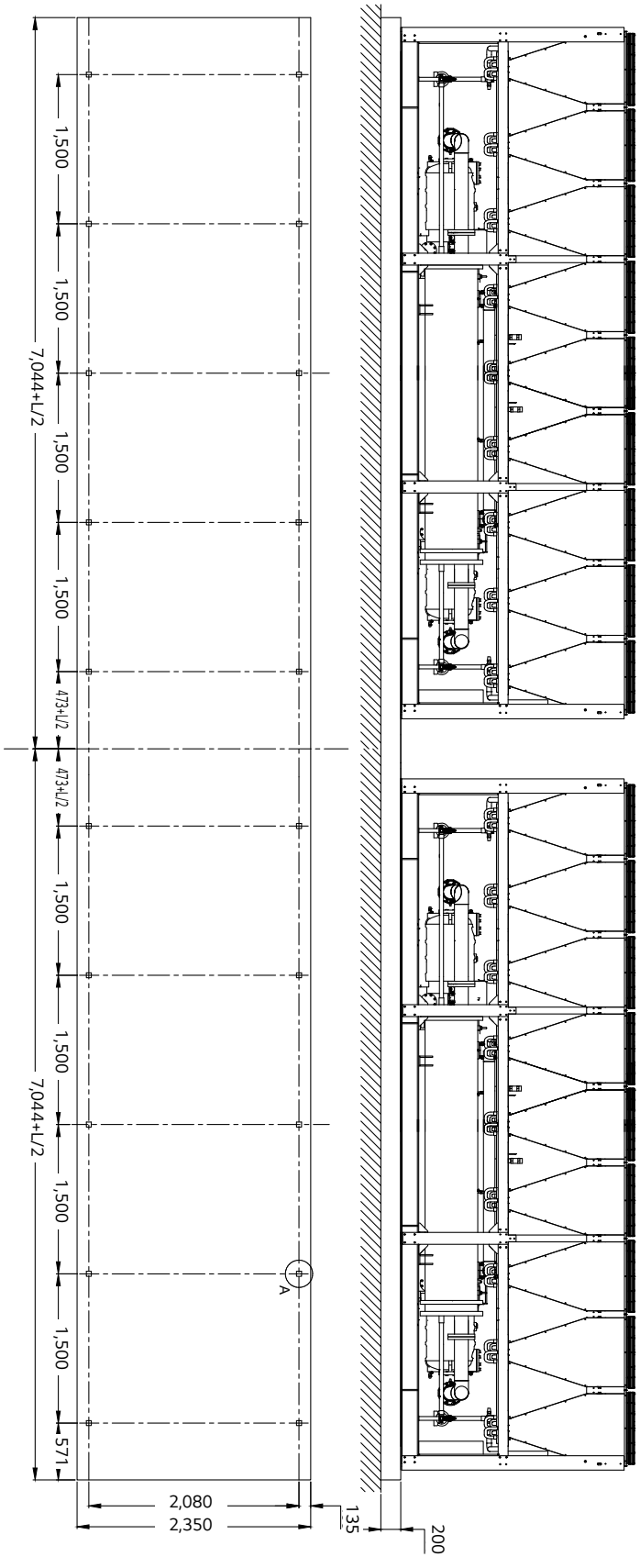


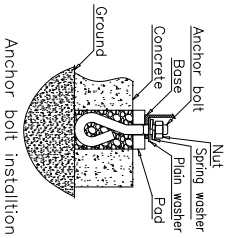


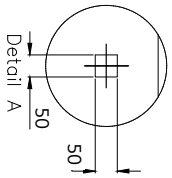




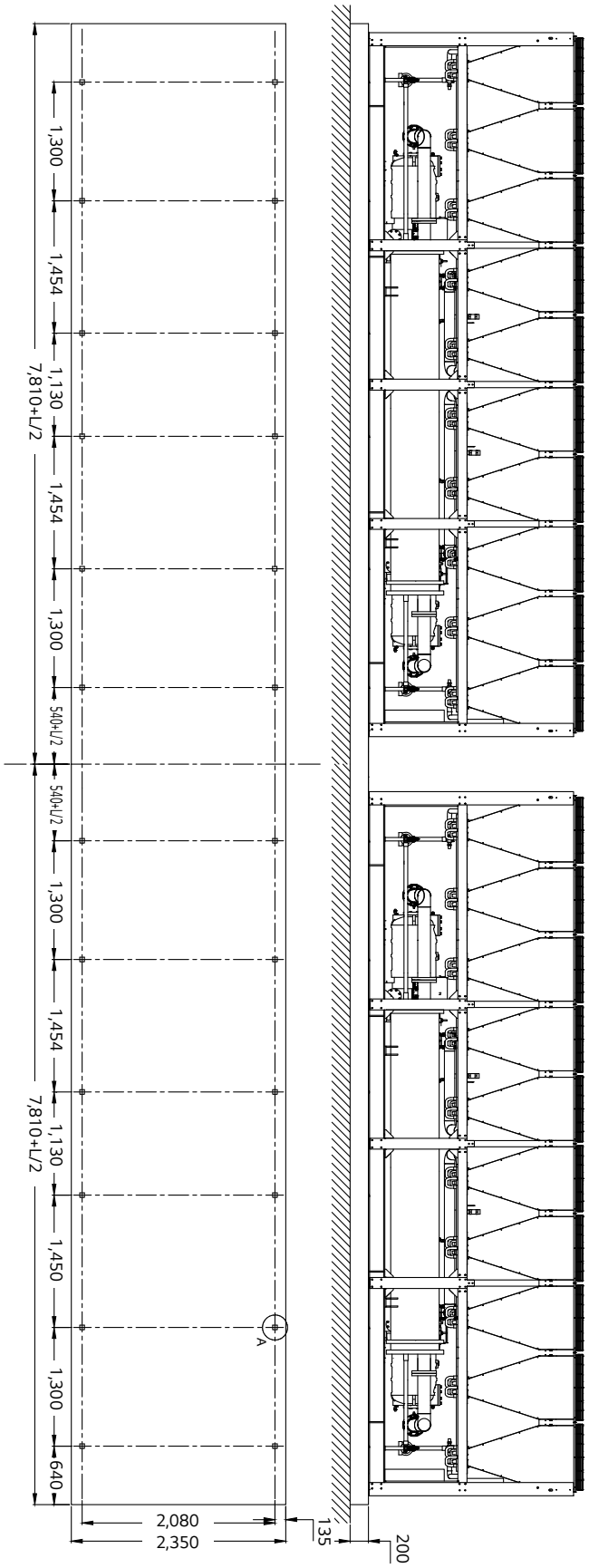
450RT / 60, 50Hz

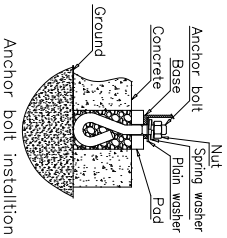


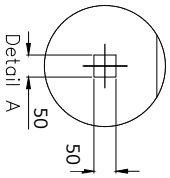




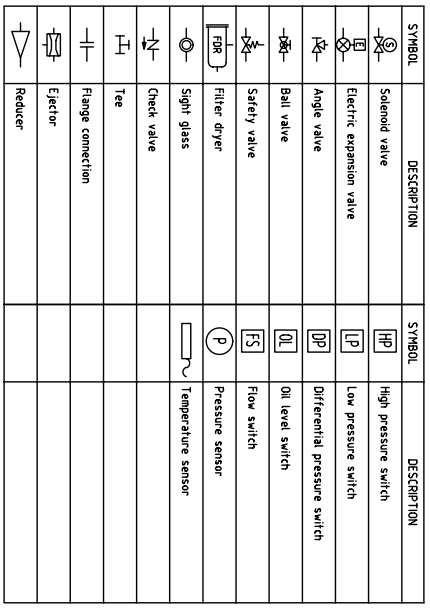
500RT / 60, 50Hz



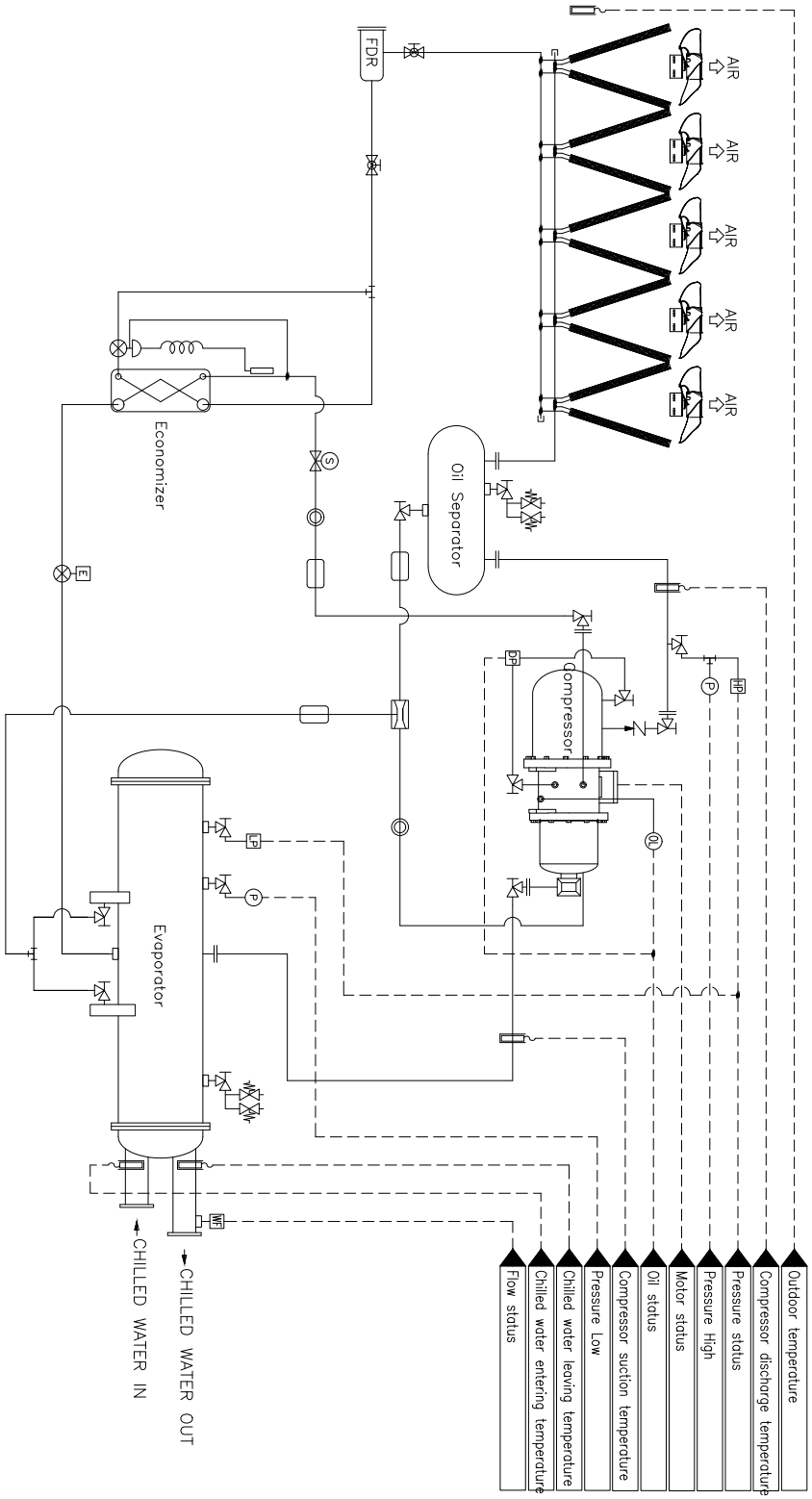




1 Comp

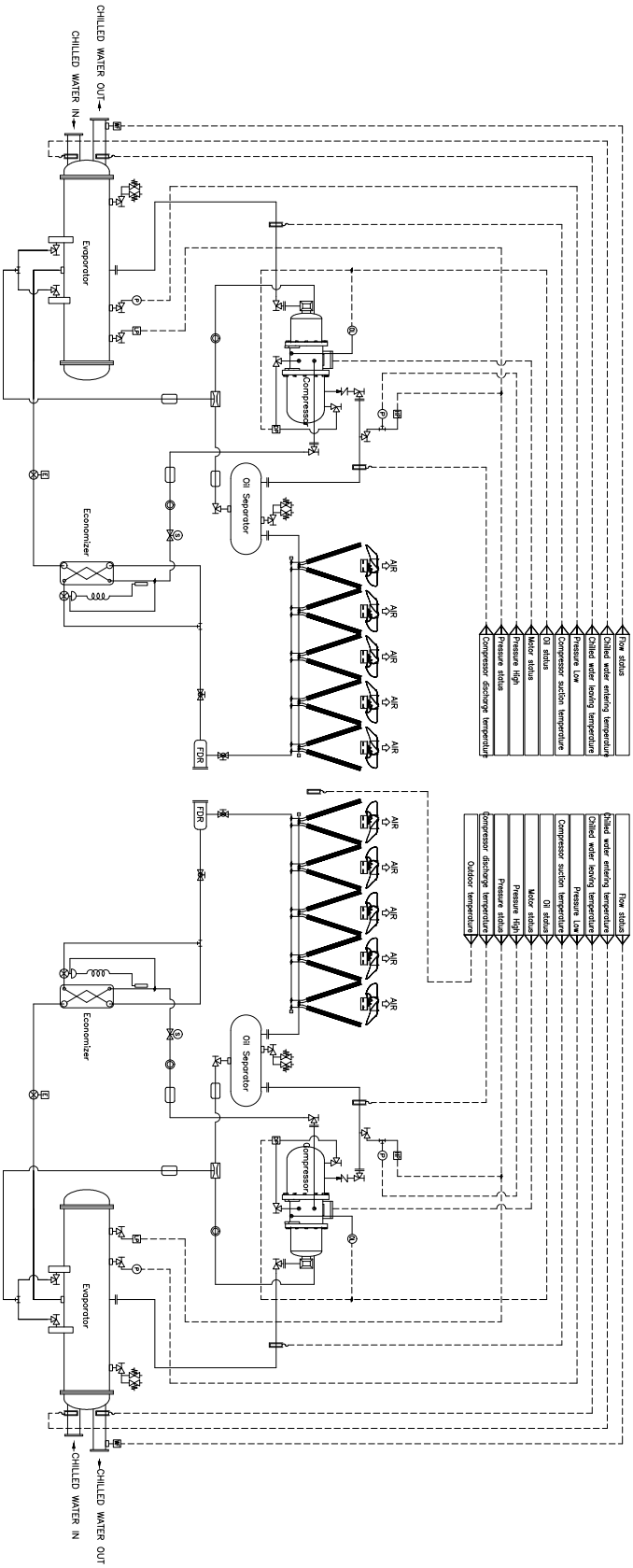


SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	Solenoid valve	HP	High pressure switch
