

# INSTRUCTION MANUAL

## REFRIGERATED COMPRESSED AIR DRYER

### Xeroaqua GK Series

GK3103 - AC100V

GK3103 - AC200V

GK3106 - AC100V

GK3106 - AC200V



This product is "industrial use." Be careful of handling enough.  
Be sure to read this manual before installing and operating your dryer.

The end of a book serves as WARRANTY. Please save carefully.

Discontinue



## Safety instructions

This dryer must be operated by a person who has basic knowledge of electric, compressed air, liquid, piping, refrigerant, etc. We are not responsible for any accidents caused when a person who does not have the basic knowledge or who is not well trained installation, operation, repair, etc.

Improper operation may cause poor performance of the dryer or may cause accidents. We applied a variety of safety measures to our dryers, but improper handling of dryers could cause accidents. Thus, be sure to read and fully understand this manual before using them. "Keep this manual together with the dryer".

### Caution for safety

Cautions at operation are indicated in the following two ways.



**WARNING**



**CAUTION**



**WARNING**

used when improper handling could kill or seriously harm operators



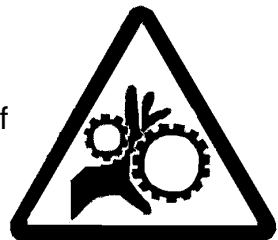
**CAUTION**

used when improper handling could harm operators or damage objects



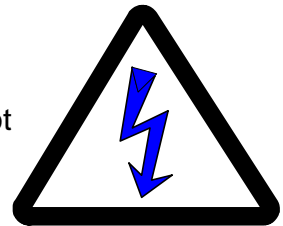
#### **CAUTION: Being caught in the machine**

The fan may start rotating suddenly and may be harmful.  
Do not put your hands or objects into the fan area.  
Be sure to turn off the power before inspection.



#### **WARNING: ELECTRICAL SHOCK**

Power supply terminal box, switches, etc. may cause you electrical shock.  
Be sure to turn off the power before inspection. Do not operate the dryer with your wet hands.



#### **WARNING: HIGH PRESSURE AIR**

If compressed air remains, air will blow off, and may cause injury.  
Be sure to extract compressed air in checking.



This dryer is industrial. Be sure to fully attend to using the dryer.

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## 1 . Introduction

Thank you very much for purchasing CKD Product.

This manual explains basic points of installation, operation, etc. to have our refrigerated air dryer, Xeroaqua GK Series perform at their best. Be sure to read this manual before using your dryer.

Keep this manual together with the dryer.

## 2 . Cautions

### 2.1 Transportation

- 1 ) Do not fall down the dryer. Also do not give vibration or impact to the dryer.  
\*Internal parts could get damaged.
- 2 ) Do not climb up on the dryer or put objects on the dryer.  
Avoid laying on its side or up side down.  
\*There is a risk of doing damage to modification of a panel, breakage, breakage of internal parts, and also a human body.
- 3 ) To lift the dryer, use grip ears provided on both sides of frame.

### 2.2 Operation Environment

- 1 ) Do not install the dryer outdoor.  
\*This product dose not have water-proof structure. Water or rain splashing to its electrical system could result in leak or fire.
- 2 ) Operating ambient temperature should be 2 to 40 ° C (no condensation).  
\*Drain freezes under the temperature of 2 ° or below, and this could cause break-down.  
Operation under the temperature of 40 ° C or above could stop the operation abnormally or could shorten the service life of the product.
- 3 ) Do not use the dryer in a place with direct sun light, powder dust, heat producing objects, corrosive gas, explosive gas, ignitable gas or combustible gas.  
\*Break-down, explosion, or fire may result.

## 2.3 Cautions at operation

- 1 ) Do not use the dryer to remove humidity of except compressed air.  
Break-down, explosion, or fire may result.
- 2 ) Install an earth leakage breaker at main power line.  
\*Electric shock may result.
- 3 ) Ground to earth.  
\*Causes of an electric shock or a fire.
- 4 ) Use the dryer within specifications.  
\*Operation may stop abnormally, or the product's service life may be shortened.
- 5 ) Do not frequent start and stop the dryer.  
Hold frequency of starting/shutting off within 6 times/hour, keep it running for at least 5 minutes before shutting it off and hold restarting it for 3 minutes or longer.  
\*Break-down or shorter service life of the product may result.
- 6 ) Do not turn on the main power line without the panel on.  
\*Electric shock or heat injury may result, or rotation parts could hurt workers.
- 7 ) Remove drain before it enters the dryer when drain flows into the dryer with compressed air.  
\*Drain could leak to the secondary side of the dryer.
- 8 ) Be sure to attach an air filter (5 microns) just before the dryer inlet.  
\*The impurities in piping enter in a drier and cause performance decrement, blockage etc.
- 9 ) Don't carry out reconstruction of this machine.  
\*It becomes an unexpected accident and the cause of a life fall.
- 1 0 ) Check the refrigerant pressure gauge during operation.  
\*If dew point temp. does not show the green belt, it will become the cause of an unusual stop or it will become the cause which shortens the life of a compressor etc.
- 1 1 ) Do not use the dryer for pneumatic caisson shield or respiratory medical equipment.  
\*It could cause an accident includes injury.
- 1 2 ) Do not use the dryer for transportation devices such as automobile, ship etc.  
\*Vibration could be a cause of break down of the internal components.
- 1 3 ) Inspect the power plug regularly.  
Also, insert the blade or pin fully into a receptacle.  
\*If the plug is covered with dust or loosely connected with a receptacle, it may result in electric shock or fire.

## 3 . Installation

### 3.1 Confirm the following.

- 1 ) Check the name plate, whether model, voltage, and frequency correct.

Confirm model, specification indicated to name plate.

CKD REFRIGERATED AIR DRYER

POWER

AIR FLOW

CURRENT

REFRIGERANT

MAX.PRESS.

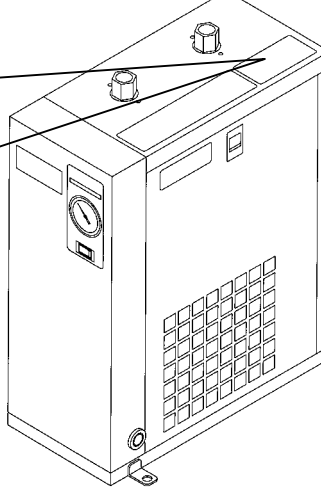
MAX.AIR TEMP

MASS

SERIAL

CKD Corporation
MADE IN JAPAN

Model No.



