ODIMER
MACHINES À GLACE

Plate Ice Machine

Operation Manual

Important Notes to this Manual

1 Safety note

This Manual contains warnings and cautions that must be followed to prevent the risk of personal injuries, accidents or damages to the compressor unit.

The types, meanings and usages of warnings and cautions are described as follows:

Warning
■ **Any ignorance to a warning may lead to accidents hazardous to personal safety.**

Caution
■ **Any ignorance to a caution may lead to potential safety hazard or damages to the equipment**

2 Authorized officer

The maintenance and operation of the product must be conducted by a professional who has passed the pre-post training assessment and obtained an operation license. The qualification and expertise of such professionals shall conform to applicable regulations or the authorization or approval requirements of the company.

Special attention shall be paid to safety labels in place when you are using the equipment.

Please keep this Manual throughout the life cycle of the equipment.

Catalog

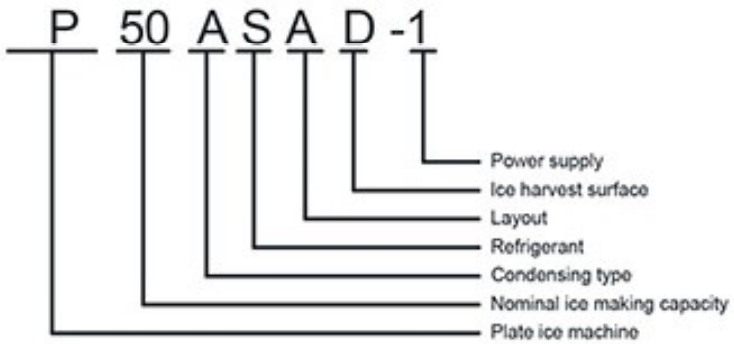
Introduction

This plant is a product of long-lasting experience of our engineers and technicians in the field of refrigeration technologies. It has been assembled with care at our modern manufacturing site. Although only high quality components were used which have proved to be highly reliable even under difficult operating conditions, a minimum of preventive maintenance is necessary in order to keep the plant operative and to minimize the costs for repair and maintenance.

Please bear in mind that, only when the following instructions are followed conscientiously can the rated performance of the installation be reached. Please read these instructions carefully before operating the plant.

1. Model list

The following is type spec code's meaning.If consistent with the specifications when ordering,please confirm.



Condensing type	Refrigerant	Layout	Ice harvest surface	Power supply
A air-cooling	S R404A	I integral type	S single-sided	1 380V/3P/60Hz
W water-cooling	P R507A	A apart type	D double-face	2 400V/3P/50Hz
E evp-condensing	A R717			3 400V/3P/60Hz
S excluding refriferation system	F Freon applicabled			4 415V/3P/50Hz
	R22 No code name			5 415V/3P/60Hz
				6 440V/3P/60Hz
				7 460V/3P/60Hz
				8 220V/3P/50Hz
				9 200V/3P/60Hz
				10 440V/3P/50Hz
Nominal ice making capacity：daily ice making Ton×10				380V/3P/50Hz No code name

2. Personnel

The information contained in this manual is meant to be used by personnel with rich experience in electrics, refrigeration and machinery. Any attempt to repair or change the equipment may result in personal injury or property damage. The manufacturer or the dealer shall not be held responsible for the explanation of the information therein and shall not bear any responsibility for it.

Appoint one capable chief operator who is fully responsible for the proper operation of the plant. The chief operator and other people in charge of repair, maintenance, starting and stopping the plant should be experienced in the field of refrigeration. Basic knowledge in the field of electric installations is highly recommended.

3. Safety Signs and their Meanings

You must be fully familiar with the safety signs and contents when operation and maintenance of the requirement.

Warning

- **All circuit connection must accord with local and country rule and regulation of electrics.**
- **Please make sure the machine is completely shut down and the main power is cut off before maintenance.**
- **If the machine is to stop running for a long time, please turn off the main power to avoid the occurrence of electric shock.**
- **When the external power supply goes off all of a sudden, turn off the main power before restoring power supply. Check if the power supply is normal. Connect power to the machine when there is no abnormal circumstance.**
- **During non-checking period,no matter the equipment is running or not,please do ensure the shutoff valve, connecting the safety valve, is fully opened.**
- **Setting value of control elements, such as level switch pressure switch time relay, should not be changed.**

Attention

- **Only those technicians who have received specific training and possessed relevant experience in maintenance and operation are allowed to operate the machine.**
- **Please read the manual carefully and comprehend all items contained in order to correctly install, connect and maintain.**
- **Following the standards specified in the manual is very important to realizing rated performance and keeping the operators safe.**
- **The manual shall be kept by the actual end users.**
- **The operators on duty shall keep an eye on the malfunction indicator lights on the control cabinet and operation panel and solve the problem immediately if any。**

4. Acceptance and examination of equipment

Please confirm the following points after receiving machine. If there is any unconformity or questions, please note it on the freight bill. Furthermore, written notice should be sent to the carrier's agent, requesting him to inspect the equipment so as to confirm the damage incurred during shipment. If the damage is found after opening the package, it is advisable to keep the original package as it is and contact the nearest agency, dealer or representative office of the Company.

(1) Is the item recorded on the nameplate what you have ordered?

(2) Is there any breakage during shipment?

(3) Are the screws or nuts loose?

5. Operating stuff and power supply

The plant belongs to production equipment. In order to keep it running, complete refrigeration system and water required to make ice are needed in addition to electric power as the dynamic force.

1. Water

For normal operation of the ice-making machine and water pump, please use clean and fresh water that meets the required specification.

Note: Water of a different specification may cause the equipment to fur up or rust in the circulatory process, which may seriously affect its production capacity.

2. Refrigerant

The equipment is for R22 or R507A refrigerant，do not use other refrigerant.

Filling refrigerant not enough will cause ice maker evaporative pressure be lower，over-heat

Degree will be larger,freezing not enough;Filling refrigerant too much will cause ice maker back to the fluid.Please fill adequate refrigerant based on ice maker's operating condition.

3. Power Supply

Normally the power supply of the equipment is showed on the nameplate. Plate ice machines with different voltages may be supplied according to customers' requirement.

Operation Guide

1. Structural principle

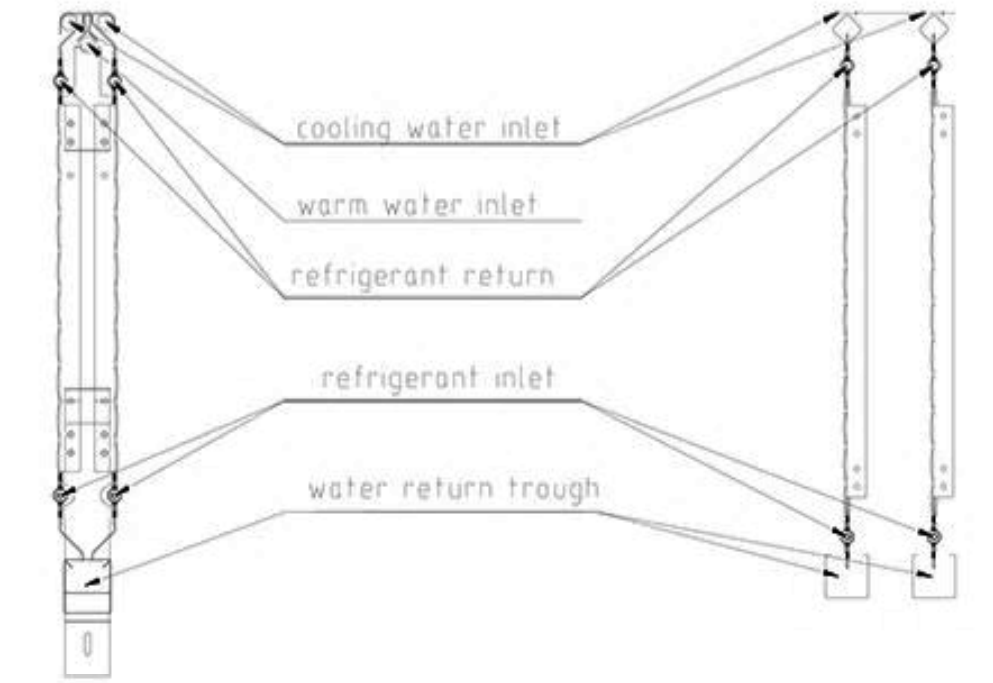


Diagram of plate evaporator

As shown in structure chart of plate, during operation of refrigerating system, water will be transported by under water pump in cooling-water tank to cold-water manifold pipe. Arrange a row of holes for sprinkling on cold water pipes so that water can sprinkle onto outer surface of two plate evaporators uniformly to form water film and exchange heat with refrigerating agent evaporated within plate so as to decrease water temperature so that some of water can ice out of plate. Unfrozen cold water will flow to cooling-water tank from bottom trough. Cold water will recirculation by under water pump. After about 20 minutes, a layer of plate ice whose thickness is between 10mm and 20mm will be distributed out of plate. At this moment, refrigerating system will stop automatically. Exhaust pipe of compressor and bypass electromagnetically operated valve of air return can increase low-pressure greatly so that refrigerating agent in evaporator can stop evaporating immediately. In the meanwhile, open warm water circulating pump so as to transport warm water whose temperature is 25℃ to hot water inlet from warm water tank. Arrange a row of holes for sprinkling on two sides of hot water pipes