E	Electric expansion valve	LP	Low pressure switch
	Angle valve	DP	Differential pressure switch
	Ball valve	OL	Oil level switch
	Safety valve	FS	Flow switch
FDR	Filter dryer	P	Pressure sensor
	Sight glass		Temperature sensor
	Check valve		
	Tee		
	Flange connection		
	Ejector		
	Reducer		



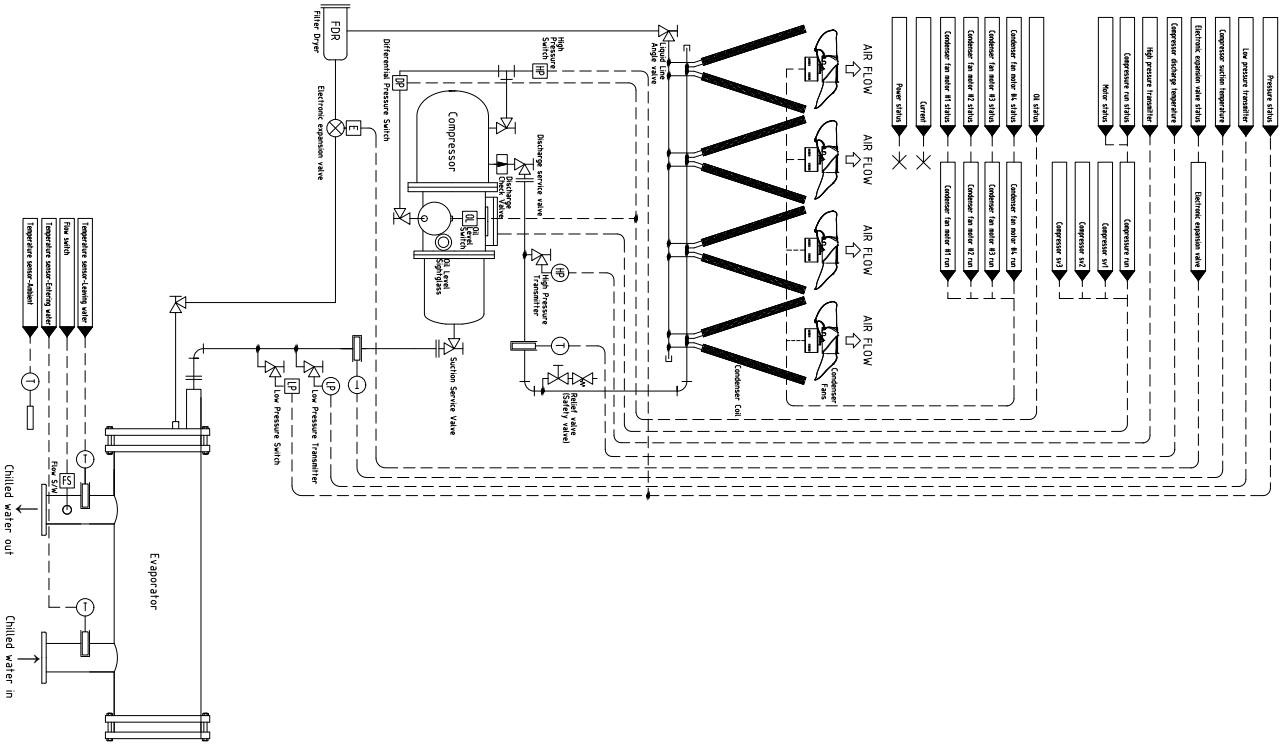
2 Comp

SYMBOL	DESCRIPTION
	SOLENOID VALVE
	THERMAL EXPANSION VALVE
	ELECTRIC EXPANSION VALVE
	ANGLE VALVE
	BALL VALVE
	SAFETY VALVE
FDR	FILTER DRYER
	SIGHT GLASS
	CHECK VALVE
	TEE
	FLANGE CONNECTION
	EJECTOR
	FILTER



