









KOOLmax[®]



Stock Code : 80.92.337

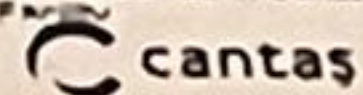
Unit Model : M030-K03.SC6145.SE6015.ES5

Compressor Model	Embraco SE6015GK-C
Compressor Type	Scroll
Refrigerant	R449A
Condenser Surface Area	20,1 m²
Cooling Capacity	3.563 Watt/h (-10°C/45°C)
Electrical Consumption	1.766 Watt/h
Compressor Power	2,0 hp
Supply Voltage	220 - 230V/ 1Ph/ 50Hz
Cabin type	KLMX - 3-CHH-145 RAL 7040
Production Date	13.08.2021
Option	



31538-1-1-SE6015GK-0030

Cantas COU Testando
Orçamento
Manufactured in Cantas COU





Ester Yağ
Ester oil

النفط استر

Синтетические масла



R 449 A

CE

EO 12812-2
M030

Compressor Model	
Compressor Type	
Refrigerant	
Condenser	

Condenser Type	
Cooling Surface Area	
Refrigerant Capacity	
Compressor	

Running Capacity
Electrical Consumption
Compressor Power
Supply Voltage
Cabin Air

Supply Voltage
Cathode type
Production Date
Cathode

Production Date
C0800

A barcode label with the text "Production Date C0800" above it. The barcode consists of vertical black bars of varying widths on a white background.

SC8145, SC8015, SC8
E87850, E88015, E88
E8785
N448A
20.1

FLA. 4-22-22

2015

2.0 m
3.0 m Water (-10°C to 0°C)
1.7 m Water
2.0 m
220 - 230 m
K 1 - 230 m

2070

220

20 - 230V/1PHV 50HZ
KLMX - 2 CHN-145 PAL 7040
13.08.2021

13 08 2021

1990

31535-1-1-9E5015GK-0030

CAUTION

KOOLmax

Stock Code
Unit Model

80.82.337
M030-K03

CE

Compressor Model
Compressor Type
Refrigerant

Embraco SEE015KLC
Sercos
R449A

Condenser Surface Area
Cooling Capacity
Electrical Consumption

20.1 m²
3.663 WASH (-10°C/45°C)
1.755 WASH
2.0 hp

Compressor Power
Supply Voltage
Cabin type
Production Date

220 - 230V/ 1P/ 50Hz
KLMX - 3-CHPL-145 RAL 7040
13.08.2021



31538-1-1-SEE015GK-0030

Design: GDU / Revision: 01
Manufactured in China GDU
Produced in China GDU
CENLAB

2. GENERAL OPERATING INSTRUCTION

This operating manual contains information such as the installation, start-up and maintenance of KOOLMAX Condenser Units produced by KOOLMAX group as well as the instructions to enable your device to be operated properly and efficiently. Before installation, it should be read carefully by the technical team that will respond in a case of service or possible malfunction.

Carefully read the operating manual before starting the installation and use of condenser units. Terms indicated in the operating manual are expressed apprehensively and explicitly. However, should there be any incoherent point, do not refrain from asking the technical team. In the result of any skipped over point, your device may be above operating efficiently and actively.

KOOLMAX group accepts no responsibility for damages that will arise from use and applications unspecified in the manual.

2.1- In the Case of Danger

- Turn off the Power Source
- Contact the technical service that installed the condenser unit. However, if you installed it on your own, contact the company from which you provided the condenser unit.
- Please do not take any actions before contacting the technical service or the Supplier.

Follow the instructions relating to installation, operating and maintenance. Please view the information provided in the manual. For more information, consult the producing company.

In order to operate the KOOLMAX condenser units within the intended efficiency and safely, the following criteria should be conformed while the devices' installation areas are designated.

Make sure that the unit is not damaged during its transportation. Make a point of having the quality workmanship of installation equipments performed by qualified employees.

6.1 Place of installation

The ground on which the unit will be installed should be in a characteristic that it will not allow vibration. Vibration-absorbing rubber wedges should be used between the ground of installation and the device.