2. Operating instruction of electric control unit

Start-up

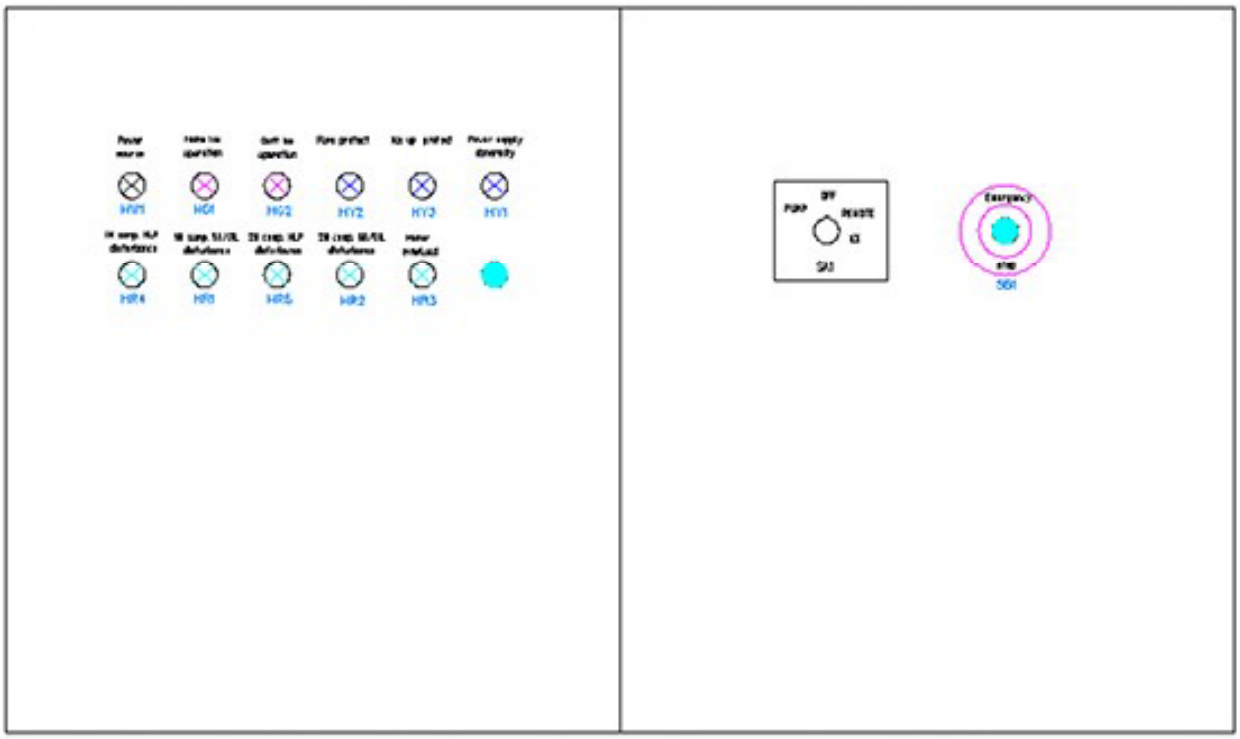
Warning

- **The crankcase heater should be energized for a MINIMUM of 4hours and the crankcase must be free of liquid before attempting to operate the compressor.**
- **Do not attempt to start machine without priming pump and insuring proper rotation of both cutter and pump.**

Starting Procedure(Initial Start-up):

(NOTE:The machine will start in the harvest mode when set to "**ICE**")

1. Set the "**OFF/PUMP/REMOTE/ICE**"selector switch to the "**PUMP**"position.



2. Water should be circulated for a minimum of five minutes to prime the pump,purge the tubing of air and lubricate the cutter bearing.

NOTE:If pump is already primed skip steps 1-2

3. When there is good water flow,turn the "**OFF/PUMP/REMOTE /ICE**" selector switch to "**ICE**". The machine will then start in a harvest(thaw) period with the compressor running.

4. At the termination of the harvest(thaw) period,the machine will begin the freeze period.

5. Be sure to observe a minimum of four cycles of ice production to confirm the satisfactory

operation of the machine (approximate time for four cycles is 60-80 minutes).

Complete the remaining part of the "Warranty Registration/Start-up Report" upon initial machine start-up and return it to Tube-Ice,LLC.

Shut-down

⚠ Attention
■ **The red "Emergency stop" button should only be used for emergency shutdown.For normal shutdown use the "Ice system pump/ice" selection switch.**

1. Set the "**OFF/PUMP/REMOTE/ICE**" switch to the "**OFF**" position.Do not use the machine disconnect to stop the machine.If the disconnect is used the crankcase heater will be de-energized and liquid refrigerant will migrate to the compressor.

2. If in a freeze mode,the machine will continue to run.

3. At the completion of the freeze cycle the machine will harvest and stop. The completion of a cycle ensures that all ice is removed from the freezer to prevent refreeze when the machine is restarted.

4. If in a harvest,the machine will complete the harvest and stop.

Operation Tips

- If the operation of your machine is not controlled by a timer,bin level control or some other mechanism to automatically start and stop ice production,you should use ONLY the "**OFF/PUMP/REMOTE/ICE**" toggle switch to start and stop machine.
- By turning the "**OFF/PUMP/REMOTE/ICE**"selector switch to "**OFF**" position,the machine will stop after the next harvest cycle.
- Do not use the "**Emergency stop**" push button or the machine disconnect for normal shutdown of the machine.
- Throw the "Disconnext"only in an emergency or for safety when performing certain service or repairs to the machine.The compressor crankcase heater is de-energized when the disconnect is thrown.
- The "**ICE**"position can be used to initiate a harvest cycle.When it is pushed during a freeze cycle,it will immediately initiate a harvest cycle.

3. Maintenance

Performance of machine is affected by season and use time. Please make up regulations and persisting in recording daily operation to provide reference to mechanical adjustment method、changing time of parts. Correct maintenance will keep the optimal running status of machines and prolong service life.

3.1 Plate of evaporator cleaning

One important issue of maintenance of plate of evaporator is frequent cleaning so as not to plug waterway. There is no scale deposit caused by sediment of calcium and ferric on cooling surface. Frequency of cleaning depends on water quality. It is essential to clean every two months in hard water area while two times every year in soft water area or area whose water quality is normal. Detailed procedures as following:

1. Close refrigerating compressor and liquid supply valve;
2. Close water supply valve;
3. Drain water absolutely from water tank;
4. Make up cleanser according instructions on bottle;
5. Pour cleanser into warm water tank to normal operating water level;
6. Manually open water pump to send cleanser to inside of plate so as to clean inner plate without refrigeration. Cleanser will concentrate in cold water tank by trough. Then manually start up cold water pump to send cleanser to outside of plate. Operate until furring has been removed. Time may be between 0.5 hour to 2 hours when there are many furring;
7. Exhaust cleanser and clean for two or more times thoroughly to guarantee that cleanser has been washed down completely. It is required to pour fresh water into water tank and start up water pump for several minutes, then drain.

3.2 Water tank cleaning

Water tank and water pump should be maintained clean without any accumulative foreign impurity. It is required to clean thoroughly when there are sediments. Under normal conditions, water tank are cleaned in the meanwhile by circulating cleanser in water system. If there are many foreign impurities or accumulative clay, it is required to close main power, take coping of water tank and clean aluminum body by cleanser and scrubbing brush until sediments are removed.

3.3 Maintenance of compressor

1. Inspect lubricating conditions of compressor immediately after boot-strap.

2. Start-stop times of compressor per hour should be less than 8 times. The minimum runtime should be more than 5 minutes.

3. Inspect protector and all control parts of compressor.

4. Inspect whether connection of wires is firm or not.

5. Oil changing is not normally necessary for factory assembled plants.For "field installations" and for applications near the operating limits a first oil change is recommended after approx. 100 operating hours.This includes cleaning the oil filter and magnetic plug. After that the oil has to be replaced approx. Every 3 years or 10000-12000 operating hours. Clean also oil filter and magnetic plug.

6. Maintain clean surface of compressor.

3.4 Clean up condenser (air cooled)

The tube walls and fins of air-cooling condenser will accumulate dust after long-time use, which will affect heat transmission of the condenser and result in excessive high pressure in the condenser. Thus, it is required to clean the dust during routine maintenance. Brush off the dust on the tube walls and fins of cooling air condenser with bristle paint brush or copper-wire brush and blow it with the rubber tube of air compressor (atmospheric pressure: 5) until the dust is cleaned off.

3.5 Clean up condenser (water cooled)

During the condenser operating, cooling water scale will be form inside of the pipeline and Impact effect of heat transfer. It should clean frequently to improve cooling effect. The frequency depends on the water quality, In the region consisting of extremely hard water, it is necessary to clean once every three months, but in normal water or soft water, need only clean twice per year. Generally according to the differential pressure of the R22 saturation pressure which the exhaust pressure and ambient temperature corresponding to. When the differential pressure is over 2bar, can be determined to cleaning condenser, the steps of cleaning condenser as follow:

If the cooling tower is higher than condenser, Should emptying the water cooling tower or close the valves of condenser and cooling tower outlet and inlet;

Open the drain valve which under the end cover of the condenser, drain water from the condenser.