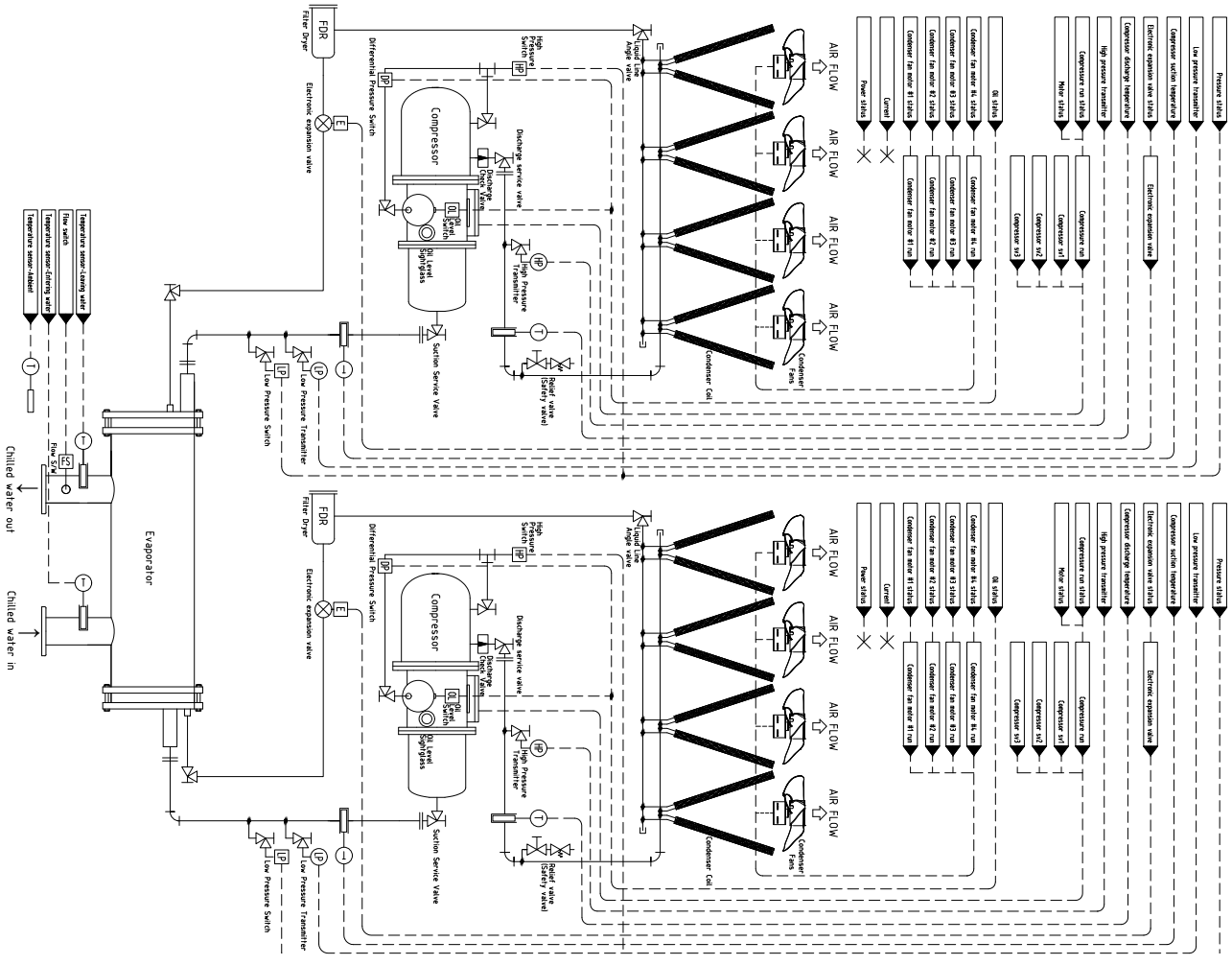
1 Comp

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	Solenoid valve	HP	High pressure switch
E	Electric expansion valve	LP	Low pressure switch
	Angle valve	DP	Differential pressure switch
	Ball valve	OL	Oil level switch
	Safety valve	FS	Flow switch
FDR	Filter dryer	P	Pressure sensor
	Sight glass		Temperature sensor
	Check valve		
	Tee		
	Flange connection		
	Ejector		
	Reducer		



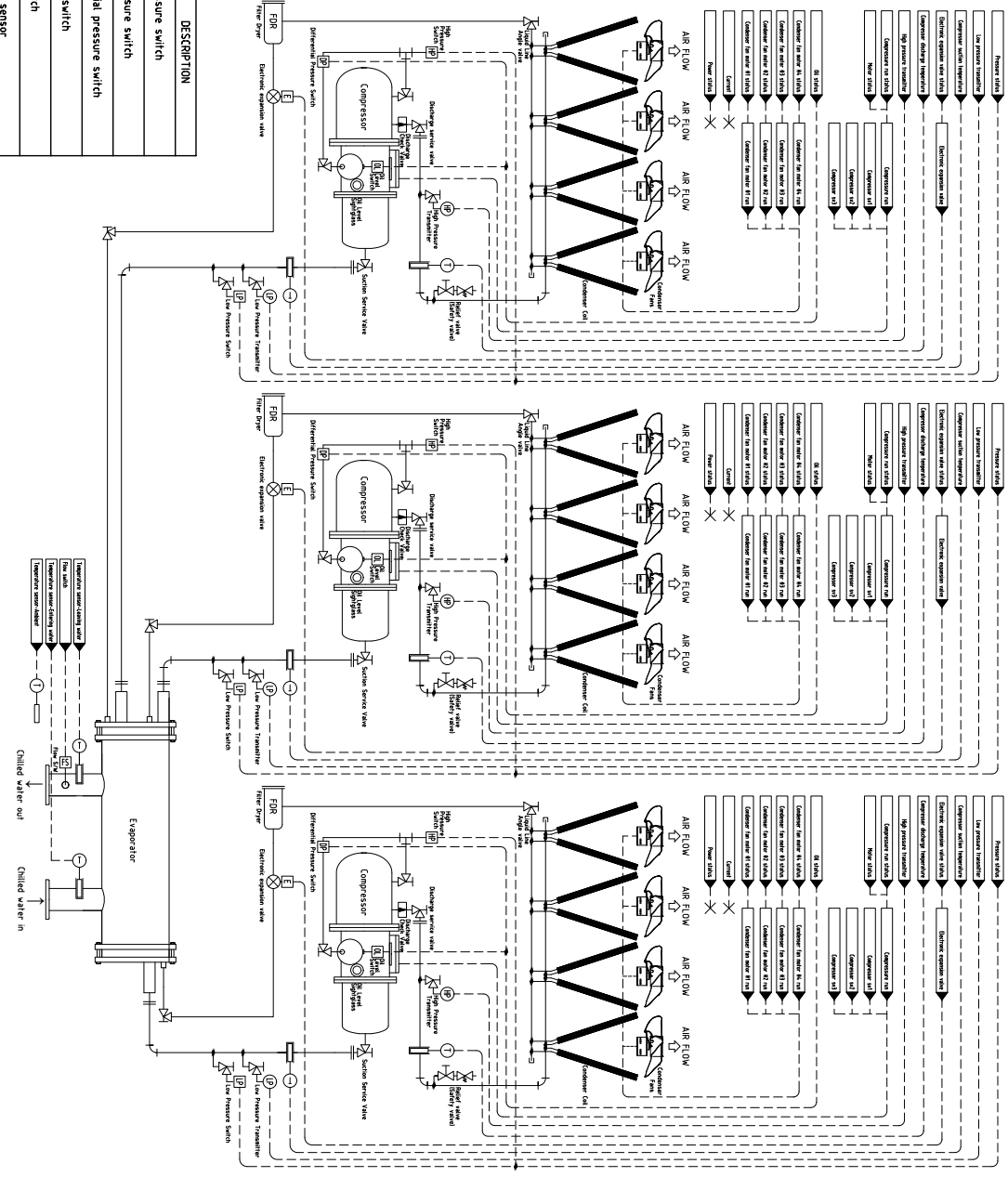
2 Comp

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	Solenoid valve	HP	High pressure switch
E	Electric expansion valve	LP	Low pressure switch
	Angle valve	DP	Differential pressure switch
	Ball valve	OL	Oil level switch
	Safety valve	FS	Flow switch
FDR	Filter dryer	P	Pressure sensor
	Sight glass		Temperature sensor
	Check valve		
	Tee		
	Flange connection		
	Ejector		
	Reducer		



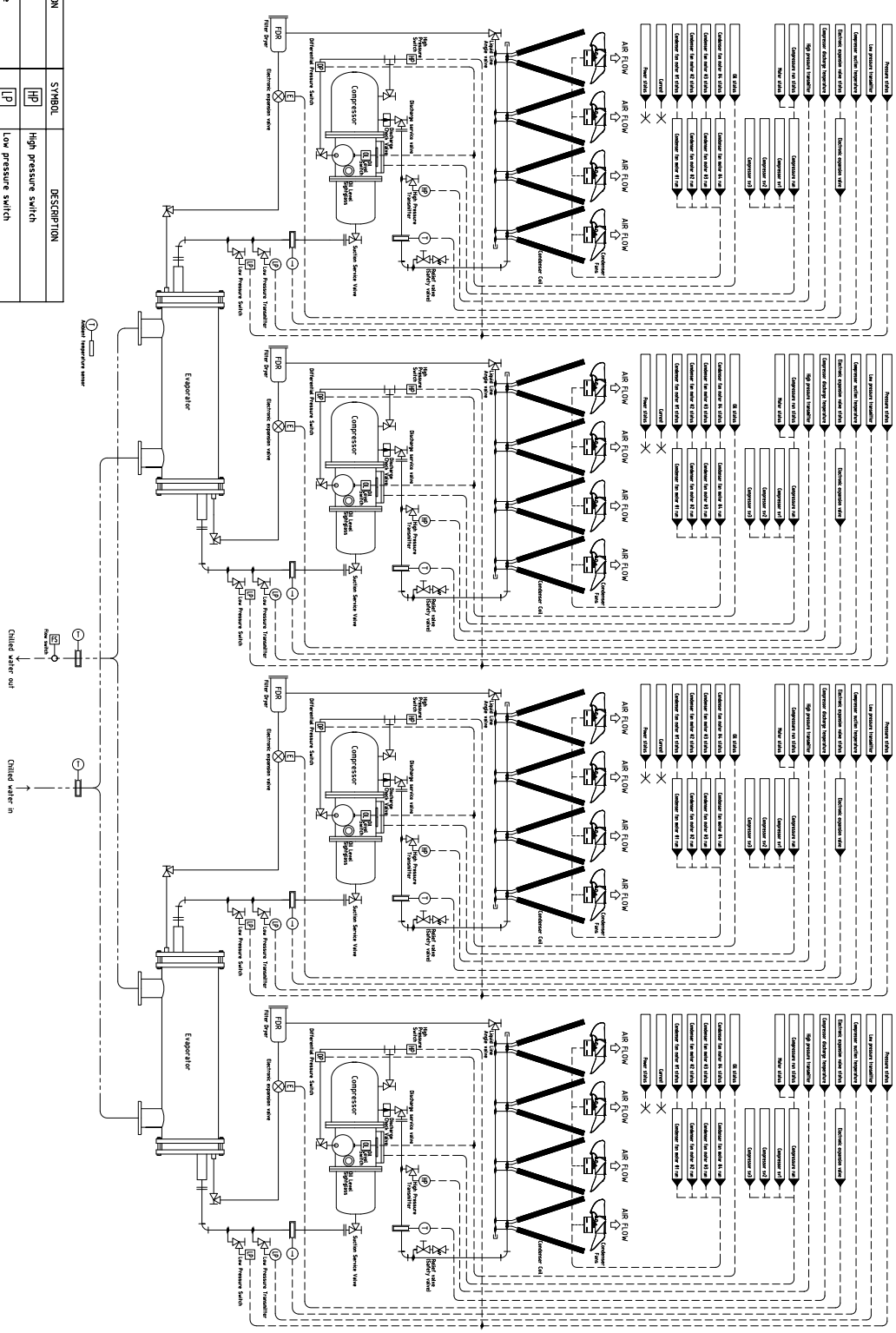
3 Comp

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S	Solenoid valve	HP	High pressure switch
E	Electric expansion valve	LP	Low pressure switch
	Angle valve	DP	Differential pressure switch
	Ball valve	OL	Oil level switch
	Safety valve	FS	Flow switch
FDR	Filter dryer	P	Pressure sensor
	Sight glass		Temperature sensor
	Check valve		
	Tee		
	Flange connection		
	Ejector		
	Reducer		