POWER... operating voltage  
 MAX.PRESS... max. inlet air pressure  
 AIR FLOW... flow late  
 MAX.AIR TEMP... max. inlet air temperature  
 CURRENT... operating current  
 MASS... mass  
 REFRIGERANT... refrigerant type & mass  
 SERIAL No... serial number

1	2	3	4	5	6	7	8
GK3103-AC100V	1 100/100,110V 50/60Hz	0.32/0.37 m <sup>3</sup> /min ANR	2.0/1.9,1.9A	R-407C, 0.08kg	1.0MPa	50	16kg
GK3103-AC200V	1 200/200,220V 50/60Hz	0.32/0.37 m <sup>3</sup> /min ANR	1.1/1.0,1.0A	R-407C, 0.08kg	1.0MPa	50	16kg
GK3106-AC100V	1 100/100,110V 50/60Hz	0.75/0.82 m <sup>3</sup> /min ANR	2.2/2.0,2.0A	R-407C, 0.11kg	1.0MPa	50	18kg
GK3106-AC200V	1 200/200,220V 50/60Hz	0.75/0.82 m <sup>3</sup> /min ANR	1.2/1.1,1.1A	R-407C, 0.11kg	1.0MPa	50	18kg

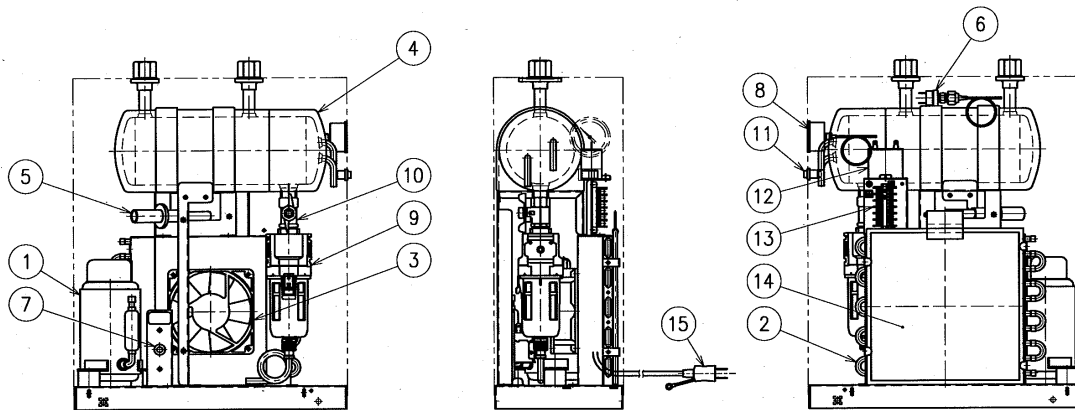
- 2 ) Confirm damage or transformation that is made during the transportation.



**【CAUTION】** If the contents are not clear or there are any questions, contact CKD or distributors before using the dryer.

## 3.2 The name of each part

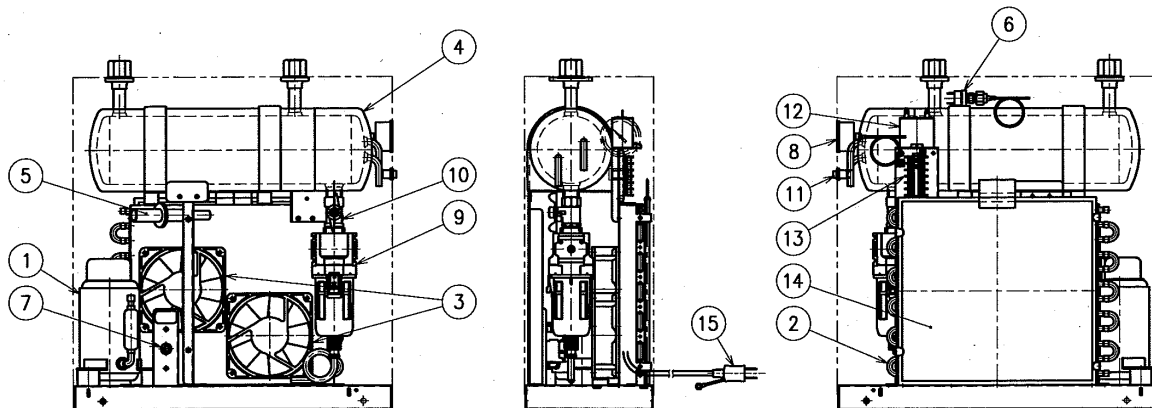
GK3103-AC100V/AC200V



is only 100V AC.

15	Plug cord (with earth wire)	1
14	Dust filter	1
13	Terminal block	1
12	Run capacitor	1
11	Start-stop switch (with lamp)	1
10	Stop valve	1
9	Auto drain	1
8	Refrigerant pressure gauge	1
7	High pressure switch (manual reset)	1
6	Fan control switch	1
5	Capacity control valve	1
4	Heat exchanger	1
3	Fan motor	1
2	Condenser	1
1	Compressor	1
No	Parts	Q'TY

GK3106-AC100V/AC200V

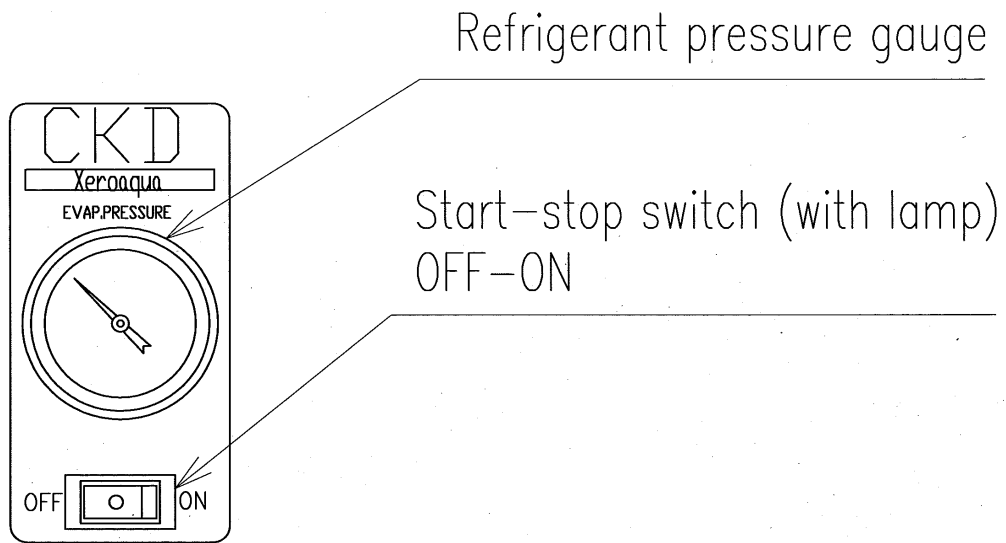


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11	Start-stop switch (with lamp)	1
10	Stop valve	1
9	Auto drain	1
8	Refrigerant pressure gauge	1
7	High pressure switch (manual reset)	1
6	Fan control switch	1
5	Capacity control valve	1
4	Heat exchanger	1
3	Fan motor	2
2	Condenser	1
1	Compressor	1
No	Parts	Q'TY

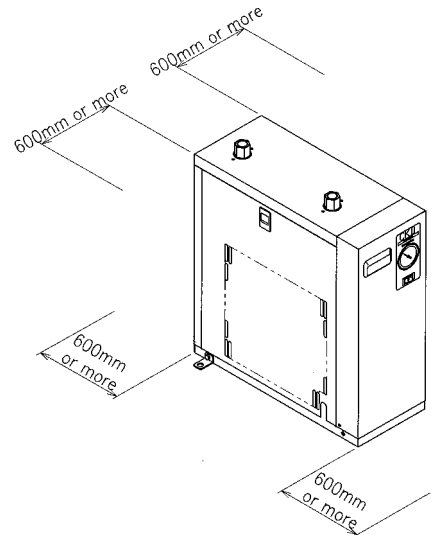


## 3.3 Display panel



## 3.4 Installation features

- ⚠ 1 ) Do not install the dryer outdoor or high humidity place.  
 \*This product does not have waterproof structure.  
 Water or rain splashing, high humidity (=85% RH or over) could cause leak or fire to electrical systems.
- ⚠ 2 ) Operating ambient temperature should be 2 to 40 with no condensation.  
 \*Drain freeze under the temperature of 2 or below, and this could cause breakdown.  
 Operation under the temperature of 40 or above could stop the operation abnormally or could shorten the service life of the product.
- ⚠ 3 ) Install the dryer without direct sunlight, powder dust, heating elements, corrosive gas, explosive gas, inflammable gas or combustibles.  
 \*Breakdown, explosion or ignition may result.
- ⚠ 4 ) The installation floor should have a solid concrete foundation with level and flat surface.  
 \*Weak or inclin foundation may cause noise and vibration. (Less than  $\pm 5$  degrees of floorlevels)
- ⚠ 5 ) Need to keep spaces as a following figure for maintenance  
 The direction of the exhaust air is inhaled from right-hand side, and is exhausted to left-hand side. Do not enter the exhaust air to suction part.  
 \*Operation may stop abnormally



- ⚠ 6 ) Troubles caused by corrosion are out of warranty policy.  
 Copper tubes (Phosphorus deoxidation copper tube) are used for refrigerant gas pipes and inner pipes of heat exchanger of the Products. The refrigerant gas leaks to stop their operation and water comes out of the outlet of Air Dryers, if holes are made in the copper tubes by corrosion. Use it for a setting position after checking that corrosive gas is not contained.  
 The following are the examples of substances, among the data on chemical resistance, particularly corrosive to copper tubes.