The installation place should be prepared in such a way that it will not prevent the unit's air circulation. In this sense, the distance between wall and the unit should be 50 cm at least and the device's direction of air suction should be facing the wall.

The elevation difference between the unit and the evaporator should be as small as possible. (max. 10 m.)

The distance of the evaporator to be connected to the unit should be long. The total of horizontal and vertical distance should not exceed 25 m and, if possible, it should be shorter.

The units should be kept away from any heat source and active air circulation should be provided if the installation place is a closed environment.

If necessary, the installation should be made under a shady spot by taking into consideration that the unit will be adversely affected by sunrays and a possible rain.

In a possible case of service or maintenance need, the unit should be easily accessible and installed in such a position that will not prevent the current facility operation.

2.2-Installation or Service of the Condenser Unit

- Installation, system start-up and service applications should be performed by technical service.
- Electric supply should be turned off during the installation of condenser unit or while performing any service-intended intervention.

2.3-Requirements for the Installation Place of Condenser unit

- The unit should be installed in an environment that will not get dusted.
- During the installation of the unit, an environment that will properly provide the device's air circulation should be preferred.
- Measures should be taken against excessive hot, cold and rain.
- If the unit will be installed in a closed environment, natural or enforced ventilation should be provided to an extent that will prevent extra heat formation.
- Even though the unit will be installed in an open environment, it should never be exposed to sunray. If necessary, a shady spot should be made in order to prevent sunrays.

3. POINTS TO TAKE INTO CONSIDERATION and SAFETY WARNINGS

Please note that the specified safety instructions are provided in order to prevent any danger that may occur against you.

- Be sure that the electrical connection is cut before performing any interventions on units.
- Do not intervene on the system immediately right after the unit is filled. As the section (head) on which the outlet line and the compressor pistons are located is at high temperature, you have to wait for 15-20 minutes.
- All tests and controls of the units are done before they reach you. Any connection change should not be made during the product installation.

- As the units operate under high pressure, do not operate the product if any equipment is damaged. Do not accept the products that come to you in this form.
- The settings of units are done in order to operate in the most efficient way possible. Do not change the settings during installation or service.
- The units are harmless in terms of environment interaction and human health.
- Do not deactivate the equipments such as contactor, switch, sensor, etc. that are used for the purpose of determined duty or safety in the units and do not change the settings. If there is a one broken, replace it with the same product. If you use different products, reliability and optimal values of the unit may change.
- Warning labels are on the units against the situations (specified or non-specified in this manual). Do not touch or do keep away from the places on which you see a warning label. Comply with the instructions specified on the labels.

4. APPLICATION AREA and INTENDED PURPOSE

KOOLMAX condenser units produced by KOOLMAX GROUP are devices designed and produced for the preservation of cooled or frozen foods (showcase refrigerators, cool chambers, ice machines, ice-cream machines, etc.) depending upon the specified topic titles and the technical specifications of units. The units should not be used out of its purpose of use. Without the approval of the producing company KOOLMAX GROUP the company declines responsibility due to any malfunctions or damages that may occur as a result of the unit's misuse.

5. PACKAGE, TRANSPORTATION and STORAGE

KOOLMAX condenser units are transported within a cardboard package in order to prevent the deformation of the device due to external factors. If it is an export product or indicated in private, it is transported as an export product (wooden cage).

Transportation and storage of condenser units should definitely be performed perpendicularly. As all tests and controls of the device are completed before it is transported, it is engage-able when reactor coolant is delivered into the system after mechanical and electrical connection is made with the evaporator in the installation area. As the unit is delivered to you in this way, due diligence should be exercised for its transportation and installation.

The units should be stored in a non-corrosive environment that will not be exposed to any vibration, excessive heat and cold. As there are electrical materials inside the unit, the storage area should be preserved against high humidity or flash floods. Products should never be tilted and added up in a number more than allowed.

KOOLMAX GROUP declines responsibility for a malfunction and damage occurring from the products' transportation and storage.

6. INSTALLATION OF THE UNIT

Installation, service and controls of the unit should be performed by experienced technical staffs that have comprehensive knowledge of the device characteristic. During the installation, points specified in the operating manual should be followed and none of the device's set values should be changed.