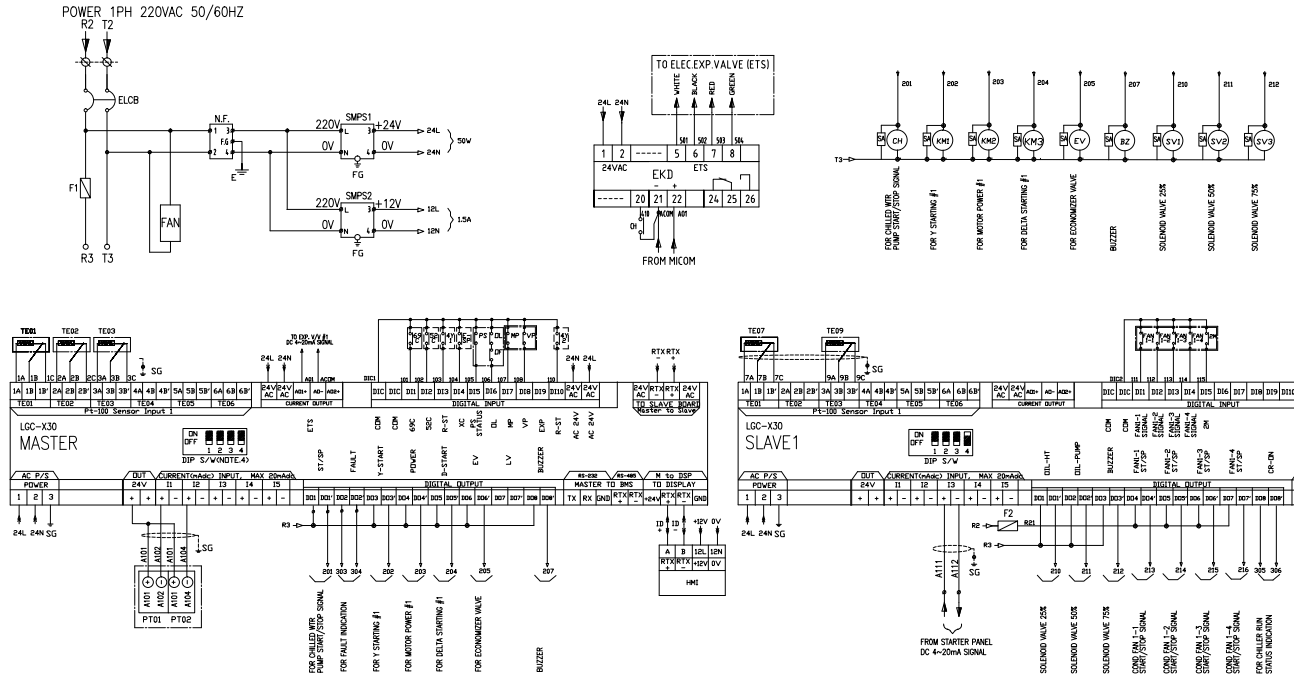


4 Comp

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	Solenoid valve	HP	High pressure switch
	Electric expansion valve	LP	Low pressure switch
	Angle valve	DP	Differential pressure switch
	Ball valve	OL	Oil level switch
	Safety valve	FS	Flow switch
FDR	Filter dryer	P	Pressure sensor
	Sight glass		Temperature sensor
	Check valve		
	Tee		
	Flange connection		
	Ejector		
	Reducer		

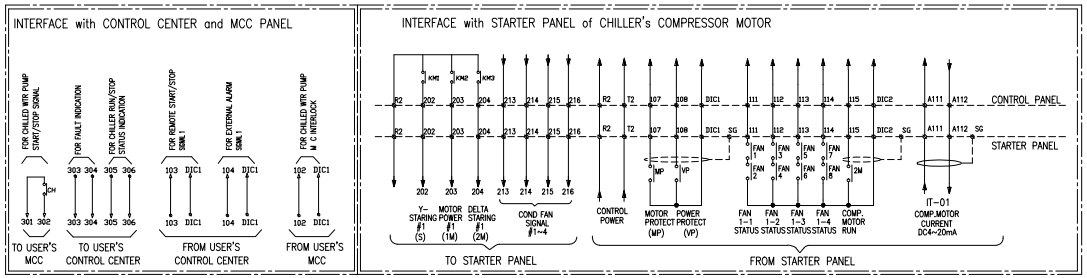


80~160RT



SYMBOL	DESCRIPTION	REMARKS
52C	AUX.CONTACT	SUPPLIED BY USER:CHILLED WTR PUMP
69C	FLOW S/W	CUTOUT BELOW 50%:CHILLED WTR
4Y1~2	REMOTE RUN/STOP SIGNAL	SUPPLIED BY USER
2M	AUX.CONTACT	FROM STARTER:COMP MOTOR RUN SIGNAL
OL	OIL LEVEL SWITCH	
OF	OIL FLOW SWITCH	
MP	AUX RELAY CONTACT	FROM STARTER:MOTOR PROTECT
VP	AUX RELAY CONTACT	FROM STARTER:POWER PROTECT
EXP	EXPANTION VALVE	
PS	PRESS S/W STATUS	
ELCB	EARTH LEAKAGE CIRCUIT BREAKER	2POLES, 30AF, 10A
BZ	BUZZER	
F1~F2	FUSE	250V,2A
FAN	COOLING FAN	1PH, 220V, 20W
SMPS1	POWER SUPPY	AC 220/DC24,50W
SMPS2	POWER SUPPY	AC 220/DC12,1.5A
TE01	CHLD WTR INLET TEMP SENSOR	PT100ohm
TE02	CHLD WTR OUTLET TEMP SENSOR	PT100ohm
TE03	PIN TEMP SENSOR	PT100ohm
TE07	COMP. OUTLET TEMP SENSOR	PT100ohm
TE09	COMP. INLET TEMP SENSOR	PT100ohm
PT01	COMP INLET PRESS TRANSMITTER	Range : 0~20kg/cm² OUT : 4~20mAdc
PT02	COMP OUTLET PRESS TRANSMITTER	Range : 0~20kg/cm² OUT : 4~20mAdc
ETS	ELECTRONIC EXPANSION VALVE	
EKD	DRIVER MODULE-ETS	
CH	AUX RELAY CONTACT	CHW PUMP
HMI	HUMAN MACHINE INTERFACE	ACSMART II

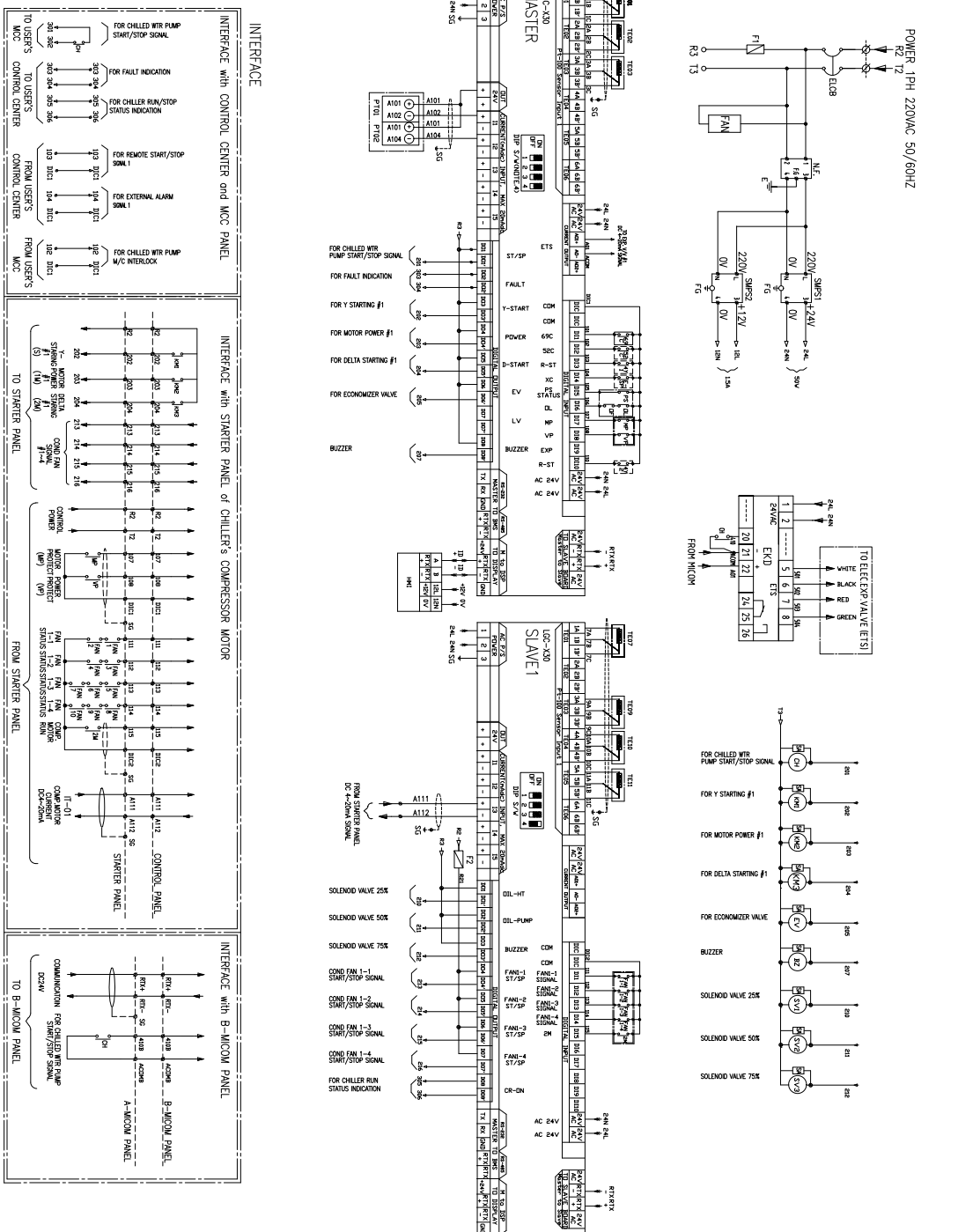
INTERFACE



NOTE

1. THESE PARTS SHOULD BE SUPPLIED BY BUYERS.
2. THESE PARTS ARE LOCATED ON CHILLER BODY.
3. INTERFACE WITH USER's SYSTEM or STARTER PANEL
4. IF DIP-SWITCH NO.3 IS ON, THESE IS WATER COOLED SCREW CHILLER.
   IF DIP-SWITCH NO.3 IS OFF, THESE IS AIR COOLED SCREW CHILLER.