Aniline Aniline dyestuff Ammonium (Wet nature) Sulfur (Fused) Ammonium chloride  
 Zinc chloride Hydrochloride acid (Chloride) Ferric (II) chloride Copper chloride  
 Chlorine (Wet nature) Sodium peroxide Chromic acid Iron acetate solution Potassium  
 cyanide Sodium cyanide Hydrogen cyanic acid Sodium hypochlorite Hydrobromic acid  
 Nitric acid Ammonium nitrate Copper nitrate Silver salt Mercury Mercury salts  
 Sulfur lime Sodium thiosulfate Potassium dichromate (Acid) Sodium dichromate  
 Hydrofluoric sulfide Hydrogen sulfide (Wet nature) Sodium sulfide Barium sulfide  
 Ammonium sulfate Ferric sulfate

Note)The above is some examples of corrosive substances of copper, so it does not show the whole scope of such substances.

## 3.5 Fixixation

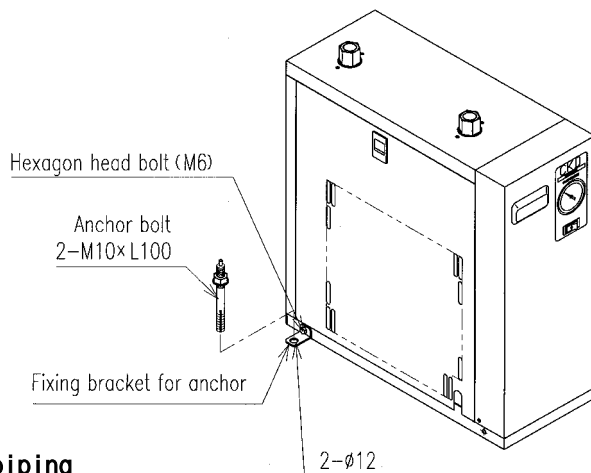
### Accessories

Fixing bracket for anchor bolt	2 pieces
Hexagon head bolt (M6)	2 pieces

### How to mount Fixing bracket for anchor bolt

Mount the fixing bracket for anchor bolts with a hexagon head bolt (M6) to the base side

(Diagonal both sides)

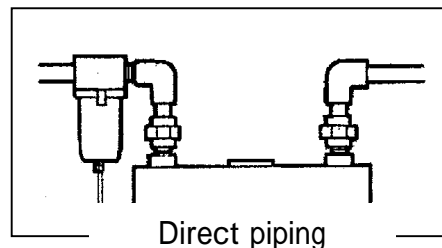


## 3.6 Air piping

- 1 ) Confirm inlet and outlet.
- 2 ) Make sure to install an air filter(5 μ ) immediately in front of dryer inlet.

Air compressor output kW	Dryer model	Suitable air filter ( 5 μ )
~ 2.2kW	GK3103	F3000-10-W-F
~ 3.7kW	GK3106	
~ 5.5kW		F4000-15-W-F

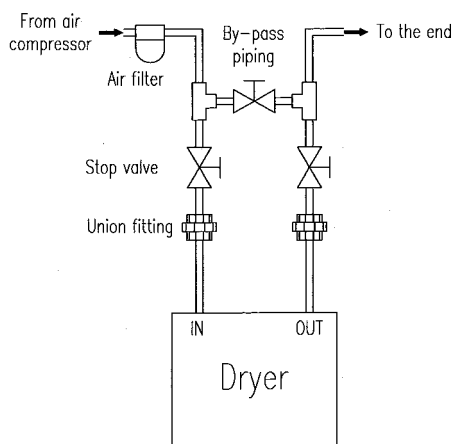
**⚠** When air compressor capacity becomes small, use NC (normal close) type air filter.



- 3 ) Recommend a by-pass circuit in the air circuit.

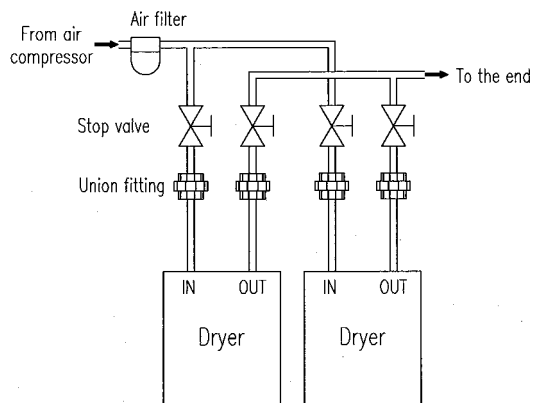
On and off operation

Installation of by-pass piping is recommended.



24 hours operation

Installation of two dryers is recommended. One is used regularly, and the other is for emergency.

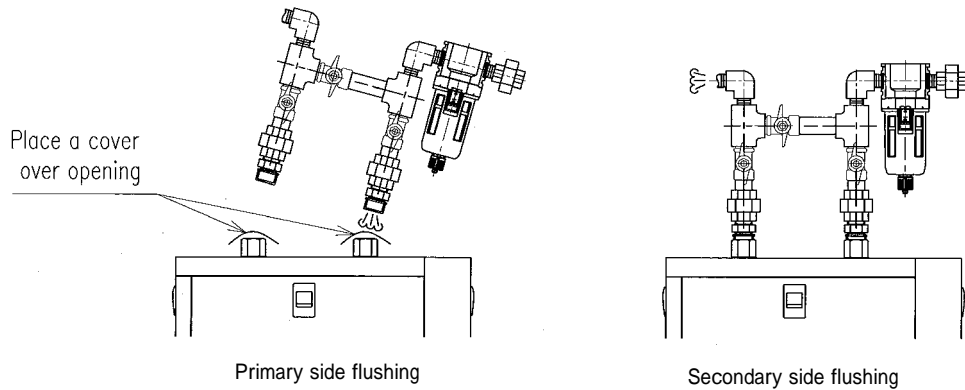


**⚠ CAUTION** By-pass piping is normally closed. Water comes out at the end if air flows when it is open.

**⚠ CAUTION** Gate valve which isn't used the dryer is normally closed. Water comes out at the end if air flows when it is open.