The units should be installed on such a rigid ground that it will not cause any vibration. The environment in which the installation will be performed should be non-corrosive environment that will not be exposed to excessive heat and cold. As there are electrical materials inside the unit, the area should be preserved against high humidity or flash floods.

Follow the instructions relating to installation, operating and maintenance. Please view the information provided in the manual. For more information, consult the producing company.

In order to operate the KOOLMAX condenser units within the intended efficiency and safely, the following criteria should be conformed while the devices' installation areas are designated.

Make sure that the unit is not damaged during its transportation. Make a point of having the quality workmanship of installation equipments performed by qualified employees.

6.1 Place of installation

The ground on which the unit will be installed should be in a characteristic that it will not allow vibration. Vibration-absorbing rubber wedges should be used between the ground of installation and the device.

The installation place should be prepared in such a way that it will not prevent the unit's air circulation. In this sense, the distance between wall and the unit should be 50 cm at least and the device's direction of air suction should be facing the wall.

The elevation difference between the unit and the evaporator should be as small as possible. (max. 10 m.)

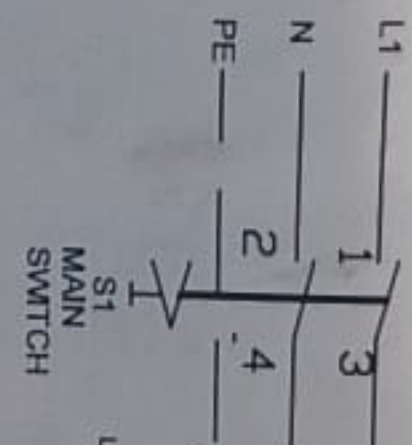
The distance of the evaporator to be connected to the unit should be long. The total of horizontal and vertical distance should not exceed 25 m and, if possible, it should be shorter.

The units should be kept away from any heat source and active air circulation should be provided if the installation place is a closed environment.

If necessary, the installation should be made under a shady spot by taking into consideration that the unit will be adversely affected by sunrays and a possible rain.

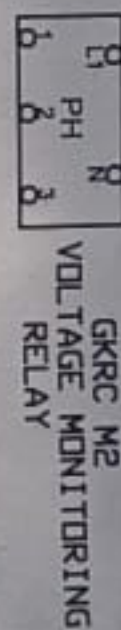
In a possible case of service or maintenance need, the unit should be easily accessible and installed in such a position that will not prevent the current facility operation.

SUPPLY
230 VOLT A.C.
1 PHASE + NÖTR + EARTH



F1
FUSE

ADJUST PARAMETER
U MIN = 210 VOLT
U MAX = 240 VOLT
DELAY = 0,1 SECOND
RESET DELAY = 4 SECONDS



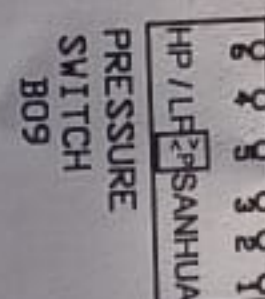
KM1
CONTACTOR

COMPRESSOR
M1

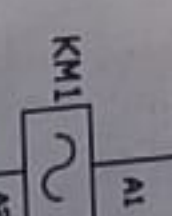
CRANK
HEATER
E1



CONDANCER
M2



TIME RELAY
ADJUSTMENT
1 MINUTE



COMPRESSOR
6

LINE
7

DATE

13/1/2022

DRAWN BY

BEYBULAT IŞIK

KOOLmax

DRAWING NO:

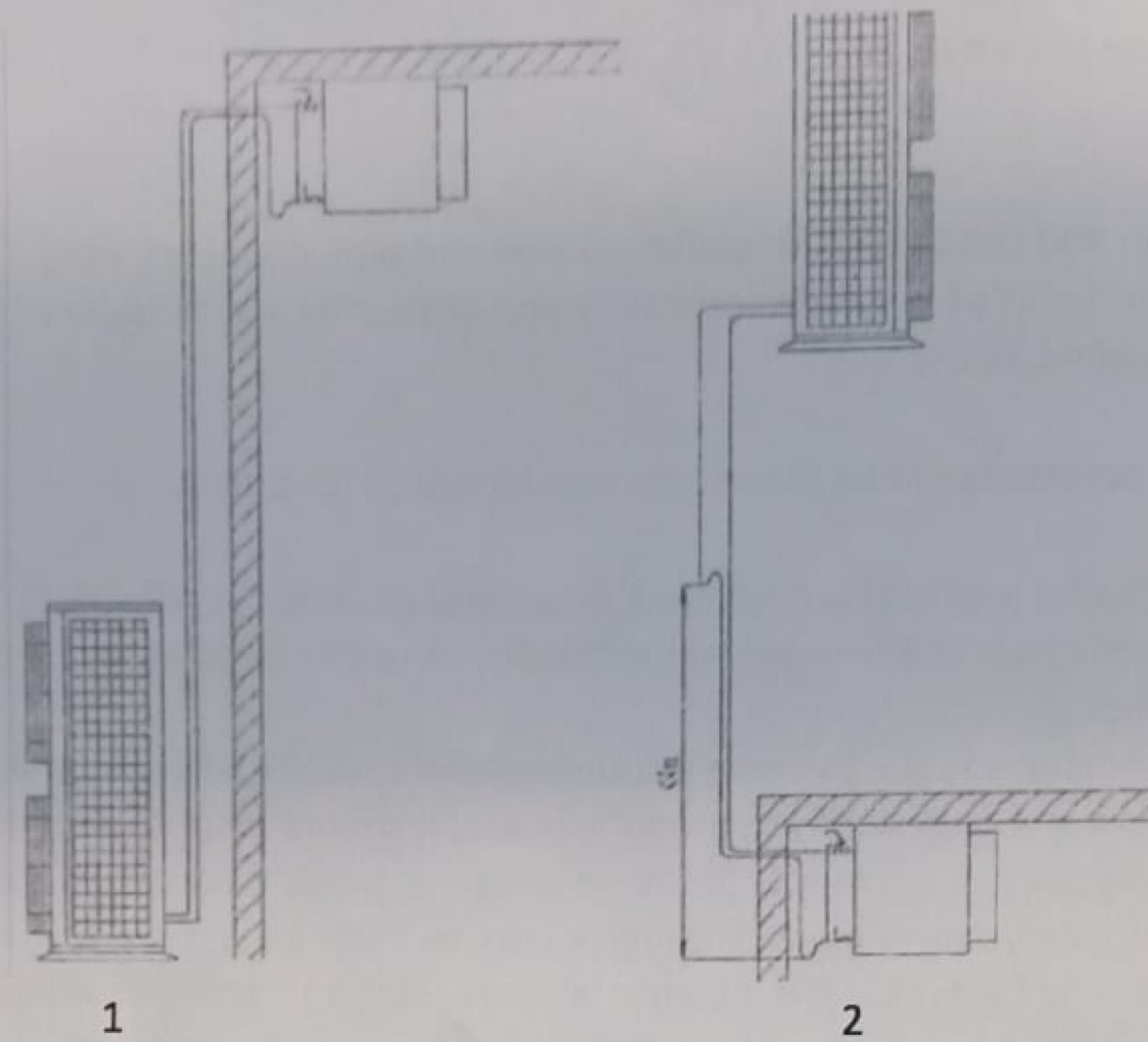
O.P. 055

PROJECT :

KOOLMAX

PAGE 1 TO 1

TITLE: 1P1C1F



1	2
Evaporator is above the condenser unit	Evaporator is below the condenser unit

In order to ensure the reliability of our products when delivered to you, KOOLMAX condenser Unit is delivered as filled with 6-bar-pressure nitrogen.

6.3 Electric connections

The electric connections of devices should be made in accordance with EN 60204-1 standards.

Suitable voltage for KOOLMAX condenser units is 240 V or 380 V and it is **indicated with a label** on the device.

Earth connection of the compressor should definitely be made.