200~320RT_1

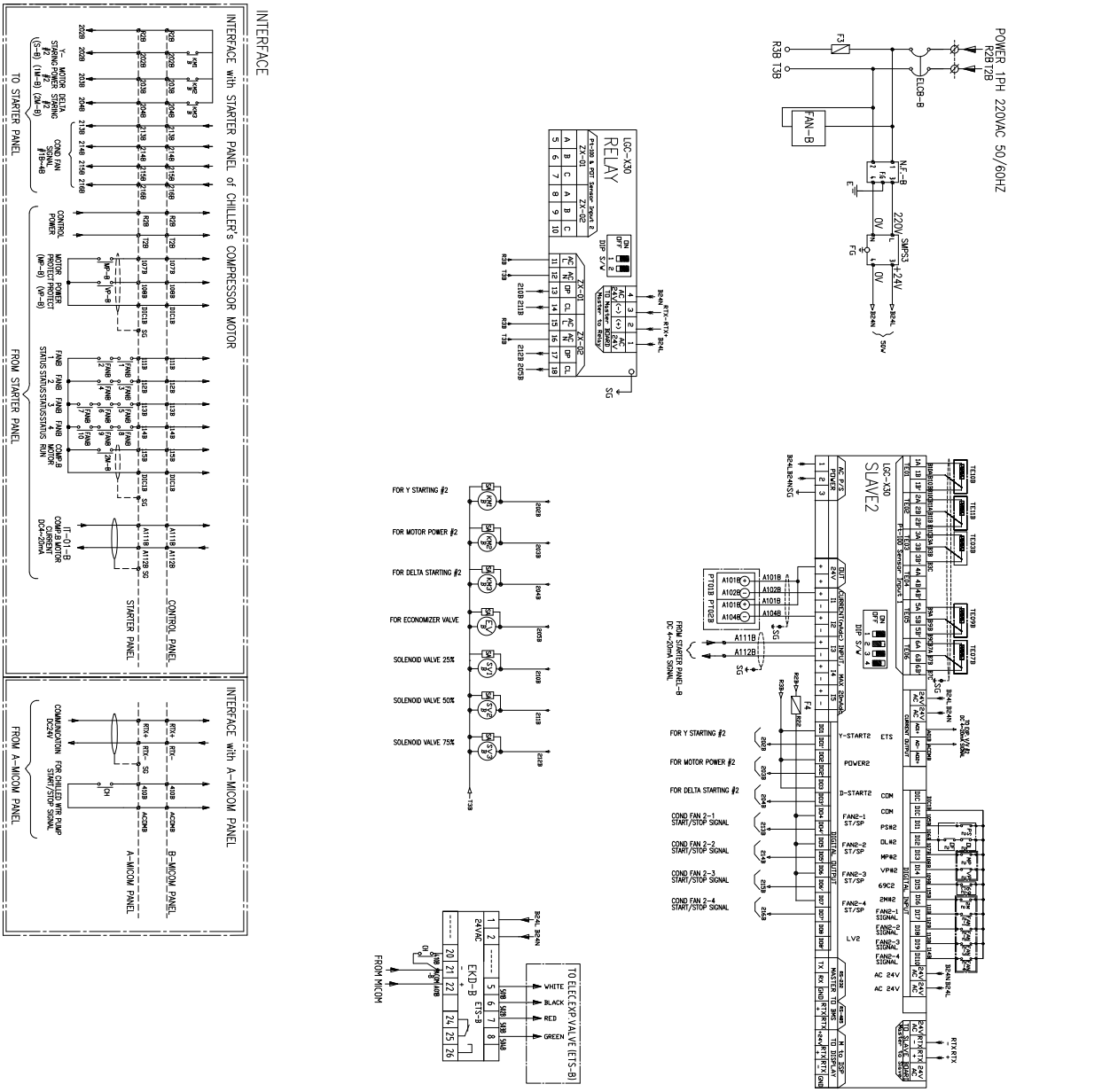


SYMBOL	DESCRIPTION	REMARKS
S3C	AUX.CONTACT	SUPPLIED BY USER<CHILLED WTR PUMP
89C	FLOW S/W	OUTPUT BELOW 50%<CHILLED WTR
41Y~2	REMOTE RUN/STOP SIGNAL	SUPPLIED BY USER
2M	AUX.CONTACT	FROM STARTER<COMP. MOTOR RUN SIGNAL
OL	OIL LEVEL SWITCH	
OF	OIL FLOW SWITCH	
MP	AUX RELAY CONTACT	FROM STARTER<MOTOR PROTECT
VP	AUX RELAY CONTACT	FROM STARTER<POWER PROTECT
EXP	EXPANTION VALVE	
PS	PRESS S/W STATUS	
ELCB	EARTH LEAKAGE CIRCUIT BREAKER	2POLES, 30mF, 10A
BZ	BUZZER	
F1~F2	FUSE	250V,2A
FAN	COOLING FAN	1PH, 220V, 20W
SMPS1	POWER SUPPLY	AC 220/DC24,50W
SMPS2	POWER SUPPLY	AC 220/DC12,1.5A
TE01	CHILD WTR INLET TEMP SENSOR	PT100ohm
TE02	CHILD WTR OUTLET TEMP SENSOR	PT100ohm
TE03	PIN TEMP SENSOR	PT100ohm
TE07	COMP. OUTLET TEMP SENSOR	PT100ohm
TE09	COMP. INLET TEMP SENSOR	PT100ohm
TE10	CHILD WTR INLET TEMP SENSOR A	PT100ohm
TE11	CHILD WTR OUTLET TEMP SENSOR A	PT100ohm
PT01	COMP INLET PRESS TRANSMITTER	Range : 0~20kg/cm2 Out : 4~20mAdc
PT02	COMP OUTLET PRESS TRANSMITTER	Range : 0~20kg/cm2 Out : 4~20mAdc
ETS	ELECTRONIC EXPANSION VALVE	
EXD	DRIVER MODULE-ETS	
CH	AUX RELAY CONTACT	CHW PUMP
HMI	HUMAN MACHINE INTERFACE	ACSMART II

NOTE

1. THESE PARTS SHOULD BE SUPPLIED BY BUYERS.
2. THESE PARTS ARE LOCATED ON CHILLER BODY.
3. INTERFACE WITH USER's SYSTEM or STARTER PANEL
4. IF DIP-SWITCH NO.3 IS ON, THESE IS WATER COOLED SCREW CHILLER.
   IF DIP-SWITCH NO.3 IS OFF, THESE IS AIR COOLED SCREW CHILLER.