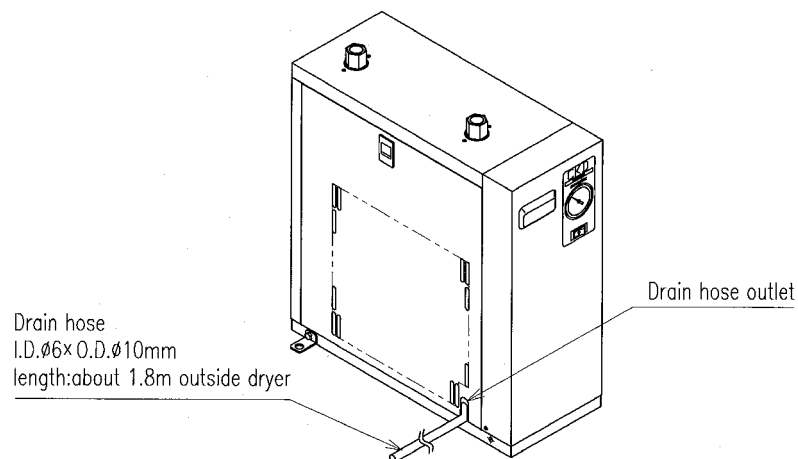
# Discontinue

- 4 ) Design the piping in the way not to apply the piping weight to the dryer body.
- 5 ) Vibration of the air compressor should not be transmitted.
- 6 ) Piping must be able to endure the operating pressure and temperature.No air leakage is allowed from connection parts.
- 7 ) Use zinc plated steel pipe or stainless pipe.
- 8 ) Flush air circuit before connecting pipes to remove dust, etc.



## 3.7 Drain piping

- 1 ) Drain hose leads exhaust end to drain etc., release to air.



- 2 ) When drain hose tip is connected to piping, Drain may not be discharged due to back pressure if pipe rises in part or if pipe is too long or thin. Use down-slope piping to let drain flow smoothly.
- 3 ) Drain must be treated if oil is mixed in it. Consult industrial waste treatment companies for treatment.
- 4 ) At the time of drain discharge, please fix firmly so that a vinyl tube etc. does not sway.

## 3.8 Electrical wiring

1 ) Use proper voltage.

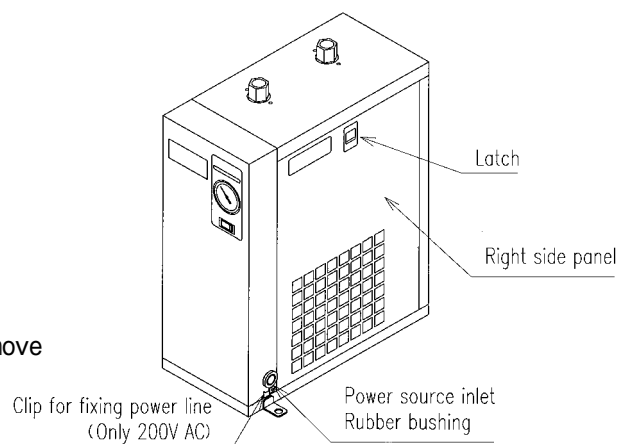
- Voltage must be within  $\pm 10\%$  of rated voltage.

2 ) Mount an earth leakage breaker with over-load protection (sensitivity current 30mA or less) to main power line.

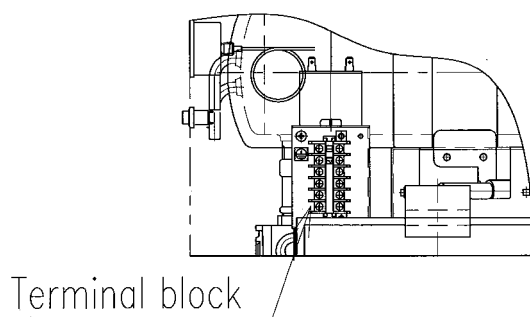
3 ) How to connect power code

- Make a hole for wiring on the rubber bushing at the upper back part of the dryer.

- Depress the latch of right side and remove right side panel.



- Connect the terminal block L1, L2, and the earth leakage breaker of main power line by wire.



- Use the round terminal for safety.
- Fix power line with clip for fixing power line outside rubber bushing.
- Power cord with plug and earth terminal (round terminal 1.25-5) is attached to AC100V model.



### 【 CAUTION 】

- Insert a power code, and a ground cable to wire each terminals firmly without looseness or coming off.

Looseness or coming off wiring could causes of a fire.

## 2 ) How to connect earth wire

As power supply code connection, connect the earth wire to the terminal box PE and the earth terminal in the panel. (The D sort grounding construction by the electric construction contractor is required.)

In addition, since it has already connected, AC100V is unnecessary.



**【CAUTION】** Do not connect the earth wire to a water pipe, gas pipe, lightning conductor, etc.

## 3 ) Wiring capacity (A power cable and a ground cable)

Model	Recommendation on breaker capacity ( A )	Cable and earth wire size ( mm <sup>2</sup> )			
		Length 10m	Length 20m	Length 30m	Length 50m
GK3103-AC100V	5	2.0 or more			
GK3103-AC200V	5				
GK3106-AC100V	5				
GK3106-AC200V	5				

## 4 . Functional explanation

### 4.1 Functional explanation

#### 1 ) Air circuit

The compressed air which became wet warmly is precooled by precooler, and goes into an evaporator, carries out heat exchange to cold freon-gas, and is cooled to the dew point. Reheat of the compressed air cooled and dehumidified is carried out by reheater, and it turns into warm dry air.

#### 2 ) Refrigerant circuit

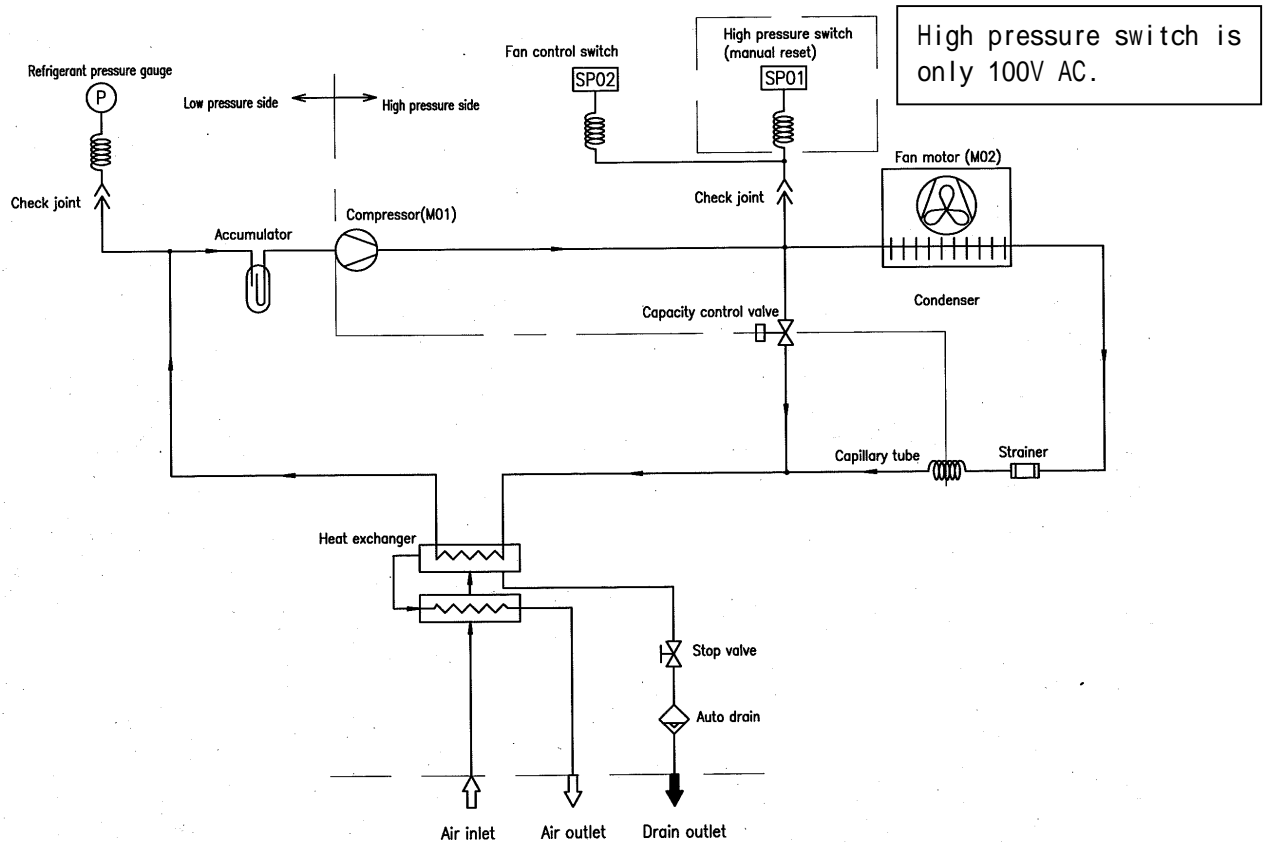
The freon gas which became high temperature high pressure with the compressor (refrigerant compressor) is cooled and condensed with a condenser, and serves as high-pressure refrigerant liquid. And by decompressing in a capillary tube, it becomes the liquid of low-temperature low pressure. Using an evaporator, by carrying out heat exchange with the warm damp compressed air, coolant liquid evaporates and cools compressed air by the evaporation heat. The gasified refrigerant returns to a compressor again.