Dismantle the ends of the condenser Cover

Reciprocating cleansing each copper pipe with water by special condenser cleaning bush

After cleaning, reinstall the ends of cover and connecting pipeline.

3.6 Ice crusher maintenance

Warning

- **When the ice maker is deicing, the ice block or the trash ice axis can do damage to human, when the ice maker is running, it is forbidden to stand close to the ice dump place.**
- **The gear、chain which connect the reducer and the trash ice axis can clip hands、feet, when the ice maker is running, it is forbidden to stand close to reducer.**

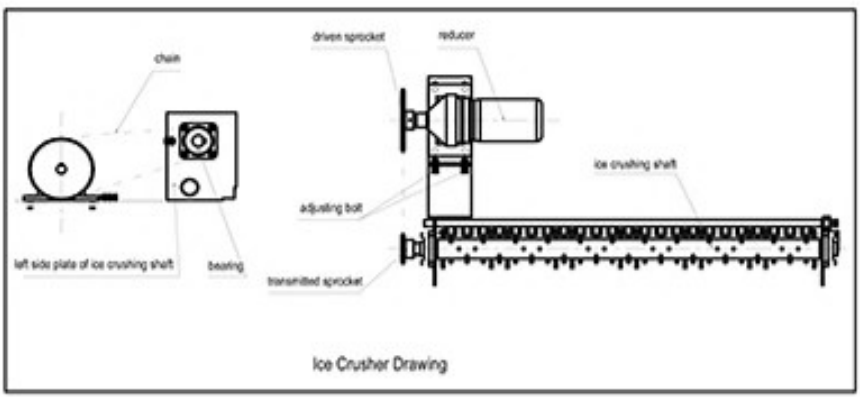
Check the trash ice axis is bending deflection or not.

Check the chain's degree of tightness、fret and other situation such as the ice crusher rolling normal or not every month. If the ice crusher running voice is abnormal、chain jump、wobble、drop off、reducer racing and other situation, should adjust bolt to tension the ice crusher chain. Tension degree should let the ice crusher axis rolling flexible. When adjust, should pay attention to the initiative sprocket wheel's head face should be at the same level with the driven sprocket wheel's head face.

Change the lubricant of the reducer every 2500 running time;

The lubricant should be checked every 6months and added in time when the lubricant is insufficient;

Check the running current of the reducer is normal or not every week.



Ice Crusher Drawing

3.7Maintenance of other equipments

1. Inspect sight glass: add freon if there are bubbles and detect leakage of system.
2. Inspect fixed conditions of every part such as pipeline、baseboard and carriage.
3. Inspect heat preservation conditions of pipeline; Inspect whether it is dripping or not.
4. Inspect conditions such as linkage、wear、coating of lubricant of ice crash machine chain every 60

days.

5. Inspect whether nozzle of sprinkler pipe used for ice-make, ice-doff is blocked up or not. If end of every water pipe is blocked up, it is required to take plug out, rotate and insert by affixed brush to wash inner impurities by water pressure.

6. Electrical parts inspection

a. Please inspect whether there s oil attached on electromagnetically switch or not.

b. Regularly remove dirt attached on parts.

c. Investigate reason to cause dirt and solve problem.

d. Inspect whether terminal is flabby or not; Inspect wiring system.

e. Inspect whether screw of terminal is flabby or not.

f. Inspect conditions of every engine.

4. Replacement and regulation of major components

4.1 Replacement of filter element of drying filter

A. Close liquid outlet valve of condenser so that system can run for a certain period. Then close ball valve in liquid supply pipe;

B. Detach end bracket of dry filter;

C. Take filter element out. Replace with new one quickly and cover the end bracket;

D. Please do not tighten screw on end bracket first. Open liquid outlet valve of condenser slightly to exhaust gas;

E. Tighten screw and open liquid outlet valve of condenser and globe valve;

F. Detect leakage of used parts after normal operation of system.

4.2 Replacement of valve disc of solenoid valve

A. Close liquid outlet valve of condenser so that system can run for a certain period. Then close ball valve in liquid supply pipe;

B. Detach valve cap of electromagnetically operated valve;

C. Take filter element out. Replace with new one and cover the valve cap;

D. Please do not tighten screw on end bracket first. Open liquid outlet valve of condenser slightly to exhaust gas;

E. Tighten screw and open liquid outlet valve of condenser and ball valve;

F. Detect leakage of used parts after normal operation of system.

4.3 Replacement of filter element of suction valve

A. Close air return valve of compressor after normal stop of system;

B. Detach end cap of filter;

C. Clean filtering cartridge, replace filter element and install end cap;

D. Please do not tighten screw on end cap first. Open liquid supply electromagnetically operated valve to exhaust gas;

E. Tighten screw and open air return valve of condenser;

F. Detect leakage of used parts after normal operation of system.

4.4 Replacement and cleaning of valve disc of expansion valve

A. Close liquid supply ball valve so that system can run for a certain period. Vacuumize

low-pressure section;

B. Detach valve cap and take valve disc and filter out;

C. Clean or replace valve disc and filter;

D. Reinstall expansion valve;

E. Vacuumize low-pressure section;

F. Detect leakage of used parts after normal operation of system.

5. Common trouble shooting

Problem	Possible cause	Approach
Turn on cam switch, ice machine does not start. Power supply is normal: Power light is on; Ice making state is in working: Make ice operation indication lamp is on; Ice doffing state is in working: Doff ice operation indication lamp is on;	1. No power supply.	Check whether the electrical source breaks off, or the breaker, fuse is burned out. After fixing, the power light getting on.
	2.Cam switch/emergency stop button is damaged.	Replace cam switch. /emergency stop button.
	3.Emergency stop button or remote emergency stop button is disconnected.	Connect emergency stop button or remote emergency stop button （Or short circuit the remote emergency stop button）.
Compressor Fault 1(PLC)	1.compressor temperature control module protect(indication lamp is on)	1.check whether refrigerant insufficient or inlet filter gauze choked; 2.check whether the coil protection switch abnormal; 3.check whether the compressor motor coil temperature increases too much; 4.check whether the suction superheat degree too high and bad ventilation; Power off and reset after the coil cooling.

	2. Compressor high pressure or overload protect (indication lamp is flash 1 second)	1.compressor high pressure failure. Check the high pressure switch setting value and the condenser motor working. Press the red button for manual reset at the compressor HLP switch. Check whether the system Refrigerant leakage： 2.compressor is overload. Compressor breaker or thermal relay trip, Press the breaker or thermal relay protector FR for resetting：Check whether the current of breaker is at working condition level：Check whether the electrical connectors are loosened and screw them down： Check the current of motor.
	3.Compressor low pressure protect (indication lamp is flash 3 second)	1.check the low pressure switch setting value, and the low pressure switch will reset automatically
Compressor Fault 2(PLC)	1. Compressor oil level(or flow) switch protect (indicator light on)	1. check compressor oil level (or flow) switch： 2. check compressor oil level(or flow) in oil level meter： 3.If insufficient, please add more oil.
	2.compressor working abnormal (indication lamp is flash 1 second)	1. compressor contactor is not closed： 2. check whether the connection wire is loosened and lock. Measure the motor current.
	3. compressor oil pressure difference switch protect (indication lamp is flash 3 second)	1. check compressor oil pressure difference switch： 2. whether the system is too dirty and lead to abnormal oil back. After solving, please press the emergency stop button for resetting.

Compressor Fault (Pure circuit)	1.Compressor high pressure or low pressure protect(indication lamp is on)	1.compressor high pressure failure. Check the high pressure switch setting value and the condenser motor working. Press the red button for manual reset at the compressor HLP switch. Check whether the system Refrigerant leakage; 2. check the low pressure switch setting value, and the low pressure switch will reset automatically
	2.Compressor temperature control module protect (indication lamp is on)	1.check whether refrigerant insufficient or inlet filter gauze choked; 2.check whether the coil protection switch abnormal; 3.check whether the compressor motor coil temperature increases too much; 4. check whether the suction superheat degree too high and bad ventilation; Power off and reset after the coil cooling.
	3.Compressor oil pressure difference protec(indication lamp is on)	1.Check whether the compressor is lack of 2.oil or oil return is abnormal. Press emergency stop button to reset after failure recovery.
Motor overload	1. condenser fan and pump overload (indication lamp is on)	1. thermal relay trip, Press the thermal relay protector FR for resetting. 2. Check whether the current of breaker is at working condition level. 3. Check whether the electrical connectors are loosened and screw them down. Check the current of motor.

	2.Breaker motor overload (indication lamp is on)	1. thermal relay trip, Press the thermal relay protector FR for resetting. 2. Check whether the current of breaker is at working condition level. 3. Check whether the electrical connectors are loosened and screw them down. Check the current of motor.
	3.make ice pump overload (indication lamp is on)	1. thermal relay trip, Press the thermal relay protector FR for resetting. 2. Check whether the current of breaker is at working condition level. 3. Check whether the electrical connectors are loosened and screw them down. Check the current of motor.
	4.Compressor overload (indication lamp is on) (Relay)	1.Compressor breaker or thermal relay trip, Press the breaker or thermal relay protector FR for resetting; 2.Check whether the current of breaker is at working condition level; 3.Check whether the electrical connectors are loosened and screw them down; 4.Check the current of motor.
Ice Bin Full/Water Supply Fault (Pure circuit)	1. ice storage full ice(indication lamp is on)	1. normal protect function. Please clean up the the ice storage; 2. full ice wire connection is wrong. Please refer to the electrical principle diagram for details; 3. full ice switch damaged, please replace.
	2. flow disturbance(indication lamp is on)	1. flow switch damaged, please replace; 2. check the water pump motor and the water pump blades; 3. water tank lack water.