200~320RT_2

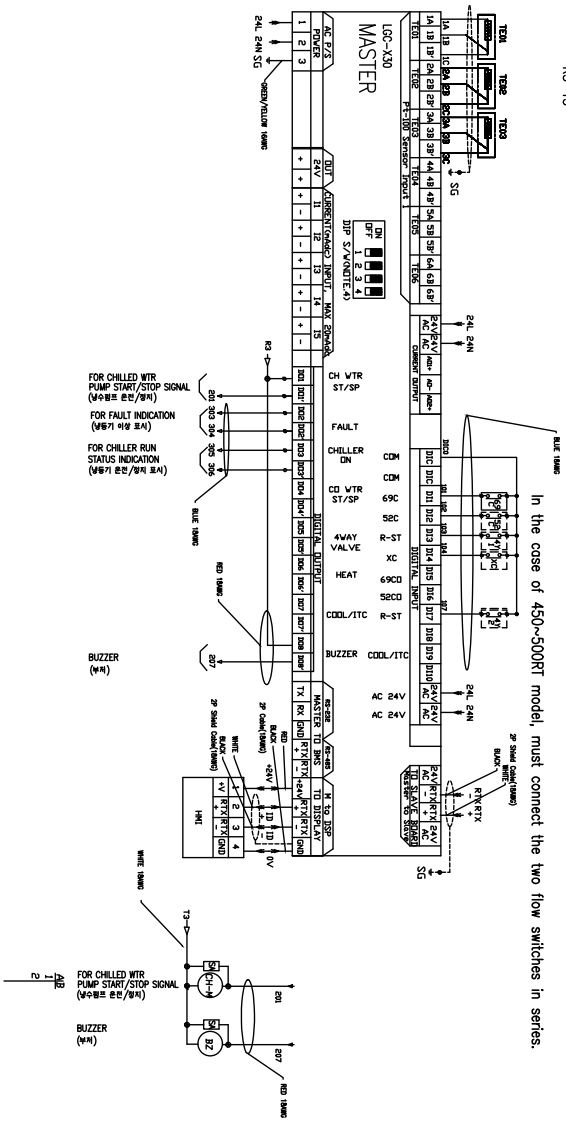


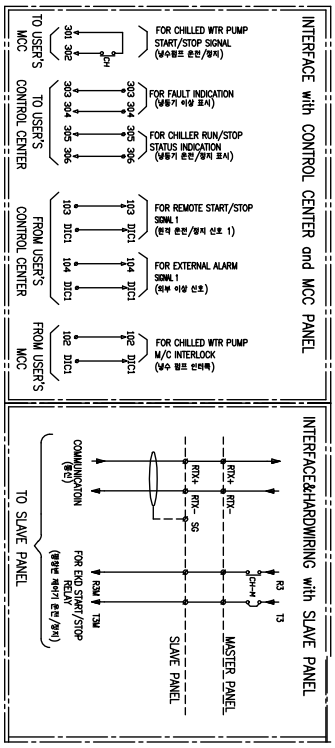
SYMBOL	DESCRIPTION	REMARKS
2MC	AUX.CONTACT	FROM STARTER\COMP. MOTOR RUN SIGNAL
OLZ	OIL LEVEL SWITCH	
OF2	OIL FLOW SWITCH	
MP2	AUX RELAY CONTACT	FROM STARTER\MOTOR PROTECT
VP2	AUX RELAY CONTACT	FROM STARTER\POWER PROTECT
69C2	FLOW S/W	CUTOUT BELOW 50%CHILLED WTR
PS2	PRESS S/W STATUS	
ELCB-B	EARTH LEAKAGE CIRCUIT BREAKER	2POLES, 30mA, 10A
ETS-B	ELECTRONIC EXPANSION VALVE	
EXD-B	DRIVER MODULE-ETS	
F3~F4	FUSE	250V,2A
FAN-B	COOLING FAN	1PH, 220V, 20W
SMPS3	POWER SUPPLY	AC 220/DC24,75VA
TE03B	FIN TEMP SENSOR	PT100ohm
TE07B	COMP. OUTLET TEMP SENSOR	PT100ohm
TE09B	COMP. INLET TEMP SENSOR	PT100ohm
TE10B	CHILD WTR INLET TEMP SENSOR B	PT100ohm
TE11B	CHILD WTR OUTLET TEMP SENSOR B	PT100ohm
PT01B	COMP. INLET PRESS TRANSMITTER 2	Range : 0~20kg/cm², 0.07 ~ 4~20mAdc
PT02B	COMP. OUTLET PRESS TRANSMITTER 2	Range : 0~20kg/cm², 0.07 ~ 4~20mAdc

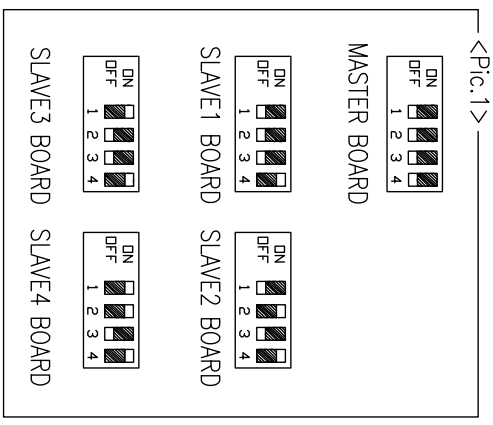
NOTE

1. THESE PARTS SHOULD BE SUPPLIED BY BUYERS.
2. THESE PARTS ARE LOCATED ON CHILLER BODY.
3. INTERFACE WITH USER's SYSTEM or STARTER PANEL

80~500RT

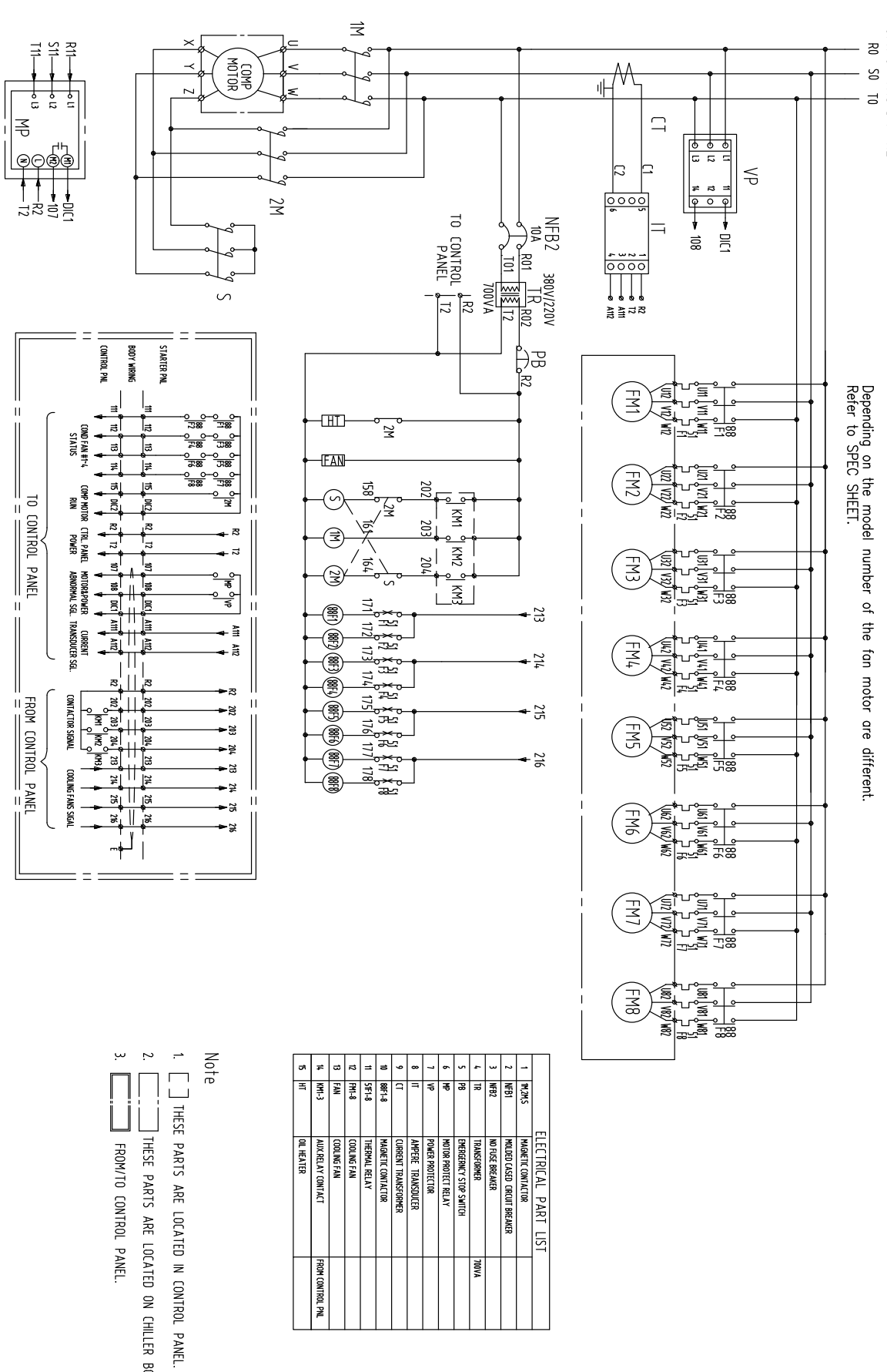




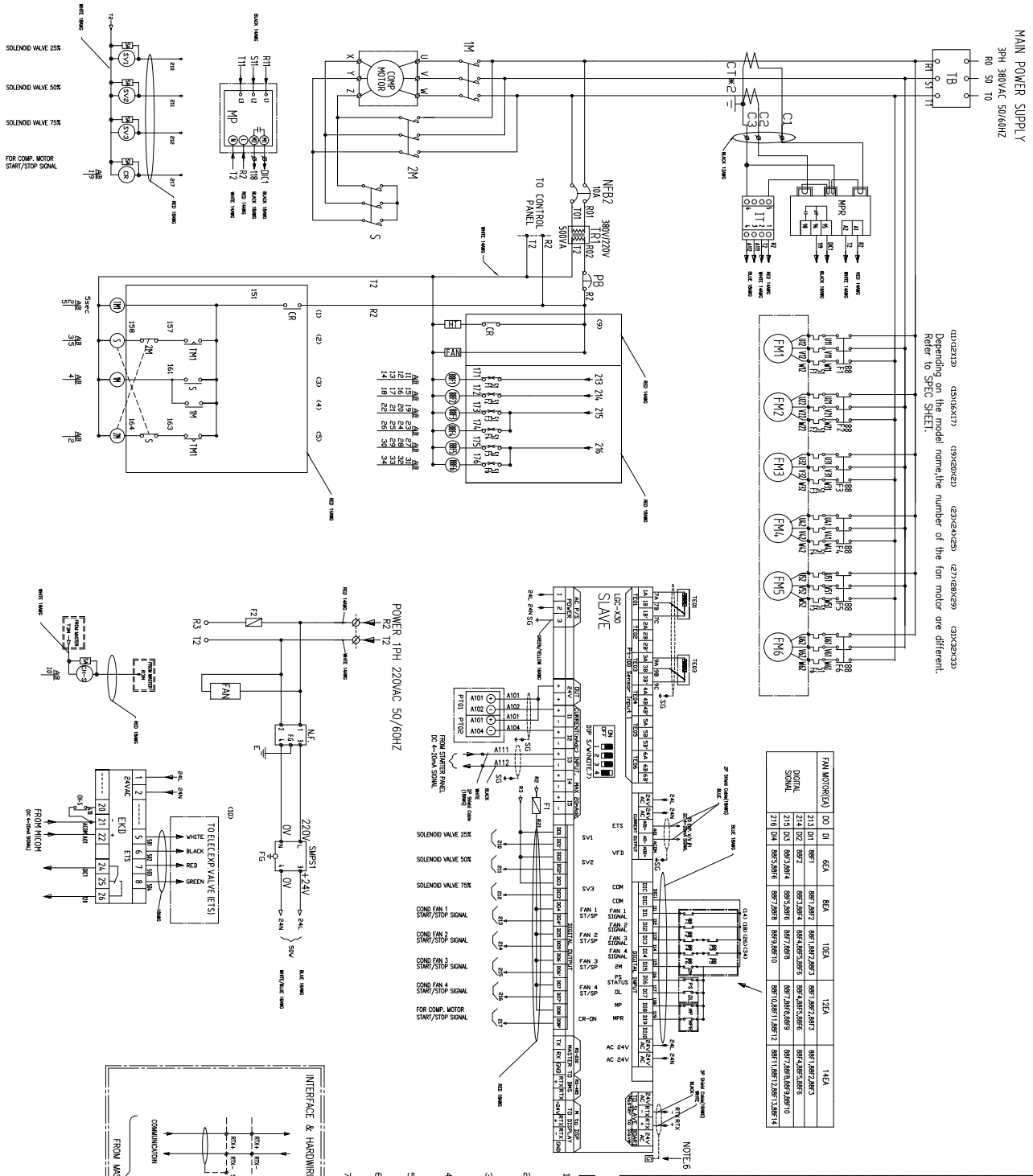


SYMBOL	DESCRIPTION	REMARKS
52C	AUX.CONTACT	SUPPLIED BY USER(CHILLED WTR PUMP
69C	FLOW S/W	CUTOUT BELOW 50%(CHILLED WTR
4Y1~2	REMOTE RUN/STOP SIGNAL	SUPPLIED BY USER
XC	AUX.CONTACT	FROM STARTER-FAULT SIGNAL
BZ	BUZZER	
F1	FUSE	250V,2A
FAN	COOLING FAN	1PH, 220V, 20W
SMPS	SWITCHING MODE POWER SUPPLY	
TE01	CHLD.WTR INLET TEMP SENSOR	PT100ohm
TE02	CHLD WTR OUTLET TEMP SENSOR	PT100ohm
TE03	OUTDOOR TEMP SENSOR	PT100ohm
CH	AUX RELAY CONTACT	CHW PUMP
HMI	HUMAN MACHINE INTERFACE	
N.F	NOISE FILTER	
SA	SURGE ABSORBER	
ELCB	EARTH LEAKAGE CIRCUIT BREAKER	