It should be ensured that the unit is tightened by making the connection between wall frame and supply cable very well with electrical terminals.

+/- 10% change is allowed in the device's specified operating voltage. If this tolerance is exceeded, the Unit shows a self-protection and cannot be operated.

The amperage of the unit's main feed fuse should not be greater than the amperage value specified for the unit.

The cables forming the supply line should have a section of $4 \times 2.5 \text{ mm}^2$ at least. The cable used between Condenser Unit and Evaporator and remote Unit control panel should have a section of $3 \times 1.5 \text{ mm}^2$ at least.

6.4 Nitrogen Test

After all connections of the unit are made, the system should definitely be put to a leakage test before system start-up.

Before pumping nitrogen into the whole system, solenoid valves and throttles should be brought to open position. All couplings and sources should be checked for leakages.

After pumping 15-bar nitrogen into the system, it should be waited at least 12 hours. At the end of the specified time, if there is no decrease in pressure, this means there is no leakage. In this case, nitrogen should be taken away from the system.

At the end of the test, the system is taken into vacuum by connecting a vacuum pump from lines of system suction and outlet.

After the vacuum process of the system is completed, gas can be provided through the liquid line.

6.5 System Start-Up

Check the supply and voltage of the system.

Check the voltage of condenser Unit fans and ensure that the fan wings turn smoothly.

Check that the condenser lamellas are clean and that there is nothing that may prevent air flow around it.

Check if the service valves are completely open.
Turn on the main fuse on the electric network supply through the main distribution panel.
Turn the On/Off button on the evaporator's control panel to the "On" position. The system will automatically start-up.
Check the system settings.
Check the low and high pressure values through a manometer in order to check the accuracy of the system operation.

In the cases that require supplementation of refrigeration compressor gas into the cooling system, the standards set by the compressor producer should be taken in consideration. In condenser units in which HP62 (R404A) reactor coolant is used, POE oils should definitely be used and the viscosity should be between the range of 22 and 32 as suitable for the compressor.

6.6 System Shutdown

In the cases that you would like to condemn the system, you can shut the system down by taking the On/Off button on the control panel to the "Off" position.

7. INSTRUCTIONS FOR USE AND MAINTENANCE

Check the cleaning of KOOLMAX condenser unit periodically (once a week). Definitely perform the cleaning of the unit for several times a month, especially at seasonal changes. If the unit is operating in a dusty or dirty environment, you need to perform its periodical cleaning once a week. You need to perform the cleaning process without damaging the condenser lamellas (via an air compressor or a soft brush). If lamellas are damaged during the process, immediately contact with your service.

Never use chemicals for the purpose of cleaning the condenser lamellas. These chemicals may damage your battery.

The units, the application areas of which are specified as Frozen Storage, are designed for the storage of frozen products. Do not store unfrozen products in

the chamber. Otherwise, this may cause the evaporator's frost deposit, the unit's long-term operation and the capacity insufficiency. This case will make an increase in energy consumption by emaciating the device.

The units, the application areas of which are specified as Cold Storage, are designed for the storage of the products between -5 and $+5^{\circ}\text{C}$. Do not store hot and damp products in the chamber. Otherwise, this may cause the evaporator's frost deposit, the unit's long-term operation and the capacity insufficiency. This case will make an increase in energy consumption by emaciating the device.

At certain intervals, check the condenser and evaporator fans proper operation and if any icing is observed in the evaporator.

If you determine the louder-sounded or noisy operation of the unit than its normal operation, it is recommended to shut the system down. The current sound may foreshadow a current damage or a malfunction that will occur. In this case, you need to contact with your service.

If the system stops and re-starts with shorter intervals than normal and sufficient cooling cannot be provided, this means the amount of reactor coolant in the system is insufficient. In such a case, ask for help from your technical service. Supplementing gas into the system will not be a sufficient solution and the source of depletion needs to be found and interfered.

In order for your safety and your system to always operate efficiently, periodically perform the leakage tests and controls of your unit once a year.