Ice Bin Full/Water Supply Fault (PLC)	1. ice storage full ice (indication lamp is on)	1. normal protect function. Please clean up the the ice storage; 2. full ice wire connection is wrong. Please refer to the electrical principle diagram for details; 3. full ice switch damaged, please replace.
	2. flow disturbance (indication lamp is flash 1 second)	1. flow switch damaged, please replace; 2.check the water pump motor and the water pump blades; 3. water tank lack water.
	3. The ice maker overtime is abnormal (indication lamp is flash 3 second)	1.Check time relay is damaged or not.
	4. The ice doff overtime is abnormal (indication lamp is flash 2 second)	1.Check time relay is damaged or not.
Power Supply Fault (indication lamp is on)	1.The power supply voltage is higher than the protecting upper limit value or lower than lower limit value.	Check the power supply voltage. The protecting upper limit value is AC Us+10%. lower limit value is AC Us -10%.
	2.The power supply is anti-phase.	Cut off the power, and exchange any two phases of the power line.
	3.The adjusted time value of power protector is not moderate.	Check the adjusted time value of protector. The action time of AC U-10% ≤ Us ≤ AC U+10% is 5 Seconds. The action mode is delay failure detection.
	4.The power protector is damaged.	Replace the power protector.

Overwintering maintenance

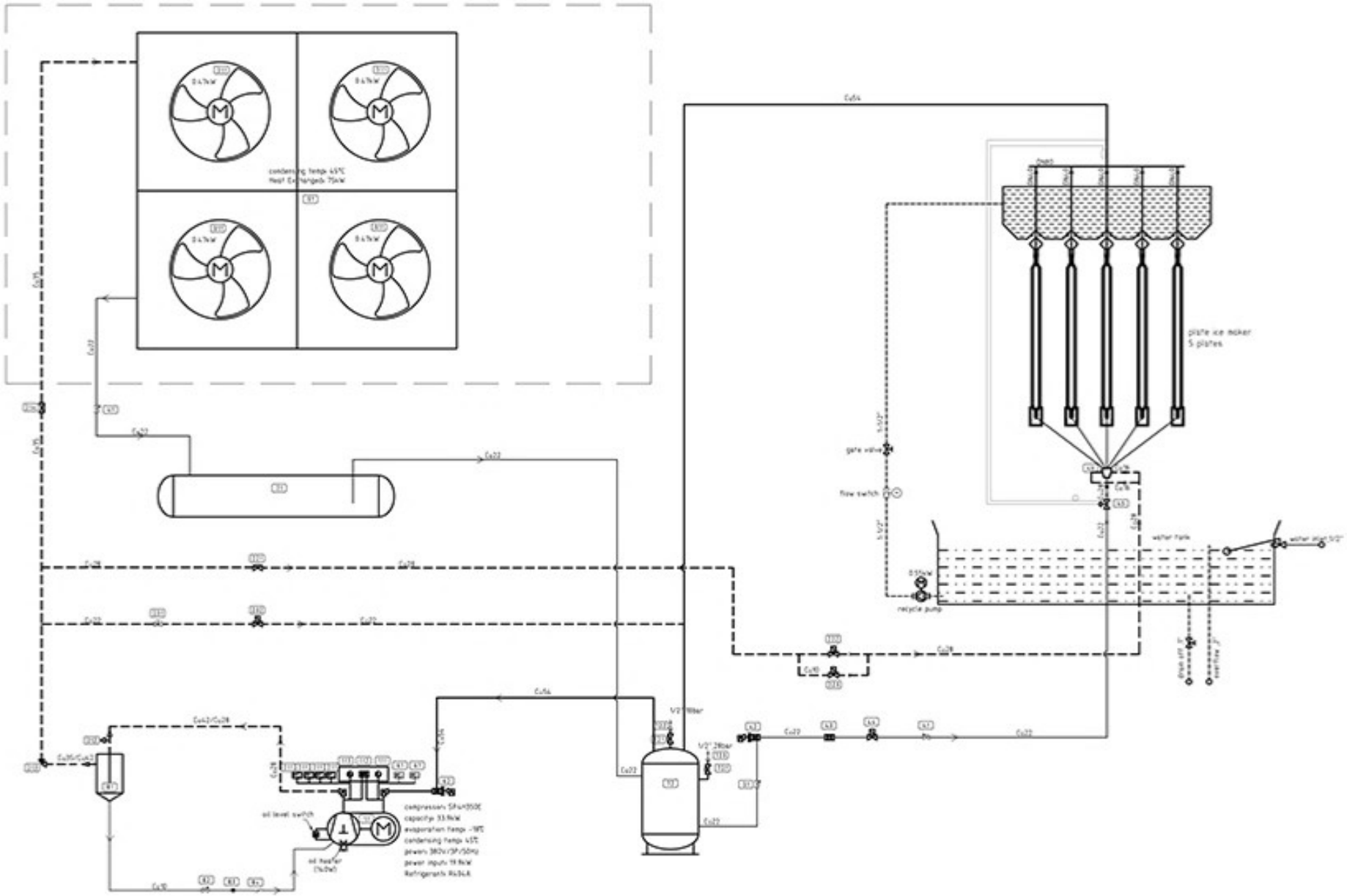
When ambient temperature is too low, water will freeze; It may cause water cooling condenser, evaporator and oil cooler etc heat exchange equipment get bursting, then water will go into refrigeration system and the refrigerant will leak; It may also cause the water pipe of equipment get bursting and water leaking; Or cause water pump and reducer etc moving parts get frozen and damaged. When ambient temperature is lower than the lowest work temperature of equipment, please stop the equipment and drain out the water inside the pipe. And check the system to make sure not too much water remaining. Only when ambient temperature is higher than work temperature, then start up the equipment again. Before start the equipment, please check if the refrigeration system is leaking and recirculate the water line to see if the water is leaking. Make sure the equipment work properly.

You can adopt below methods to relieve the pipe get bursting:

1. Use air cooling condenser. It does not have water pipe, and avoid the bursting problem.
2. Heating water source to make sure the water line not getting frozen.
3. Adding antifreeze to reduce the freezing temperature of water line.

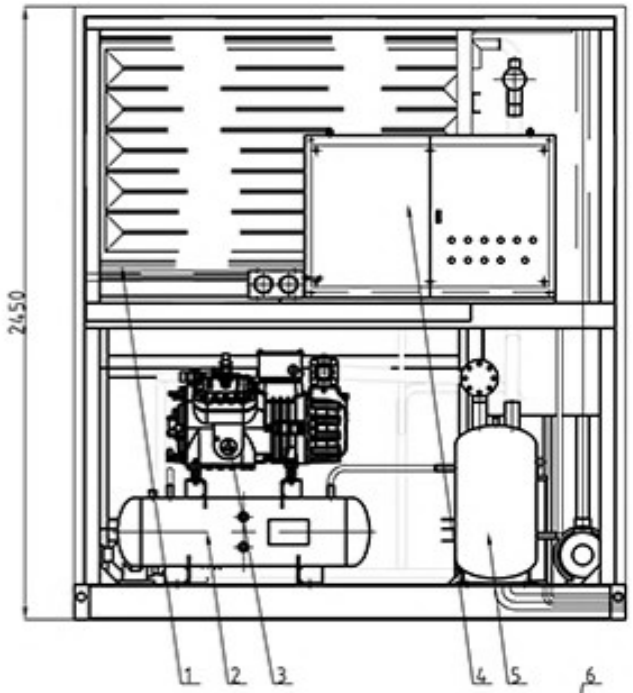
Note:

- Most kinds of antifreezes are poisonous, Don't let the antifreeze contact with food. When change or add the antifreeze, please take necessary protective measures.
- The antifreeze is volatile, please use closed cycle for the system.
- Please confect and change the antifreeze according to the antifreeze manufacturer's instruction. Avoid the content too high or too low.


condensing temp 45°C
Heat Exchanger 75kW
plate ice maker
5 plates
gate valve
flow switch
water tank
recycle pump
compressor 5Fkm350E
capacity 33.9kW
evaporation temp -18°C
condensing temp 45°C
power 380v/3P/50Hz
power inputs 19.9kW
Refrigerants R404A
oil level switch
oil heater