80~320RT


MAIN POWER SUPPLY
3PH 380VAC 50/60HZ
R0 S0 T0
Depending on the model number of the fan motor are different.
Refer to SPEC SHEET.
ELECTRICAL PART LIST
1 MC,2MS MAGNETIC CONTACTOR
2 NFB1 MOLDED CASED CIRCUIT BREAKER
3 NFB2 MO FUSE BREAKER
4 TR TRANSFORMER 700VA
5 PB EMERGENCY STOP SWITCH
6 MP MOTOR PROTECT RELAY
7 VP POWER PROTECTOR
8 IT AMPERE TRANSDUCER
9 CT CURRENT TRANSFORMER
10 88F1-8 MAGNETIC CONTACTOR
11 49F1-8 THERMAL RELAY
12 FM1-8 COOLING FAN
13 FAN COOLING FAN
14 KM1-3 AUX.RELAY CONTACT
15 HT OIL HEATER
FROM CONTROL PNL
Note
1. [ ] THESE PARTS ARE LOCATED IN CONTROL PANEL.
2. [ ] THESE PARTS ARE LOCATED ON CHILLER BODY.
3. [ ] FROM/TO CONTROL PANEL.

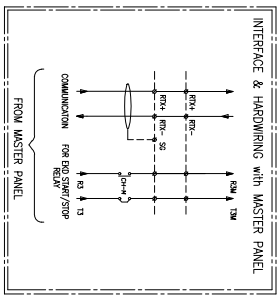
80~500RT



SYMBOL	DESCRIPTION	REMARKS
TB	TERMINAL BLOCK	
NFB2	NO FUSE BREAKER	
TR1	TRANSFORMER	500VA
SMPS	SWITCHING MODE POWER SUPPLY	
PB	EMERGENCY STOP SWITCH	
MP	MOTOR PROTECT RELAY	
MPR	MOTOR PROTECT RELAY	EOCR-SS
IT	AMPERE TRANSDUCER	
CT	CURRENT TRANSFORMER	
88F1~10	MAGNETIC CONTACTOR	
51F1~10	THERMAL RELAY	
HIT	OIL HEATER	150W
2M	AUX.CONTACT	FROM STARTER(COMP. MOTOR RUN SIGNAL)
OL	OIL LEVEL SWITCH	
CH	AUX.CONTACT	CHW PUMP
PS	PRESS S/W STATUS	
ELCB	EARTH LEAKAGE CIRCUIT BREAKER	2POLES, 30MF, 10A
ETS	ELECTRONIC EXPANSION VALVE	
EXD	DRIVER MODULE-ETS	
F1~F2	FUSE	250V,2A
FAN	COOLING FAN	1PH, 220V, 20W
TED1	COMP. OUTLET TEMP SENSOR	P1100ohm
TED3	COMP. INLET TEMP SENSOR	P1100ohm
PTD1	COMP INLET PRESS TRANSMITTER	Range : 0~20kg/cm², Out : 4~20mAdc
PTD2	COMP OUTLET PRESS TRANSMITTER	Range : 0~20kg/cm², Out : 4~20mAdc
NLF	NOISE FILTER	
SA	SURGE ABSORBER	
SV1	SOLENOID VALVE(25%)	
SV2	SOLENOID VALVE(50%)	
SV3	SOLENOID VALVE(75%)	
CR	AUX.CONTACT	CR-ON
TM1	T~D TIMER 0SEC SET	

NOTE

1. THESE PARTS SHOULD BE SUPPLIED BY BUYERS.
2. THESE PARTS ARE LOCATED ON CHILLER BODY.
3. INTERFACE WITH USER's SYSTEM or STARTER PANEL
4. HARDWIRING WITH MASTER PANEL
5. SLAVE 2nd~4th PANEL'S DIAGRAM IS SAME.
6. RTX+,RTX-,SG ARE CONNECTED TO OTHER SLAVE PANELS.
7. Ref. MASTER PANEL DIAGRAM



Select Installation Location

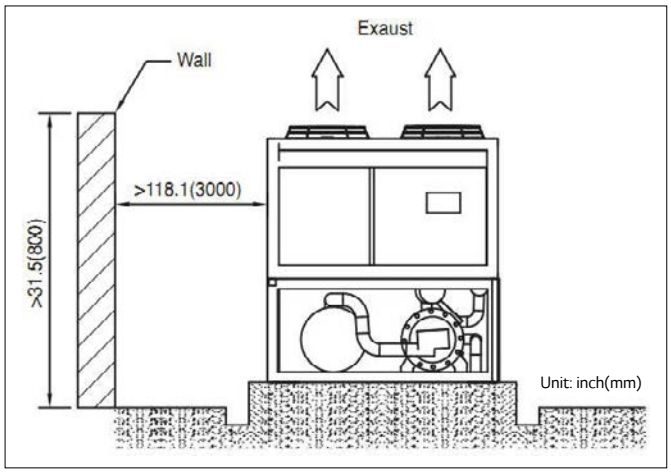
Select space for installation air-cooled unit, which will meet the following conditions

- With strength which bears weight of unit
- With space for air passage and service work, don't install the unit at the space where generation, inflow, stagnation, and leak of combustible gas is expected.
- Avoid unit installation in a place where acidic solution and spray (sulfur) are often used.
- Location with no leakage of combustible gas
- Location with installation or service work space (Refer to required space)
- Do not use the air-cooled unit under any special environment where oil, steam and sulfuric gas exist.
  -Establish an anti-freeze plan for the water supply when the product is stopped during the winter.
- The floor of the machine room must be water proof.
- In order to prevent the condensed water from being produced, both the evaporator and the pipe connected to it should be insulated.
  Install a floor slope to make the drainage smooth.
- Avoid installing the air-cooled unit in the location with following conditions.
- Location where corrosive gas such as acidic gas is generated.
  (It may cause the refrigerant leakage by corrosion of the pipe.)
- Location where electromagnetic waves happen.
  (It may cause the abnormal operation by control parts disorder.)
- Location to be able to leak the combustible gas
- Location with carbon fiber or combustible dust.
- Location with the combustible material like thinner or gasoline.
  (It may cause a fire by leaking the gas near the product.)

Installation Space

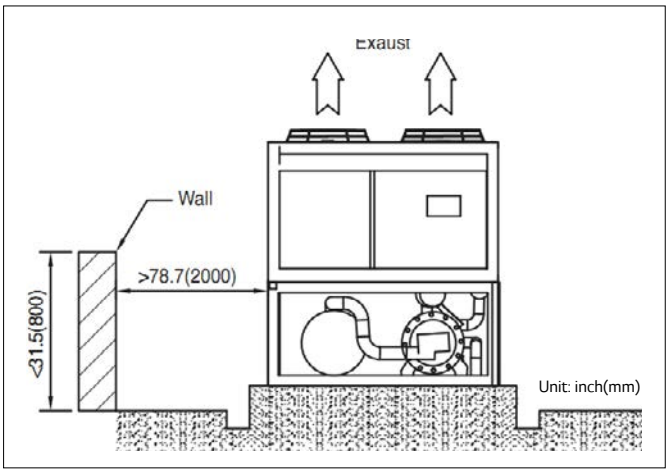
Consider the condition of ventilation

- Flooded air cooled chiller should be installed on the ground open air or provided proper ventilation.
- If install the unit alongside the wall, there must be enough ventilation space.



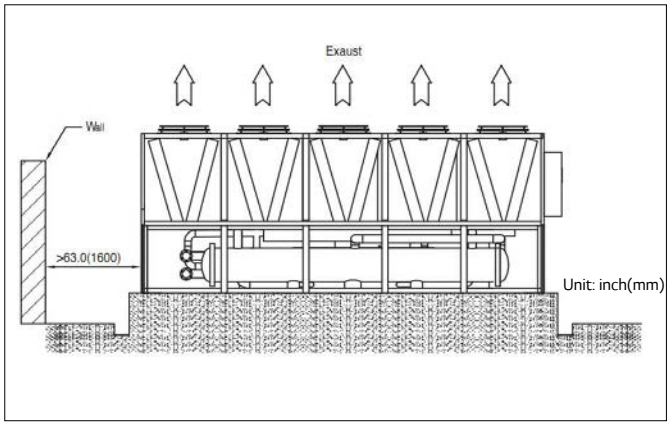
Note:

When the front or backside of the unit is near to the wall, if the wall is higher than the ground more than 31.5inches (800mm), the distance between wall and unit should be longer than 118.1inches (3000mm).



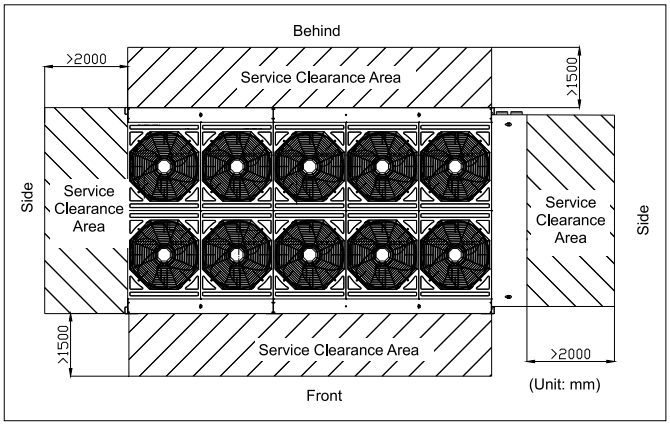
Note:

When the front or backside of the unit is near to the wall, if the wall is higher than the ground less than 31.5 inches (800mm), the distance between wall and unit should be longer than 78.7inches (2,000mm).