#### 3 ) Drain circuit

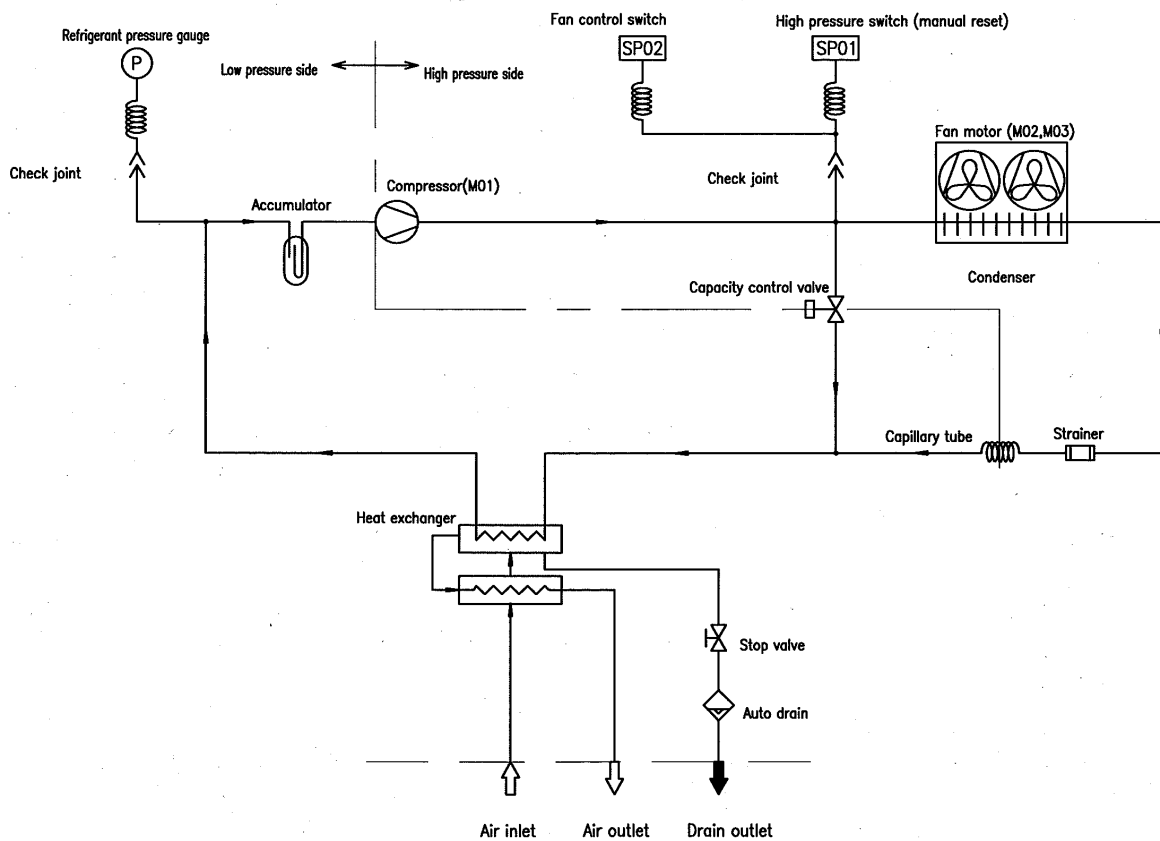
The steam in compressed air is cooled and condensed with an evaporator, and it is serves as drain (moisture). Drain collects in the auto drain bowl. The drain collected in the auto drain bowl is discharged periodically.

## 4.2 System diagram

1 ) GK3103



2 ) GK3106





## 5 . Preparation for operation & Operation

### 5.1 Preparation for operation

- 1 ) Confirm that air piping, electrical wiring and drain piping are properly connected.
- 2 ) Confirm that the gate valves next to the dryer and the gate valve of by-pass piping are closed. Confirm that the air pressure in the pipes is zero.
- 3 ) Confirm refrigerant pressure gauge. When pressure is much less to "the standard of the refrigerant pressure under stop" of the following table, the leakage of refrigerant gas can be presumed. Inform a purchase place, without starting operation then.

Standard of the refrigerant pressure under stop

Ambient temperature( )	0	20	40
Refrigerant pressure(MPa)	0.51	0.96	1.65

### 5.2 How to start and stop the dryer

- 1 ) Turn on the main power line.
- 2 ) Switch start-stop switch with lamp on, and lamp turns on, and the dryer starts running.  
After a while, refrigerant pressure gauge enters the green area (0.37-0.69MPa).



#### [CAUTION]

· During the dryer is running, the fan turns on and off repeatedly. This is normal.

- 3 ) Open the stop valve on the dryer inlet side gradually.



#### [CAUTION]

Pass compressed air after about 3 minutes from starting. If compressed air is passed in time shorter than this, damp air may flow in piping and drain may occur within piping.

- 4 ) Open the stop valve on the dryer outlet side gradually. When it passes at once, it may have been wound by drain water, or the parts inside a heat exchanger may be damaged.
- 5 ) The drain removed by the dryer is regularly discharged by auto drain.
- 6 ) Switch start-stop switch with lamp off, and the dryer stops running.



#### [CAUTION]

Frequent turning on and off is causes of trouble. The frequency of starting/stop is carried out in 6 or less times/o'clock, and please do not let me stop for 5 minutes after starting, and also give stop time as the above for 3 minutes

It becomes the cause of failure or a life fall.

Stop an air compressor and extract residual pressure, before stopping this machine.

The air which is not dehumidified may flow to a secondary side of this machine.

## 5.3 When safety device turns on and the dryer stops running

### 5.3.1 Safety device (Refer to 11 Electrical Circuit)

When a compressor becomes hot or when over current flows, safety device operates and start-stop switch with lamp turns off, and the dryer stops running.

If refrigerant becomes unusual high pressure, high pressure switch operates, start-stop switch with lamp turns off, and the dryer stops running.