Refrigerating system PID list

NO.	NAME	Q'TY	UNIT	REMARK
1.1	compressor	1	set	C20803501100
1.1.1	low pressure gauge	1	pc	01180278
1.1.2	pressure switch	1	pc	01190012
1.1.3	high pressure gauge	1	pc	01180277
2.1.1	pressure switch	4	pc	01190011
2.1.2	service valve	1	pc	01271316
2.1.3	check valve	1	pc	01290026
2.1.4	ball valve	1	pc	01220110
2.2.1	ball valve	1	pc	01220108
2.2.2.1	solenoid valve	1	pc	01140048
2.2.2.2	Coil	1	pc	01140086
2.2.3.1	solenoid valve	1	pc	01140036
2.2.3.2	Coil	1	pc	01140086
2.3.1	adjusting valve	1	pc	01280159
2.3.2.1	solenoid valve	1	pc	01140046
2.3.2.2	Coil	1	pc	01140086
4.1	ball valve	3	pc	01220106
4.2.1	filter	1	pc	01150040
4.2.2	filter core	1	pc	01160036
4.2.3	service valve	1	pc	01260020
4.3	sight glass	1	pc	01230016
4.4.1	solenoid valve	1	pc	01140046
4.4.2	Coil	1	pc	01140086
4.5	expansion valve	1	pc	01170468
4.6	distributor	1	pc	01390094
6.1	pressure switch	2	pc	01190009
6.2.1	filter	1	pc	01150178
6.2.2	filter element	1	pc	01160001
6.2.3	service valve	1	pc	01260020
7.1	liquid receiver	1	pc	3020010215
7.2	three-in-one device	1	pc	3020010315
7.2.1	ball valve	2	pc	01220045
7.2.2	safety valve	1	pc	01300363
7.2.3	safety valve	1	pc	01300252
8.1	oil separator	1	pc	01090008
8.2	ball valve	1	pc	01220100
8.3	Adapter/junction	1	pc	01330001
9	refrigeration oil	5	L	973145
10	Refrigerant	50	kg	14020019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1
2
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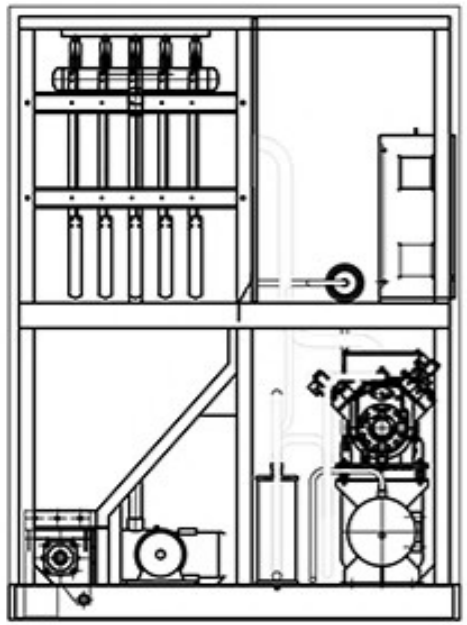
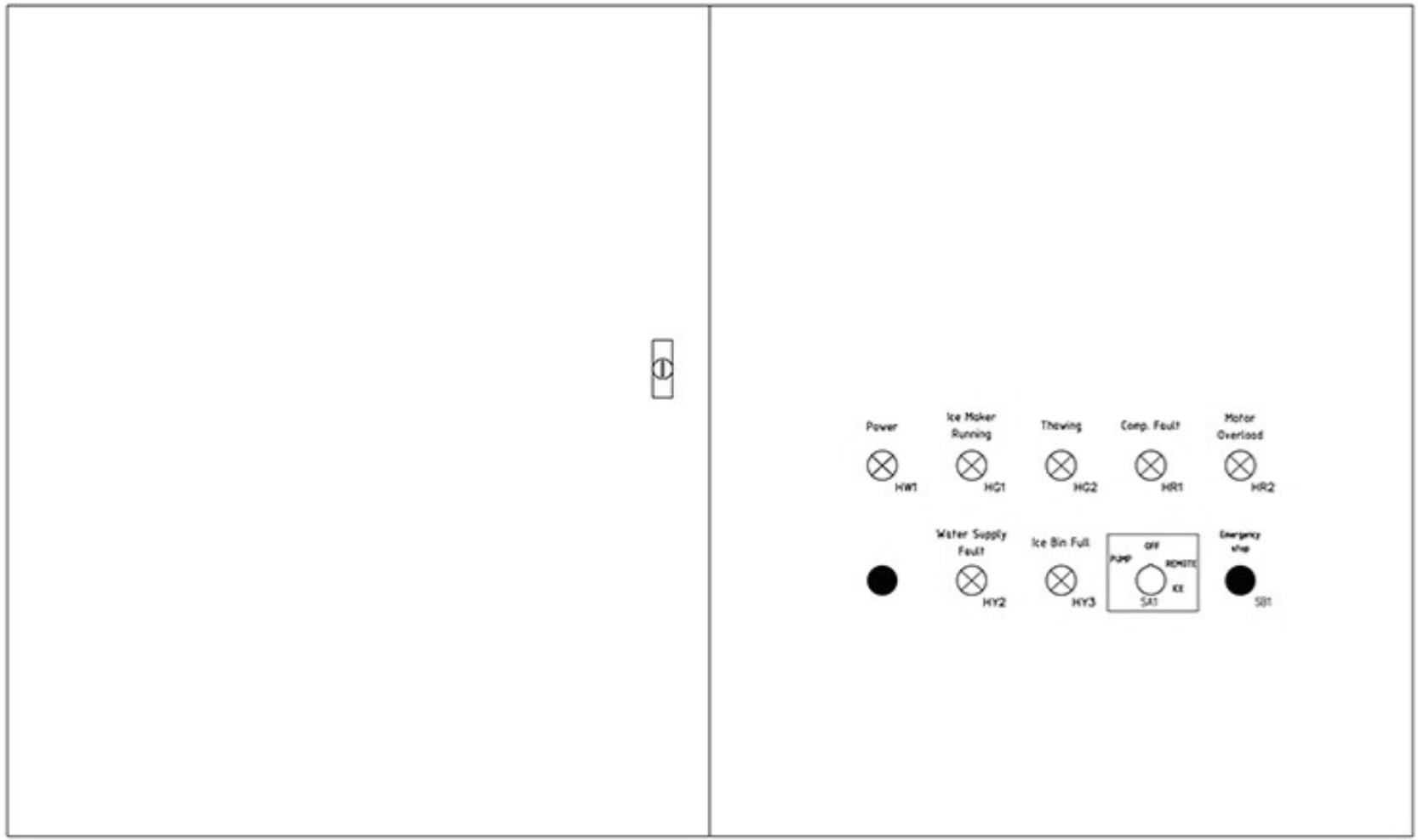
1800
2200



RevNo	Revision note	Date	Signature	Checked



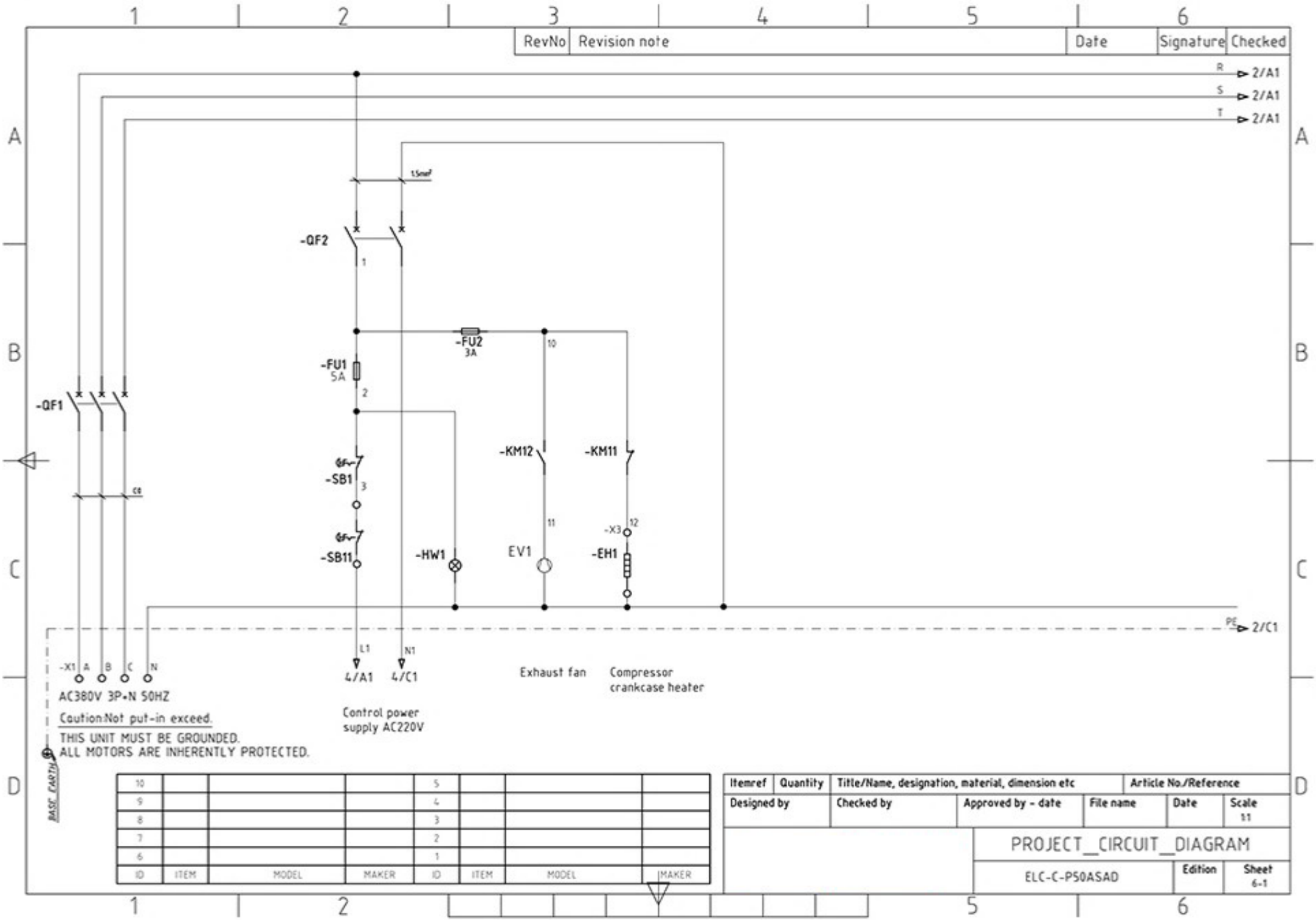
ID	ITEM	MODEL	MAKER	ID	ITEM	MODEL	MAKER
10				5			
9				4			
8				3			
7				2			
6				1			