8. REASONS and SOLUTIONS FOR MALFUNCTION PROBLEMS

Below, a problem-reason-solution table is given. It should be taken in consideration that many problems require solutions beyond a user's best that he/she can do. Such problems can be overcome by authorized and well-equipped service staff. Try to overcome problems by following the below-given instructions. Note that continuing to operate the unit without overcoming problems may lead to permanent damages in the future. If you cannot overcome problems on your own, please contact with the closest service provider.

Problem	Possible Reason	
Compressor does not start-up	1. No power on the main line, there is phase loss, main breaker switched off	
	2. Contactor malfunction	
	3. Settings of pressure or temperature control devices are wrong	
Condenser unit stopping and starting-up very frequently	1. Settings of pressure or temperature control devices are wrong	
	2. System pressures are out of normal, system stops to protect its own. (High or low pressure or oil pressure)	
	3. Evaporator fans are not working.	
	4. Deposited ice on evaporator lamellas.	
Normally operating, but not cooling well enough	Very high high pressure	1. Condenser problem
		2. Serious contamination on condenser surface
		3. Reactor coolant charge is more than needed
		4. Condenser is in airless environment or another gas in the system
		5. Outer environment is very high
		6. Throttles are not fully opened
	Very low high pressure	1. Leakage in the system and not sufficient reactor coolant
		2. Too much freezing in the evaporator and suction gas pressure is low
	Very low low pressure	1. System not clean enough, filter blocked
		2. Water in the system, expansion valve is frozen
		3. Expansion valve is malfunctioned
		4. Amount of reactor coolant in the system is very low
		5. Leakage in the system and reactor coolant decreased
		6. Too much freezing in the evaporator, fan problem
		7. Compressor throttle is not open
	Very high low pressure	1. Too much heat load
		2. Expansion valve temperature sensor is malfunctioned
		3. Air or another gas in the system
Condenser unit constantly operating	1. Thermostat is set to a very low temperature	
	2. Insufficient refrigerant in the system	
	3. Amount of loading is too much in the chamber or hot product entry	

9. POINTS NOT COVERED BY THE GUARANTEE

Malfunctions arising from misuses

Malfunctions arising from lack of service and maintenance

Non-engagement of devices by authorized service (unapproved by KOOLMAX group), having the service and maintenance performed by unauthorized people

Malfunctions that may occur as a result of not having the proper electric supply (voltage, frequency changes), damages that may occur in the electric motor winding

Malfunctions arising from installation errors

Operating the malfunctioned devices

Changing the devices' settings and safety values without consulting an authorized service, setting them incorrectly

Operating the devices in very hot and/or very dirty, sticky and closed places without taking any measures