Setting value list

Mark	Model	Parts list	Applications	Setting value	Reset method
FR01	GK3103-AC100V	Overload protector	Temperature of the compressor upper part & current	2.4A (100 )	Automatic reset (Thermal type)
	GK3103-AC200V			1.2A (100 )	
	GK3106-AC100V			2.4A (100 )	
	GK3106-AC200V			1.2A (100 )	
FU01	All model	Fuse	Electric circuit	5A	Exchange
SP01	GK3103-AC100V	High pressure switch	Refrigerant high pressure	2.60MPa	Manual reset
	GK3106-AC100V			2.75MPa	
	GK3106-AC200V				

### 5.3.2 How to reset

- 1 ) Switch start-stop switch with lamp OFF, turn main power line 「OFF」.
- 2 ) Push red button of high pressure switch to reset high pressure switch.
- 3 ) Remove causes that stopped the dryer abnormally.  
(Refer to trouble shooting on “8.Trouble shooting”)
- 4 ) Turn on the main power line.



#### [CAUTION]

- Be sure to turn off the main power line when remove causes of problems.
- The product carried thermal type safety device, you may not be able to restart the dryer even though removing the causes. In this case, turn off the main power line and wait till the compressor becomes cool. (normally 10 to 15 minutes)
- Thermal type safety device is Automatic reset (normally 10 to 15 minutes). If start-stop switch turns on, it may be repeated running and stopping.

## 6 . Maintenance and check point

### 6.1 Items of maintenance and check point

Check following items for full performance and longer service life of the dryer.

Checking item	Model	Contents	Checking cycle		
			Daily	Weekly	Monthly
"RUN" lamp	Common	Start-stop switch with lamp is on.			
Refrigerant pressure gauge		Before operation: It is refrigerant pressure under stop.(P15) Under operation: Enter the green area. (0.37-0.69MPa)			
Dust filter for Condenser		Dust filter is not dirty.			(Cleaning)
Auto drain		Drain is discharged periodically.	(check of operation)	(Cleaning)	
Compressor		No abnormal noise is generated.			
Fan motor		No abnormal noise is generated.			
Air leak		No air leaks.			

### Cleaning methods

Dust filter for condenser

Dirt is blown away using air gun. wash in water, when dirt condition is severe.

#### [CAUTION]

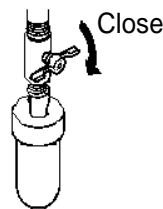
If cleaning of dust filter is neglected, it will become the cause of failures, such as compressor and fan motor.

### Decomposition washing of auto drain

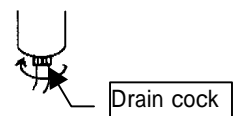
- 2) If it is used for a long time, each part becomes dirty and normal operation does not be carried out. Remove periodically once at one week and carry out decomposition washing.
- 3) Decomposition cleaning time is a thing in standard use. When used in a severe situation, shorten decomposition cleaning time.

### Cleaning methods

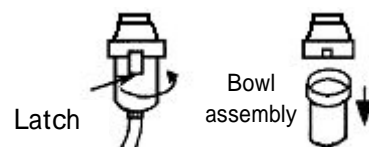
- 1) Close the stop valve.



- 2) Turn the drain cock of auto drain counterclockwise, discharge drain and compressed air within the unit.



- 3) Bowl assembly comes down when it is pulled after turning it clockwise for approx.45 degrees while holding latch of bowl guard pressed.

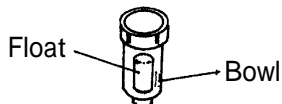


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- 4 ) Remove the screen atop of bowl ass y and clean it.

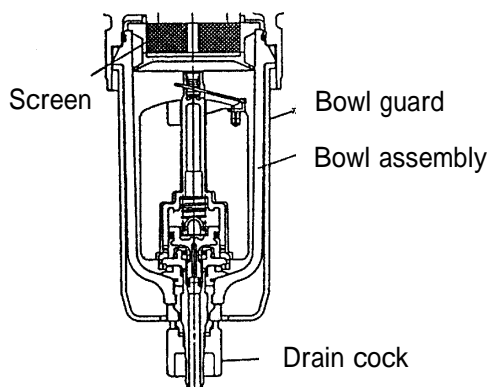


- 5 ) Pour a little bit of water into the bowl and shake bowl well to let dirt over float come out.



- 6 ) Place the washed screen back to the original place and assemble purger back complying with the reversed sequences as disassembled.
- 7 ) Close drain cock
- 8 ) Replace the cleaned ass y with new set if the former set, by any reasons, does not function right.
- 9 ) Be sure to open stop valve, after assembling auto drain

Inside structure of auto drain



## 【CAUTION】

Do not drop the water of a ball inside a dryer at the time of cleaning.

There is a possibility of becoming unexpected troubles, such as an electric shock accident.

## 6.2 Consumables and maintenance parts

(Note: pcs/set is use quantity per 1 set of these devices.)

Consumables (The parts which will be exchanged if the state exhausting was checked periodically and it has exhausted.)

Inspect the following parts periodically, and exchange it based on Exchange judgment standard

Parts name	pcs/set	Inspection frequency	Exchange judgment standard
Dust filter	1	Monthly	When it damages and dirt. When it does not come off.
Fuse	1	Each time	When being cut off.
Drain discharger	1	Every day	Even if it cleans, when drain is not discharged.

Note1) Clean the dust filter every month

Exchange, when dirt will not come off, even if it cleans

We recommend you to keep a fuse as spare parts.

Maker : Fuji terminal industry co., ltd.

Model : TWO

Specification

: GK3103,3106-AC100V:125V,5A B class  
(Rushes-proof blowout type)

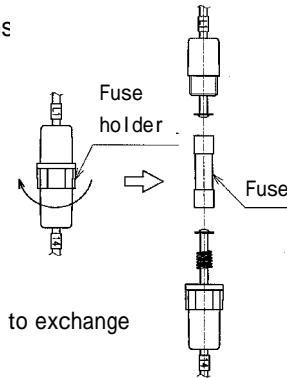
: GK3103,3106-AC200V:250V,5A B class  
(Rushes-proof blowout type)

How to exchange : See right drawing.

Fuse holder is loosened.

Fuse in a holder is exchanged.

Fuse holder is tightened.



How to exchange fuse

Periodic maintenance parts (The main parts for which exchange is needed with a use situation)

Check the following parts periodically and exchange them based on standard exchange time.

Parts name	pcs /set	Standard exchange time
Fan motor	*a	20,000 hours (6 years)
Start·stop switch with lamp	1	15,000 hours (4 years)

Keep in mind that it is not a guarantee value since the operation time (years) indicated above changes with operating conditions (ambient temperature, installation environment, etc.). Years are a standard at the time of considering as 12 hours/day x 300 days of operating ratios. Moreover, since time for the rate of failure in the case where you use it above this time to increase is shown, although it is not necessary to necessarily exchange, this exchange time is exchanged when the case where there are abnormalities at the time of check, and preventive maintenance are performed

·How to exchange

Before part exchange, refrigerant recovery is required. Moreover, since technical knowledge is needed for exchange work, ask our company or a special contractor.

\*a: 1 pc./set (GK3103)

2 pcs./set (GK3106)

(Note) The others and failure of refrigerant circuit becomes product exchange.