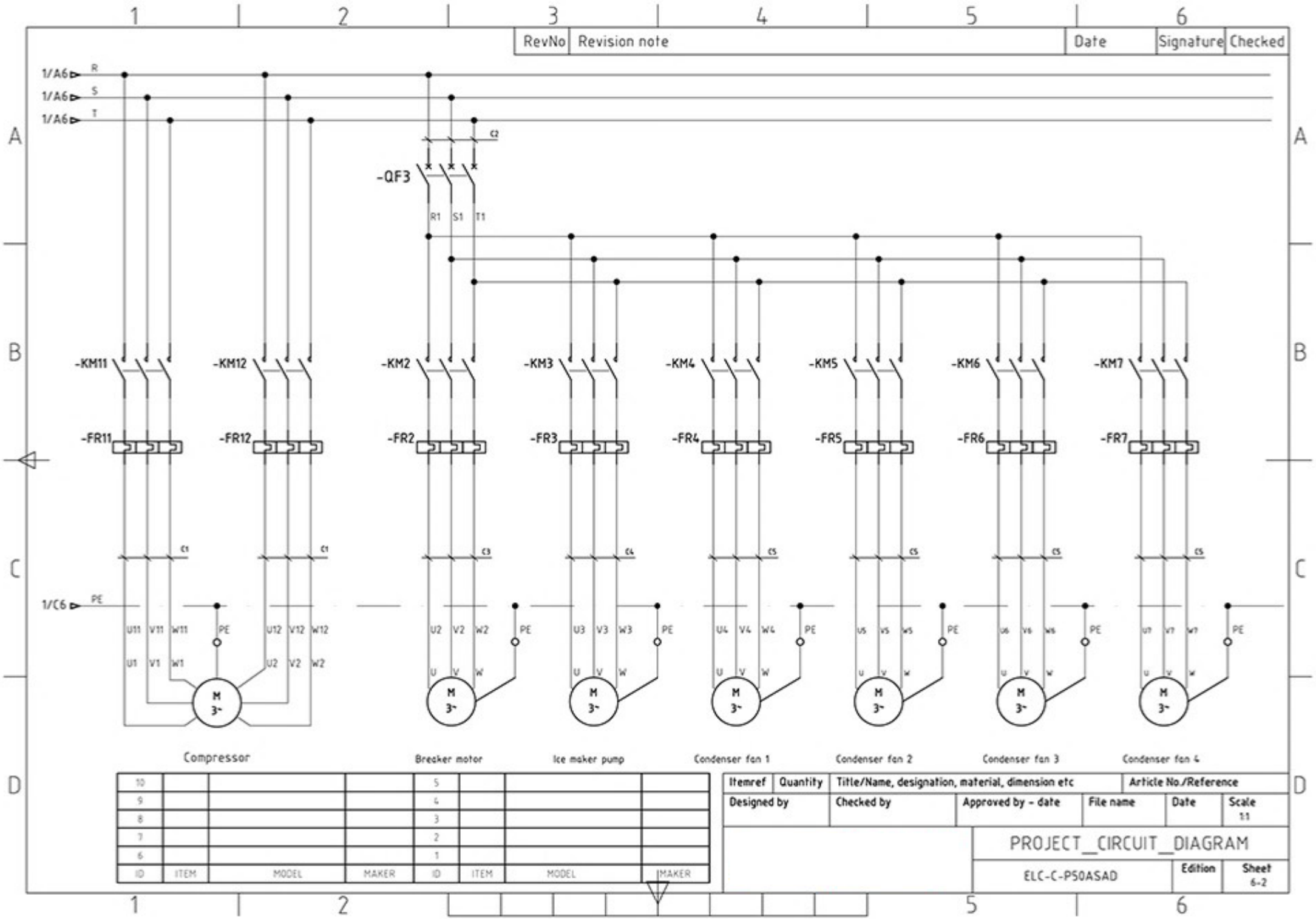
Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference

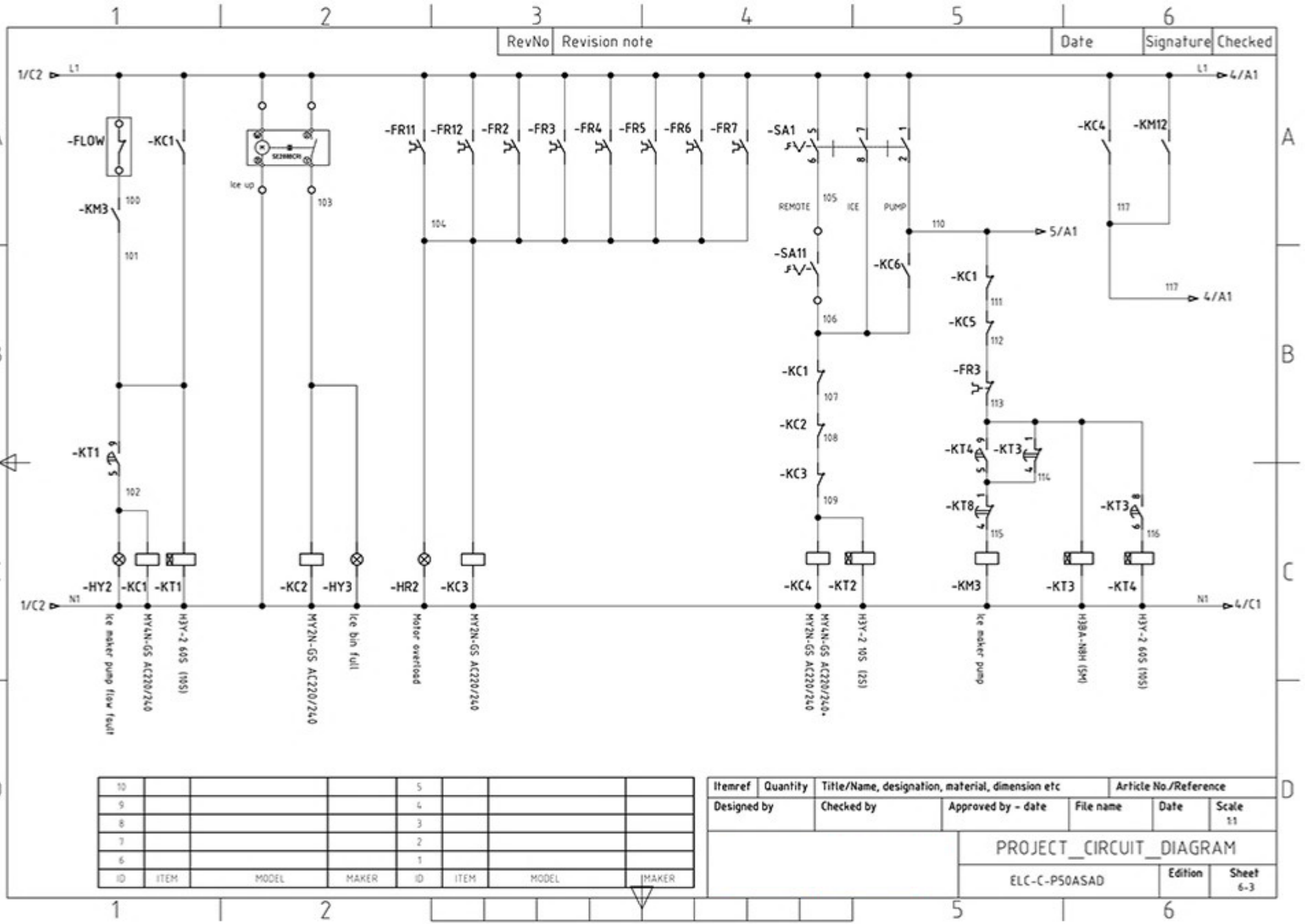
Designed by	Checked by	Approved by - date	File name	Date	Scale
					1:1