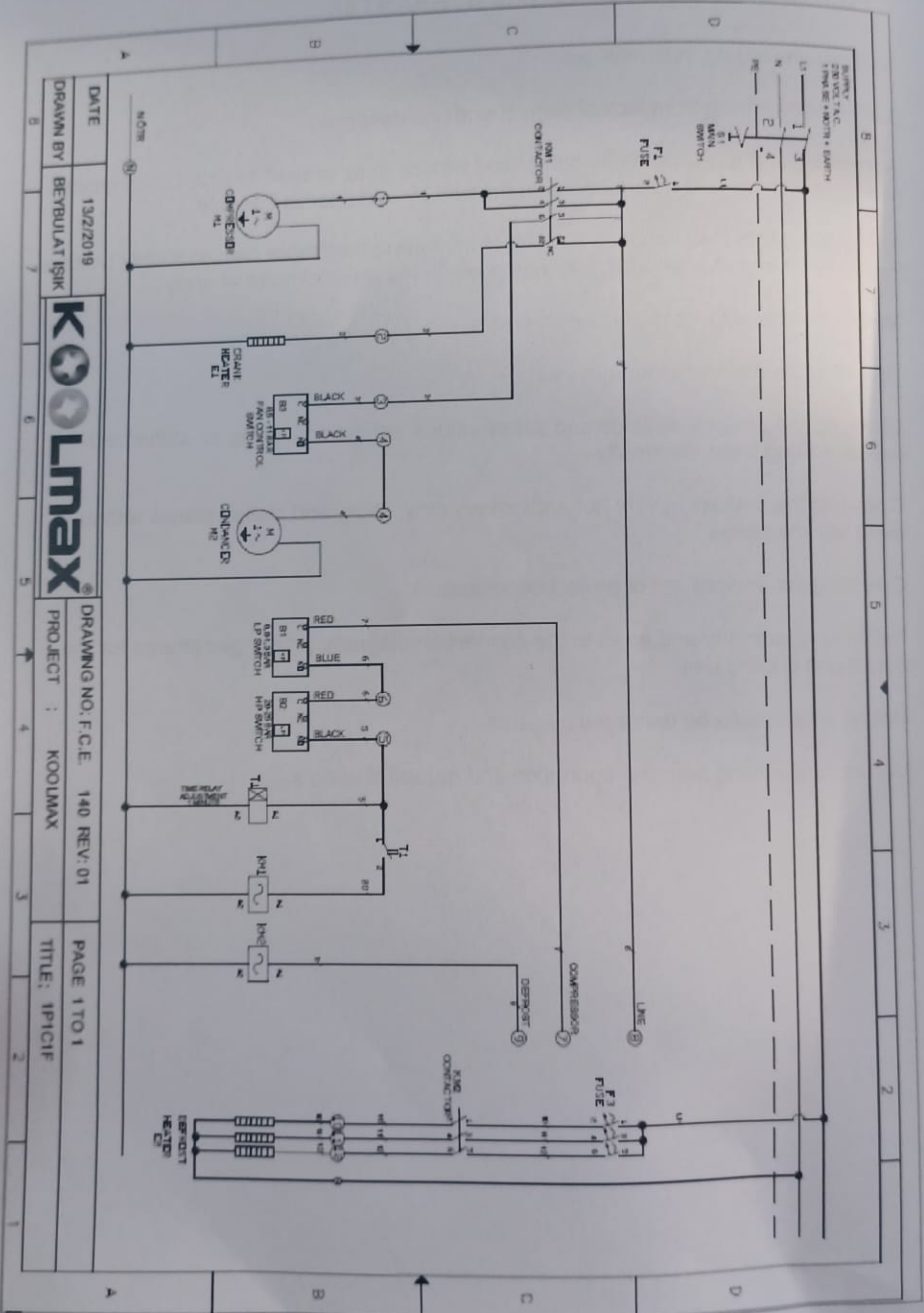
Operating the devices out of project conditions

Not making harmony and earth to the connection diagram, proper gas charge for the system and cooling unit

Making applications on damaged systems

Malfunctions arising from transportation and natural disasters

10. ELECTRICAL CIRCUIT DIAGRAMS



6.2 Copper Pipe Connections

The pipe design and installation (installation way and pipe diameter, etc.) necessary for the unit's operating accurately and efficiently are considered to be correctly applied by the user.

The following points should be taken into consideration for piping.

- Before piping process is completed, liquid and gas line cut-off valves should definitely not be opened for the device not to be affected by dirt and damp.
- For connections made by using a coupling, one should make sure that the coupling connections are properly made; it should be observed that the valves are not damaged for the connections made through welding.
- If the copper fitting will pass through a narrow area, its contact with any metal should be avoided. If it contacts, it may lead to the deformation of the pipe later on. For this reason, the pipe should be covered with an insulating material or the installation should be provided by being passed through a plastic pipe.
- The diameters of suction, outlet and liquid lines should not be selected smaller than it should actually be. As it will cause in-pipe fluid pressure loss and increase in fluid velocity, the system efficiency is adversely affected.
- For oil return, suction, outlet and liquid line fluid velocities.
- For vertical exits, pressure decrease in liquid line.
- Suction pipe should be sloping towards the condenser horizontally.
- The slope of the liquid pipe should always be towards the evaporator.
- The whole suction line should be insulated.
- The suction pipe should be raised until the top level of the evaporator by using an oil pocket after the evaporator exit.
- Please refer to the images above while making the pipe connections.

DATE 13/2/2019
 DRAWN BY BEYBULAT ISIK

Koolmax

DRAWING NO: F.C. 142 REV. 01
 PROJECT : KOOLMAX

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