## 6.3 Storage (When not using for a long time)

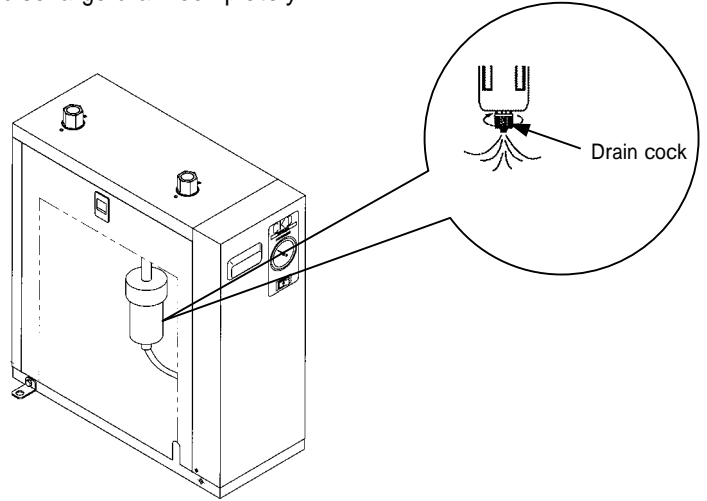
If you do not use the dryer for a long time, do the following

Turn off main power line (breaker). (Pull out power supply plug.)

Close all stop valves before and after dryer at all.

The drain cock of auto drain is turned and discharge drain completely.

Clean the dust filter.



Put sheet etc. over the dryer. Keep the dryer in a place where environment is the same as the operating environment.

When you run the dryer again, inspect each part of the dryer and run it as instructed in this manual.

## 7 . Disposal

When you discard the product, be sure to entrust a special industrial waste treatment company and to process based on Wastes Disposal and Public Cleaning Law.

## 8 . After sales service

- 1 ) Contact your distributor or CKD to request the repair service.
- 2 ) Provide the following information when requesting the repair service.
  - \* model number of the dryer
  - \* serial number
  - \* date of installation
  - \* name of the store where you purchased the dryer
  - \* conditions of your dryer
- 3 ) We will repair your dryer even after the warranty period expires (charged). We will supply parts for 7 years after production of your dryer is terminated.

## 9 . Trouble shooting

Condition		Causes	Measures
Main power line "short circuit breaker" falls.		Electric parts have leaked.	Insulation resistance measurement of electric parts (10M or more)
			Check whether there is any adhesion of waterdrop in an electric part, if it is, Remove or exchange.
			Check whether covering of electric wire is torn and touched sheet metal etc., if it is touched, Fix it. (rebanding, electric wire and terminal exchange).
The dryer does not start, when start-stop switch with lamp turns on.	Start-stop switch with lamp does not turn on.	Start-stop switch with lamp was failed.	Replace the start-stop switch with lamp.
		Safety device is on.	Turn off the main power line, remove causes. (Refer 5.3 When safety device turns on and the dryer stops running)
		Safety device is bad.	Replace the safety device.
		Power supply voltage is abnormal.	Adjust the voltage.
		Connection of harness is bad.	Repair the harness
	Start-stop switch with lamp turns on.	Compressor is bad starting.	Start it after stopping 3 minutes or more.
Water comes out at the time of using.	Direction of "refrigerant pressure gauge" does not point out the green, and water comes from a secondary side.	Auto drain is bad.	Auto drain is decomposed and cleaned. Replace the auto drain.
		Excess water drips come in from the air inlet.	Install filter in front of the dryer to remove water drips.
		The pipe coming out of the dryer is lower than the dew point.	Cover the pipe coming out of the dryer with heat insulation material.
		The bypass circuit before and behind the drier is open.	Close the bypass circuit.
		Flow treated by the dryer is too much	Adjust the flow under specification s value (Refer to item 9)
	Although direction of "refrigerant pressure gauge" points out the green, water comes from a secondary side.	Load over • Ambient temperature is high. • Inlet temperature is high. • Inlet pressure is low. • Treated flow rate is large.	Lower the load to the level. • Lower the ambient temperature. • Lower the inlet temperature. • Raise the inlet pressure. • Lower the treated flow rate.
		Dust filter is clogged.	Clean the dust filter. When dirt is severe, it exchanges for a new one.
		Fan motor is bad.	Replace the fan motor.
		Ventilation is bad. (Supply/exhaust part of condenser is closed.)	Improve the ventilation. (Move something on the supply/exhaust part of the condenser.)
		Refrigerant gas leak	Refrigerant gas leak part is fixed and coolant filling is carried out.

# Discontinue

Condition	Causes	Measures
Pressure drop before/after the dryer is too large.	Stop valve before/after the dryer is closed.	Fully open the valve.
	The garbage inside a heat exchanger is choked up.	Flow the air from outlet piping, take out the garbage blocked to inlet side. If there is no filter to inlet, attach it.
	Treated flow rate is too large.	Adjust the flow under specification s value (Refer to item 9)
	Congelation in the dryer. <ul style="list-style-type: none"> <li>• Ambient temperature is low.</li> <li>• Inlet temperature is low.</li> <li>• Cooling wind directly blow to the dryer.</li> </ul>	Prevent congelation. <ul style="list-style-type: none"> <li>• Raise the ambient temperature.</li> <li>• Raise the inlet temperature.</li> <li>• Do not let cooling wind directly blow to the dryer</li> </ul>
Stop during operation	Power supply is turned off.	Turn on the power supply.
	Power supply voltage is abnormal.	Adjust the voltage.
	Safety device is on. <ul style="list-style-type: none"> <li>• Ambient temperature is high.</li> <li>• Inlet temperature is high.</li> <li>• Inlet pressure is low.</li> <li>• Treated flow rate is large.</li> <li>• Dust filter is clogged.</li> <li>• Fan motor is bad.</li> <li>• Refrigerant gas leak</li> <li>• The fuse has run out.</li> </ul>	Turn off the main power supply, after removing causes. (Refer to 5.3 When safety device turns on and the dryer stops running) <ul style="list-style-type: none"> <li>• Lower the ambient temperature.</li> <li>• Lower the inlet temperature.</li> <li>• Raise the inlet pressure.</li> <li>• Lower the treated flow rate.</li> <li>• Clean the dust filter.</li> <li>• Replace the fan motor.</li> <li>• Exchange new product.</li> <li>• Exchange the fuse.</li> </ul>