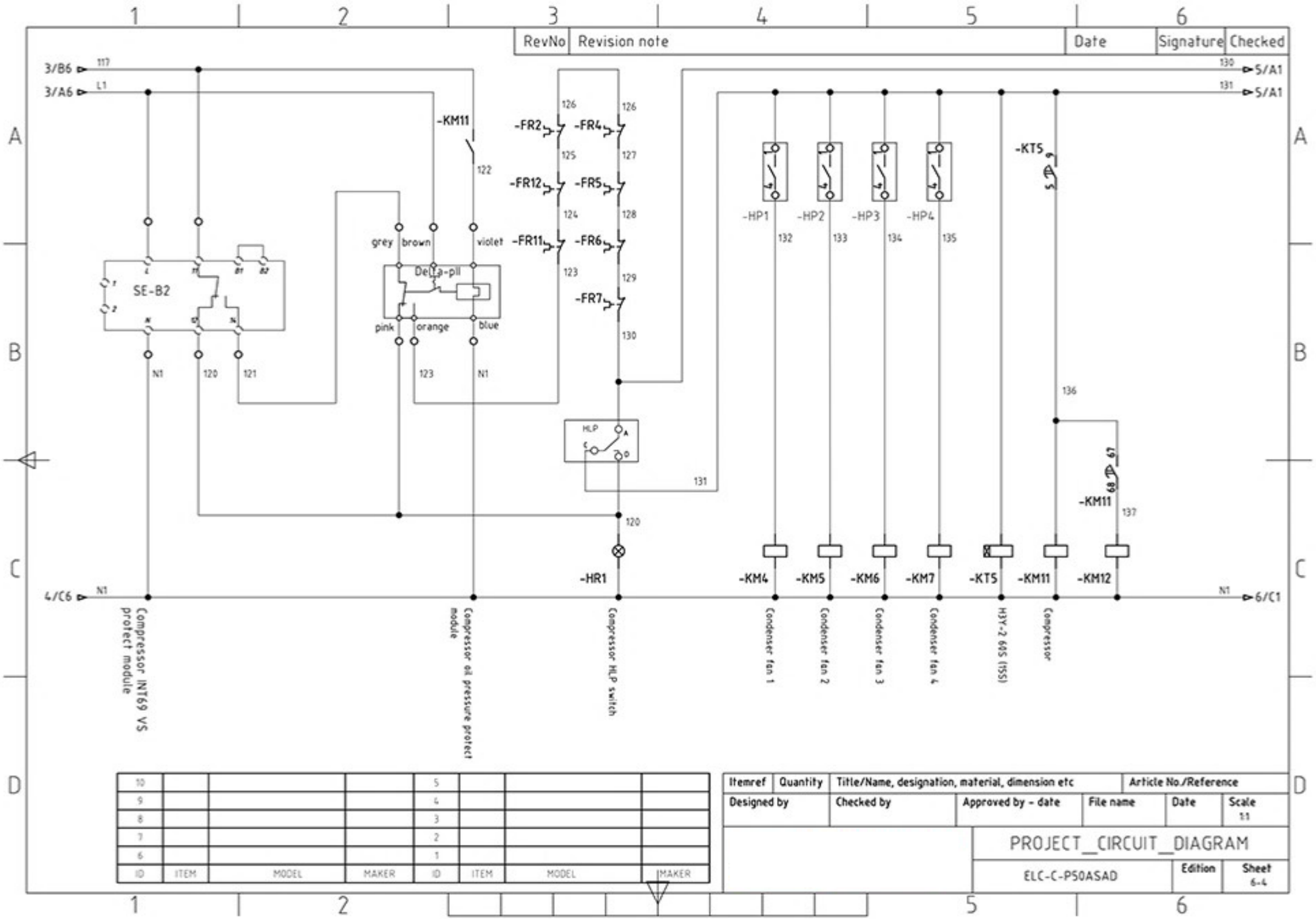
PROJECT_CIRCUIT_DIAGRAM

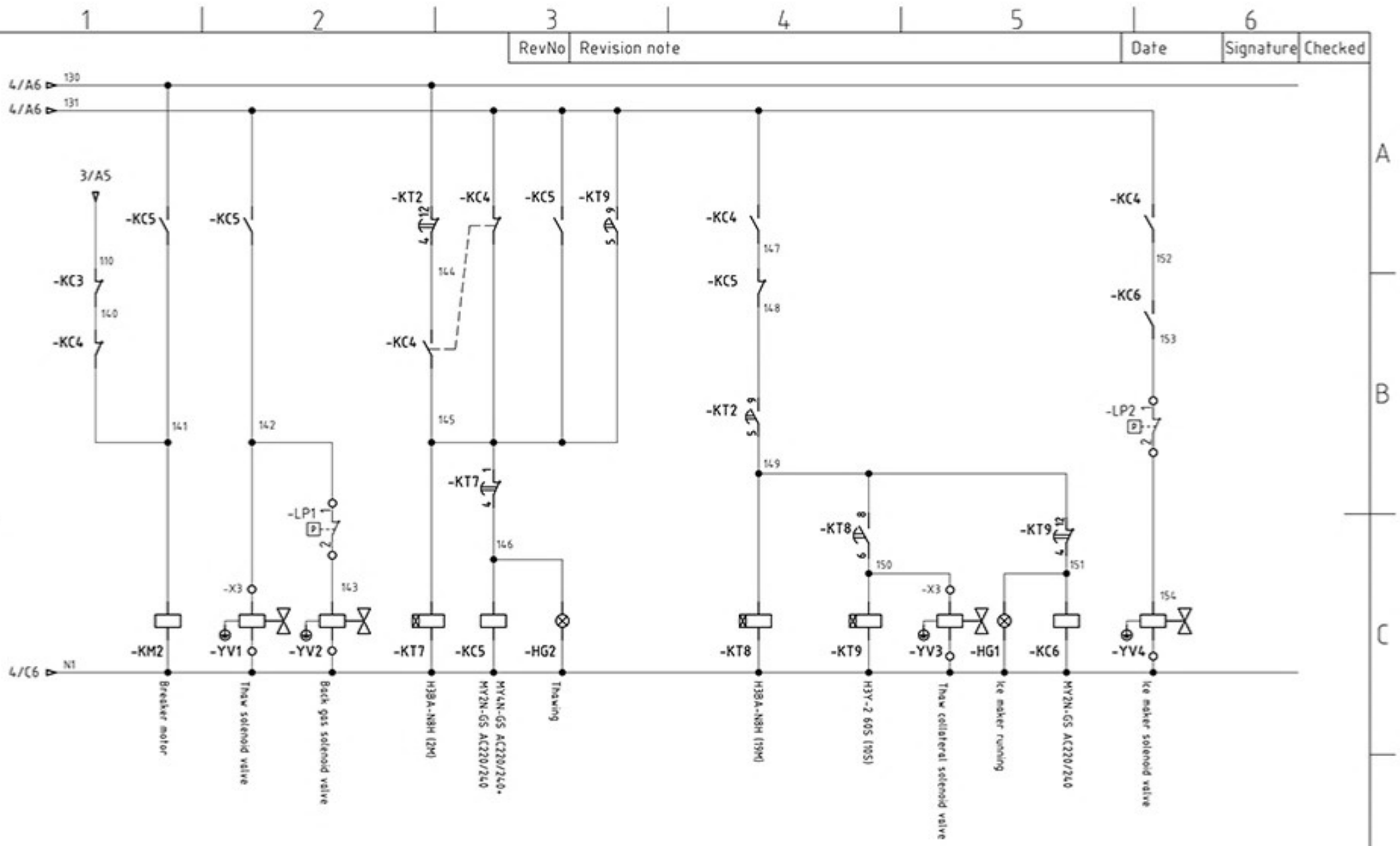
ELC-P-P50ASAD	Edition	Sheet
		1-1

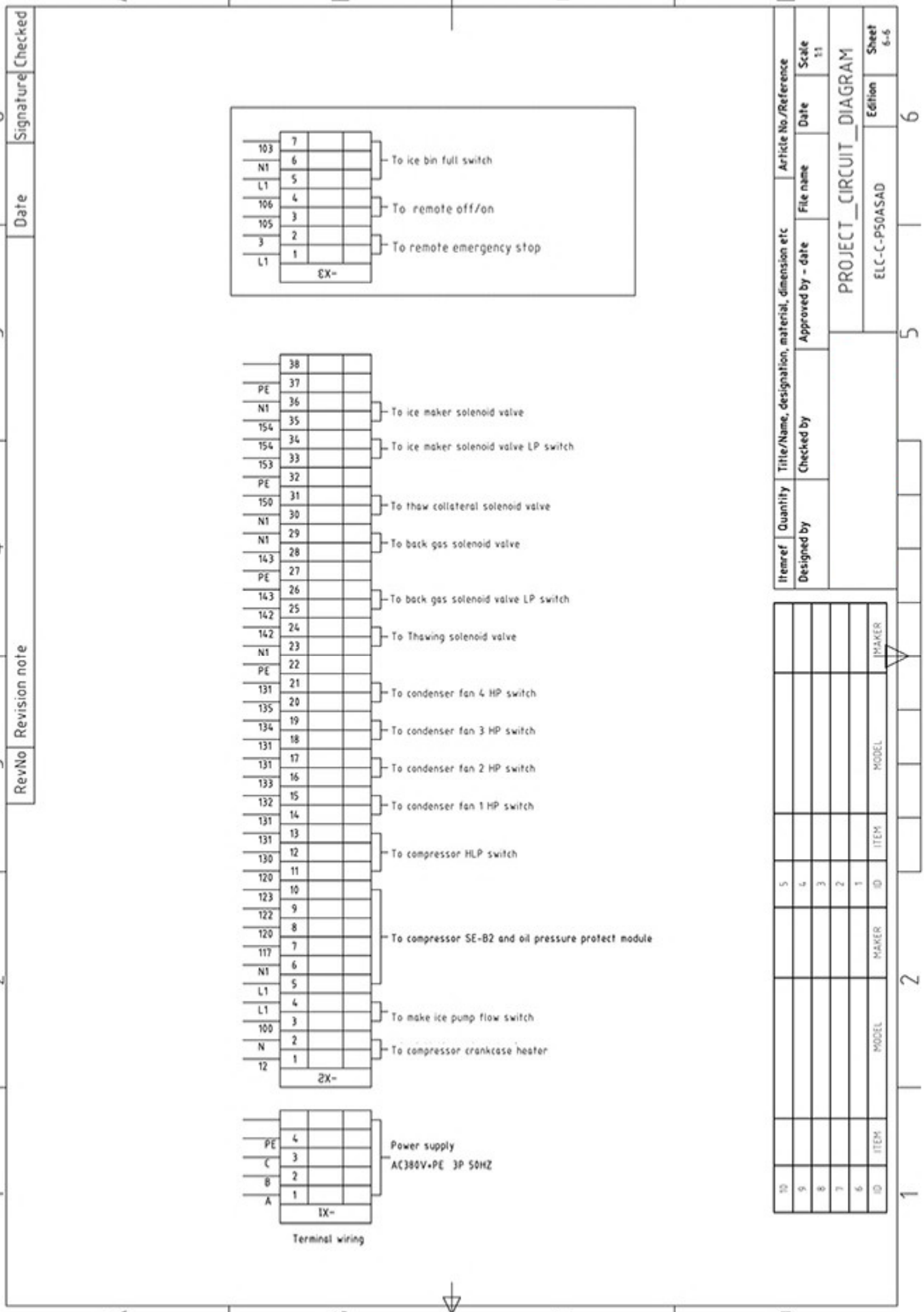

RevNo
Revision note
Date
Signature
Checked
R
S
T
2/A1
2/A1
2/A1
-QF2
-FU2
3A
-FU1
5A
-QF1
-KM12
-KM11
-SB1
-SB11
-HW1
EV1
-X3
-EH1
PE
2/C1
-X1
A
B
C
N
AC380V 3P+N 50HZ
Caution:Not put-in exceed.
THIS UNIT MUST BE GROUNDED.
ALL MOTORS ARE INHERENTLY PROTECTED.
BASE EARTH
L1
N1
4/A1
4/C1
Control power supply AC220V
Exhaust fan
Compressor crankcase heater
Itemref
Quantity
Title/Name, designation, material, dimension etc
Article No./Reference
Designed by
Checked by
Approved by - date
File name
Date
Scale
1:1
PROJECT_CIRCUIT_DIAGRAM
ELC-C-P50ASAD
Edition
Sheet
6-1
ITEM
MODEL
MAKER


RevNo
Revision note
Date
Signature
Checked
1/A6 R
1/A6 S
1/A6 T
-QF3
C2
R1 S1 T1
-KM11
-KM12
-KM2
-KM3
-KM4
-KM5
-KM6
-KM7
-FR11
-FR12
-FR2
-FR3
-FR4
-FR5
-FR6
-FR7
C1
C3
C4
C5
1/C6 PE
U11 V11 W11 PE
U1 V1 W1
U12 V12 W12
U2 V2 W2
U2 V2 W2 PE
U3 V3 W3 PE
U4 V4 W4 PE
U5 V5 W5 PE
U6 V6 W6 PE
U7 V7 W7 PE
U V W
M 3~
Compressor
Breaker motor
Ice maker pump
Condenser fan 1
Condenser fan 2
Condenser fan 3
Condenser fan 4
ITEM
MODEL
MAKER
Itemref
Quantity
Title/Name, designation, material, dimension etc
Article No./Reference
Designed by
Checked by
Approved by - date
File name
Date
Scale
1:1
PROJECT_CIRCUIT_DIAGRAM
ELC-C-P50ASAD
Edition
Sheet
6-2


RevNo
Revision note
Date
Signature
Checked
1/C2
L1
4/A1
-FLOW
-KC1
-KM3
100
101
Ice up
103
-FR11
-FR12
-FR2
-FR3
-FR4
-FR5
-FR6
-FR7
104
-SA1
REMOTE
105
ICE
PUMP
110
5/A1
-SA11
106
-KC6
-KC4
-KM12
117
-KC1
111
-KC5
112
-FR3
113
-KT4
-KT3
114
-KT8
115
-KT3
116
-KT1
102
-KC1
107
-KC2
108
-KC3
109
-HY2
-KC1
-KT1
-KC2
-HY3
-HR2
-KC3
-KC4
-KT2
-KM3
-KT3
-KT4
N1
4/C1
Ice maker pump flow fault
MY4N-GS AC220/240
H3Y-2 60S (19S)
MY2N-GS AC220/240
Ice bin full
Motor overload
MY2N-GS AC220/240
MY4N-GS AC220/240
MY2N-GS AC220/240
H3Y-2 10S (2S)
Ice maker pump
H3BA-N8H (5M)
H3Y-2 60S (19S)
ID
ITEM
MODEL
MAKER
Itemref
Quantity
Title/Name, designation, material, dimension etc
Article No./Reference
Designed by
Checked by
Approved by - date
File name
Date
Scale
1:1
PROJECT_CIRCUIT_DIAGRAM
ELC-C-P50ASAD
Edition
Sheet
6-3


RevNo
Revision note
Date
Signature
Checked
3/B6
3/A6
117
L1
-KM11
122
-FR2
-FR4
-FR12
-FR5
-FR11
-FR6
-FR7
126
125
124
123
127
128
129
130
grey
brown
violet
pink
orange
blue
Delta-pll
SE-B2
N1