Note:

When the front or backside of the unit is near to the wall, if the wall is higher than the ground less than 31.5 inches (800mm), the distance between wall and unit should be longer than 78.7inches (2000mm).



Guide specification

Contents

LG
Life's Good

Part 1 – General

1.01 Scope

The requirements of the General Conditions, Supplementary Conditions and Drawings apply to all work herein.

1.02 System descriptions

Factory packaged air cooled liquid chillers incorporating low noise twin screw compressor(s) and low noise fans.

1.03 Quality assurance

- ANSI/ASHRAE 34 - number designation and safety classification of refrigerants.
- GB/T 18430.1 - water chilling (heat pump) packages using the vapor compression cycle - part 1: water chilling (heat pump) packages for industrial & commercial and similar applications.
- GB25131 - safety requirements for water chillers (heat pump) using the vapor compression cycle.
- GB150/151 - steel pressure vessels/tubular heat exchangers.
- ANSI/ASHRAE standard 15 safety code
- Manufactured in an EN ISO 9001 accredited organization
- CE - Conform to CE testing services for construction of chillers and provide CE listed mark.
- The packaged chiller shall be pressure and leak test.
- Manufacturer shall warrant all equipment and material of its supply against defects in workmanship and material for a period of eighteen (18) months from date of shipment or twelve(12) months from initial start-up, whichever occurs first.

1.04 Delivery and handling

Unit shall be delivered to jobsite fully assembled, charged with oil by manufacturer or manufacturers authorized agent. Refrigerant is charged at job site by manufacturer's appointed local agent.
Unit shall be handled, transported and stored in accordance with manufacturer's instructions

Part 2 – Products

2.01 General

The equipment shown on the drawings is based on the model MCAW series air cooled liquid chiller as manufactured by the LG Electronics.

2.02 Equipment description

Supply and install and commission as shown on the drawings and schedules complete factory assembled, charged and operationally tested air cooled screw compressor chiller(s) as specified herein. Chiller shall include one or more independent refrigeration circuits, semi hermetic twin screw compressors(s), shell and tube liquid cooler, air cooled condenser, Refrigerant R-134a, lubrication system and oil, interconnecting piping and wiring and lockable control center housing safety, operating and capacity controls necessary for the safe automatic operation of the liquid chiller.

2.03 Operating characteristics

- Unit shall be capable of starting-up and running in outdoor ambient temperatures from 10˚ to 54˚C
- Unit should be capable of starting up with fluid entering temperature to the cooler from 5 to 15 C

2.04 Unit construction

Unit base frame shall be constructed of 100 to 200mm steel channel sections welded and bolted to form rigid load bearing framework to support all major unit components and safe lifting platform. Frame shall be shot blasted after welding and finished with corrosion resistant primer and air drying epoxy based enamel.

Condenser coil frameworks, cabinet and control center cabinet shall be of heavy gauge galvanized sheet steel with oven baked powder coating capable of withstanding salt spray test

2.05 Motor compressor assembly

Shall comprise semi-hermetic rotary twin screw type directly driven by suction gas cooled accessible semi-hermetic motor at rated RPM. Motor shall have inherent overload protection buried in windings and external current overloads. Capacity control to be modulating slide valve, factory set to provide 4 capacity steps (per compressor) or stepless . Compressor housing of precision machined cast iron incorporating, oil separator, lubricating oil sump with auxiliary oil heater.

2.06 Evaporator

[High efficiency type]
Evaporator Shall be of the 'flooded' shell and tube type with removable heads and mechanically cleanable tubes of seamless copper with internally and externally enhanced surfaces. Tubes shall be mechanically expanded into multiple grooves in tube sheets. Cooler will incorporate one, two independent refrigerant circuits with a common chilled liquid multi-pass circuit arrangement. Coolers will be factory insulated with 19mm closed cell insulation with all joints vapor sealed and water drain and vent taps in cooler heads.

[Standard efficiency type]
Evaporator shall be of the falling film shell and tube type with removable heads and mechanically cleanable tubes of seamless copper with internally and externally enhanced surface.

Distributer located on the top side of inside shell, this makes uniform flow of refrigerant. Through distributer refrigerant flows downward by gravity as a continuous film. Tubes shall be mechanically expanded into multiple grooves in tube sheets. Cooler will incorporate one, two independent refrigerant circuits with a common chilled liquid multi-pass circuit arrangement. Coolers will be factory insulated with 19mm closed cell insulation with all joints vapor sealed and water drain and vent taps in cooler heads.

2.07 Air cooled condenser(s)

Each refrigerant circuit shall be provided with its own condenser assembly comprising four individual coils arranged in "V" formation. Coil construction is to be of internally enhanced seamless copper tubes mechanically bonded to louvered aluminum alloy fins.

Fins to have hydrophilic and corrosion resistant surface treatment. Low sound condenser fans shall be of pressed and formed aluminum alloy securely fastened to rust less steel hubs with the whole assembly statically and dynamically balanced. High efficiency 6 pole, 3 phase fan motors with class F insulation and totally enclosed permanently lubricated bearings.

2.08 Refrigeration system components

Shall include replaceable filter drier, moisture indicating sight glass, electronic expansion valve, suction, discharge and liquid line service valves and complete operating charge of refrigerant R-134a and lubricating oil. Each refrigeration circuit in the evaporator shall be fitted with double relief valves with changeover cock.

2.09 CONTROL CENTER

Shall be mounted on one end of the unit (opposite to that of the cooler connections) and shall comprise an enamelled steel enclosure to IP-52 with separate power (high voltage) section with door interlocked isolators and a control (low voltage) section, housing microprocessor,LCD display and safety controls. All doors to be key lockable. Power Section shall contain closed transition star delta starters for each compressor and fan contactors all with thermal and current overloads for each phase. For applications in design ambient temperatures above 46˚C (115˚F) the Control Center shall be provided with an independent cooling system to protect the operational and safety controls from excessive temperature rise (sun baking). compressor and fan contactors all with thermal and current overloads for each phase. For applications in design ambient temperatures above 46˚C (115˚F) the Control Center shall be provided with an independent cooling system to protect the operational and safety controls from excessive temperature rise (sun baking).

2.10 Controls, safeties and diagnostics

2.10.1 Controls

Chiller controls shall include the following minimum requirements

a. Microprocessor with permanent memory (battery backup system not accepted)
b. Separate terminal block and supply for power and controls
c. Separate 220 volt supply to serve all controllers, relays and control components.
d. ON/OFF control switch.
e. Replaceable solid state controllers.
f. Pressure sensors and transducers to measure suction, intermediate economizer, discharge and oil pressures. Thermistors to measure cooler entering and leaving fluid temperatures and outside ambient temperatures.

2.10.2 Control functions

Unit control functions shall include the following:

a. Automatic circuit lead/lag.
b. Capacity control based on leaving chilled fluid temperature Limiting the chilled fluid temperature pull down rate at start-up to an adjustable range of 0.2˚F to 2˚F (0.1. to 1.1˚C) per minute to prevent excessive demand spikes at start-up.
c. One day time schedule
d. Leaving chiller fluid temperature reset from return fluid and outside air temperature
e. Chilled water pump start / stop control.
f. Chiller control for parallel chiller applications without addition of hardware modules and control panels (requires thermistors).
g. Timed maintenance scheduling to signal maintenance activities for strainer maintenance and user-defined maintenance activities.
H. Low ambient protection to energize cooler heaters (heaters are optional).
i. Single step demand limit control activated by remote contact closure.

2.10.3 Diagnostics

a. The control panel shall include, as standard a display:
   - Portable hand held display module with a minimum of 4 lines and 20 characters per line, in clear English.
   - Display menus shall provide clear language descriptions of all menu items, operating modes, configuration points and alarm diagnostics.
b. Information included for display shall be:
   - Compressor lockout.
   - Low fluid flow.
   - Cooler freeze protection.(option)
   - Thermistor and transducer malfunction.
   - Entering and leaving-fluid temperature.
   - Evaporator and condenser pressure.
   - System refrigerant temperatures.
   - Chiller run hours
   - Compressor run hours

- Compressor number of starts

Compressor current.

- Time of day:

1. Display module, in conjunction with the microprocessor, must also be capable of displaying the output (result) of a service test. Service test shall verify operation of every switch, thermistor, fan and compressor before chiller is started.
2. Diagnostics shall include the ability to review a list of the 30 most recent alarms with clear language description of the alarm event.
3. The chiller controller shall include one connection part for communicating with the local equipment network.
4. The control system shall allow software upgrade without the need for new hardware modules.

2.10.4 Safeties

a. Unit shall be equipped with thermistors and all necessary components in conjunction with the control system to provide the unit with the following protections:
   - Reverse rotation
   - Low chilled fluid temperature
   - Motor over temperature
   - High pressure
   - Electrical overload
   - Loss of phase
b. Condenser fan motors shall have internal over current protection.

2.11 Electrical requirements

a. Unit primary electrical supply shall enter the unit at a single location
   (some chiller voltage/size combinations require 2 power supplies).
b. Primary electrical power supply shall be rated to operate up to 125˚F (52˚C) ambient temperature.
c. Unit shall operate on 3-phase power at the voltage shown in the equipment schedule.
d. Control points shall be accessed through terminal block.
e. Unit shall be shipped with factory control and power wiring installed.

2.12 Chilled water circuit

a. Chilled water circuit shall be rated for 150 psig (1034 kPa)
b. Electronic thermal "proof of flow" switch shall be factory installed and wired.

2.13 Special features

2.13.1 Unit-mounted non-fused disconnect

Unit shall be supplied with factory-installed, door interlocked nonfused electrical disconnect for main power supply.

2.13.3 Modbus translator control

Unit shall be supplied field-installed interface between the chiller and a MODBUS Local Area Network.

Memo

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