120
121
123
HLP
131
-HR1
-HP1
-HP2
-HP3
-HP4
132
133
134
135
-KT5
136
-KM11
137
67
68
5/A1
130
131
4/C6
6/C1
-KM4
-KM5
-KM6
-KM7
-KT5
-KM11
-KM12
Compressor INT69 VS protect module
Compressor oil pressure protect module
Compressor HLP switch
Condenser fan 1
Condenser fan 2
Condenser fan 3
Condenser fan 4
H3Y-2 60S (ISS)
Compressor
ID
ITEM
MODEL
MAKER
Itemref
Quantity
Title/Name, designation, material, dimension etc
Article No./Reference
Designed by
Checked by
Approved by - date
File name
Date
Scale
1:1
PROJECT_CIRCUIT_DIAGRAM
ELC-C-P50ASAD
Edition
Sheet
6-4


RevNo
Revision note
Date
Signature
Checked
4/A6
130
131
3/A5
-KC5
-KC3
110
140
-KC4
141
142
-KT2
-KC4
-KC5
-KT9
144
145
-KT7
146
-LP1
-X3
143
-KM2
-YV1
-YV2
-KT7
-KC5
-HG2
4/C6
N1
Breaker motor
Thaw solenoid valve
Back gas solenoid valve
H3BA-N8H (2M)
MY4N-GS AC220/240+
MY2N-GS AC220/240
Thawing
-KC4
147
-KC5
148
-KT2
149
-KT8
-KT9
150
151
-X3
-KT8
-KT9
-YV3
-HG1
-KC6
H3BA-N8H (1SM)
H3Y-2 60S (10S)
Thaw collateral solenoid valve
Ice maker running
MY2N-GS AC220/240
-KC4
152
-KC6
153
-LP2
154
-YV4
Ice maker solenoid valve
Itemref
Quantity
Title/Name, designation, material, dimension etc
Article No./Reference
Designed by
Checked by
Approved by - date
File name
Date
Scale
1:1
PROJECT_CIRCUIT_DIAGRAM
ELC-C-P50ASAD
Edition
Sheet
6-5
ID
ITEM
MODEL
MAKER


RevNo
Revision note
Date
Signature
Checked
Itemref
Quantity
Designed by
Title/Name, designation, material, dimension etc
Checked by
Approved by - date
Article No./Reference
File name
Date
Scale
1:1
Edition
Sheet
6-6
PROJECT_CIRCUIT_DIAGRAM
ELC-C-P50ASAD
103
N1
L1
106
105
3
L1
7
6
5
4
3
2
1
-X3
To ice bin full switch
To remote off/on
To remote emergency stop
38
PE
N1
154
154
153
PE
150
N1
N1
143
PE
143
142
142
N1
PE
131
135
134
131
131
133
132
131
131
130
120
123
122
120
117
N1
L1
L1
100
N
12
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
-X2
To ice maker solenoid valve
To ice maker solenoid valve LP switch
To thaw collateral solenoid valve
To back gas solenoid valve
To back gas solenoid valve LP switch
To Thawing solenoid valve
To condenser fan 4 HP switch
To condenser fan 3 HP switch
To condenser fan 2 HP switch
To condenser fan 1 HP switch
To compressor HLP switch
To compressor SE-B2 and oil pressure protect module
To make ice pump flow switch
To compressor crankcase heater
PE
C
B
A
4
3
2
1
-X1
Power supply
AC380V+PE 3P 50HZ
Terminal wiring
ITEM
MODEL
MAKER
10
9
8
7
6
5
4
3
2
1