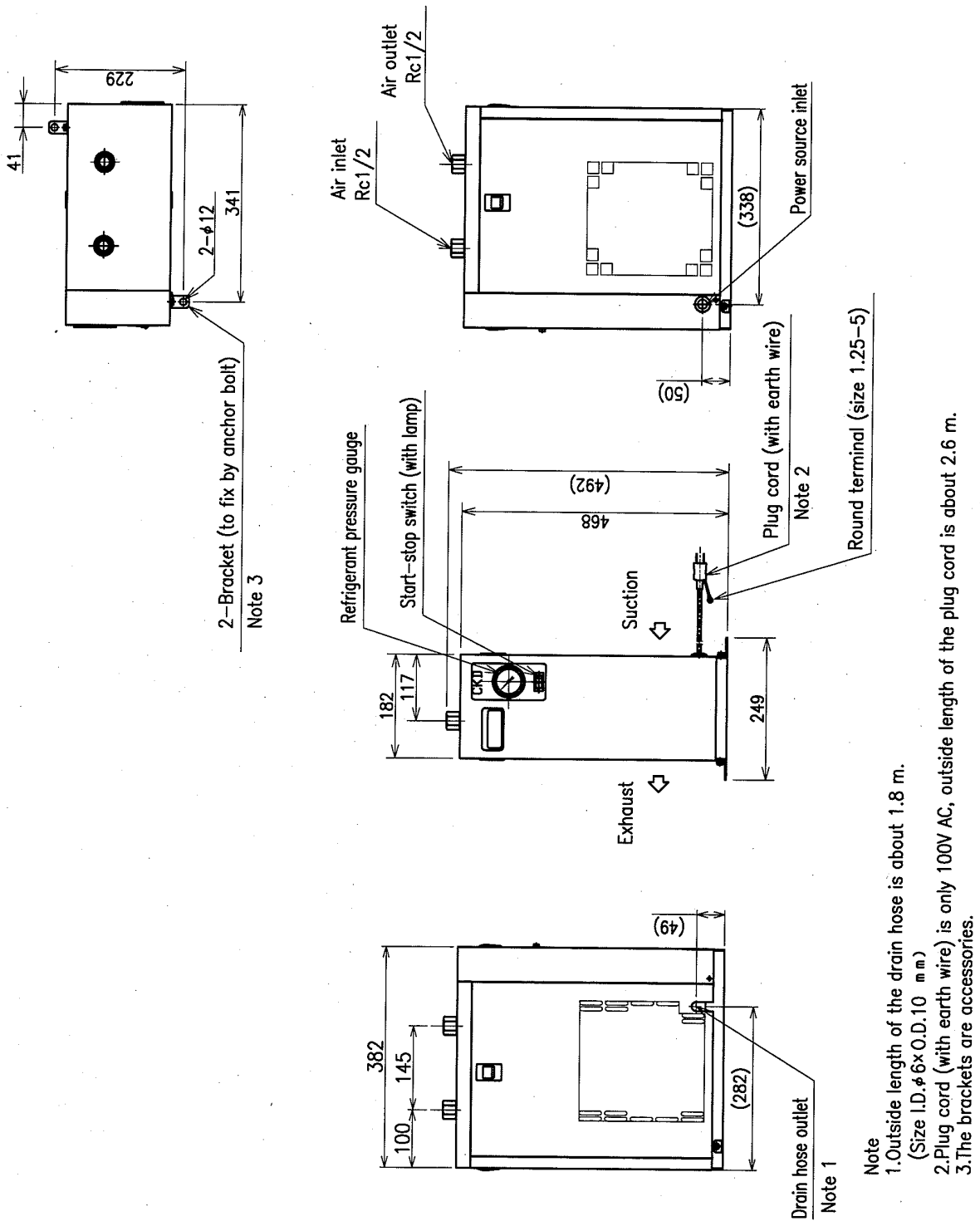


## 1 0 . Specifications

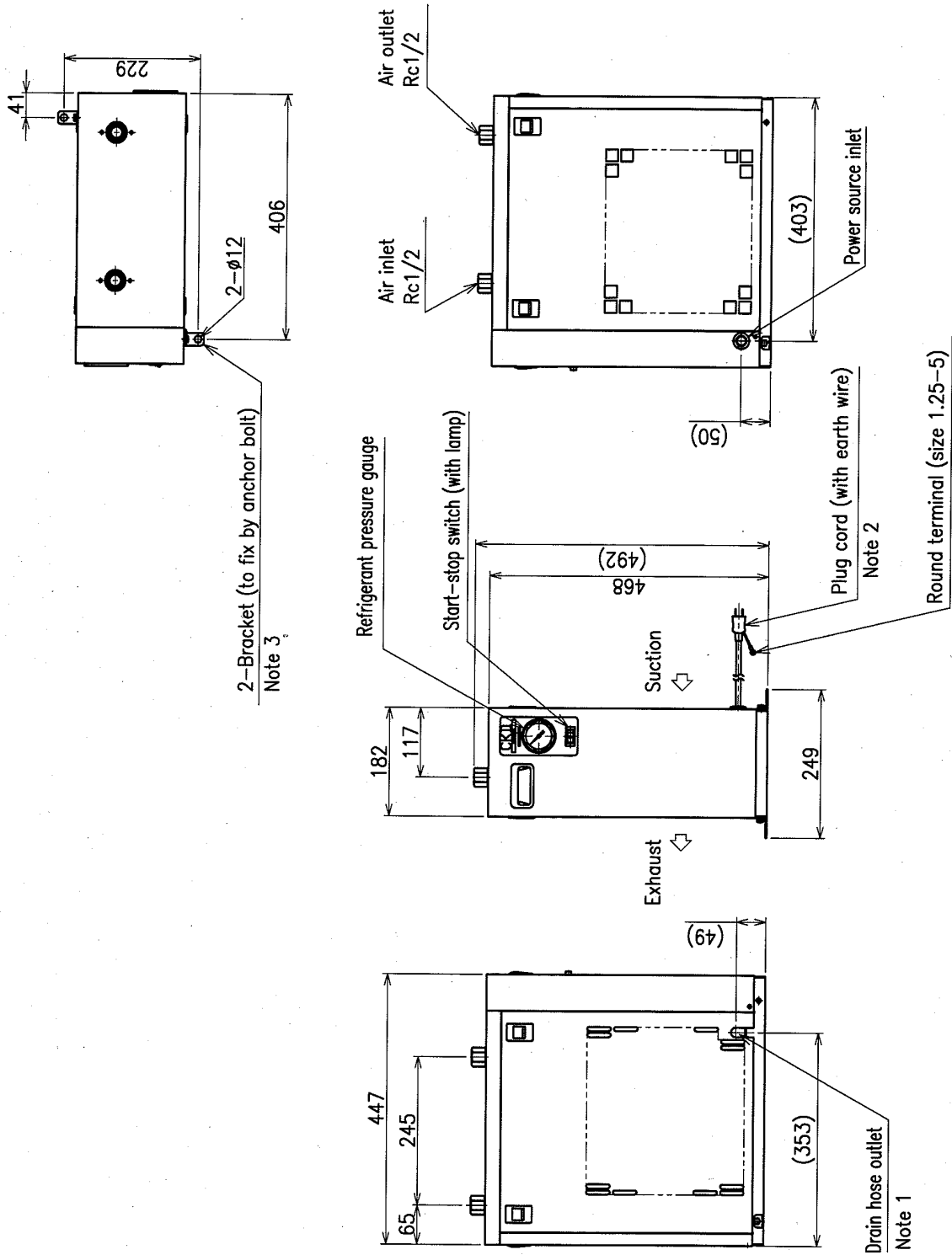
Model number			GK3103-AC100V	GK3103-AC200V	GK3106-AC100V	GK3106-AC200V
User range	Media		Compressed air			
	Inlet air temperature		5 ~ 50			
	Inlet air pressure	MPa	0.15 ~ 1.0			
	Ambient temperature		2 ~ 40			
Rated	Treated flow rate (50/60Hz)	m³/minANR	0.32/0.37		0.75/0.82	
	Inlet air temperature		35			
	Inlet air pressure	MPa	0.7			
	Ambient temperature		32			
Rated functionality	Outlet air pressure dew point		10 <sup>+1</sup>			
	Pressure drop (50/60Hz)	MPa	0.002/0.003		0.015/0.018	
Electrical specifications 1 (100V AC)	Power supply	V	Single phase AC100V/ 100-110V 50/60Hz			
	Power consumption (50/60Hz)	kW	0.18/0.19		0.20/0.20	
	Operating current (50/60Hz)	A	2.0/1.9		2.2/2.0	
	Starting current (50/60Hz)	A	5.1/4.8		5.1/4.8	
	Recommendation breaker capacity	A	5		5	
Electrical specifications2 (200V AC)	Power supply	V	Single phase AC200V/ 200-220V 50/60Hz			
	Power consumption (50/60Hz)	kW		0.18/0.19		0.20/0.20
	Operating current (50/60Hz)	A		1.1/1.0		1.2/1.1
	Starting current (50/60Hz)	A		2.7/2.6		2.7/2.6
	Recommendation breaker capacity	A		5		5
Refrigerant			R-407C			
Exhaust heat (50/60Hz)		kW	0.29/0.31	0.29/0.31	0.52/0.57	0.52/0.57
Mass		kg	16	16	18	18

## 11 . Dimensions

GK3103-AC100V/200V



GK3106-AC100/200V

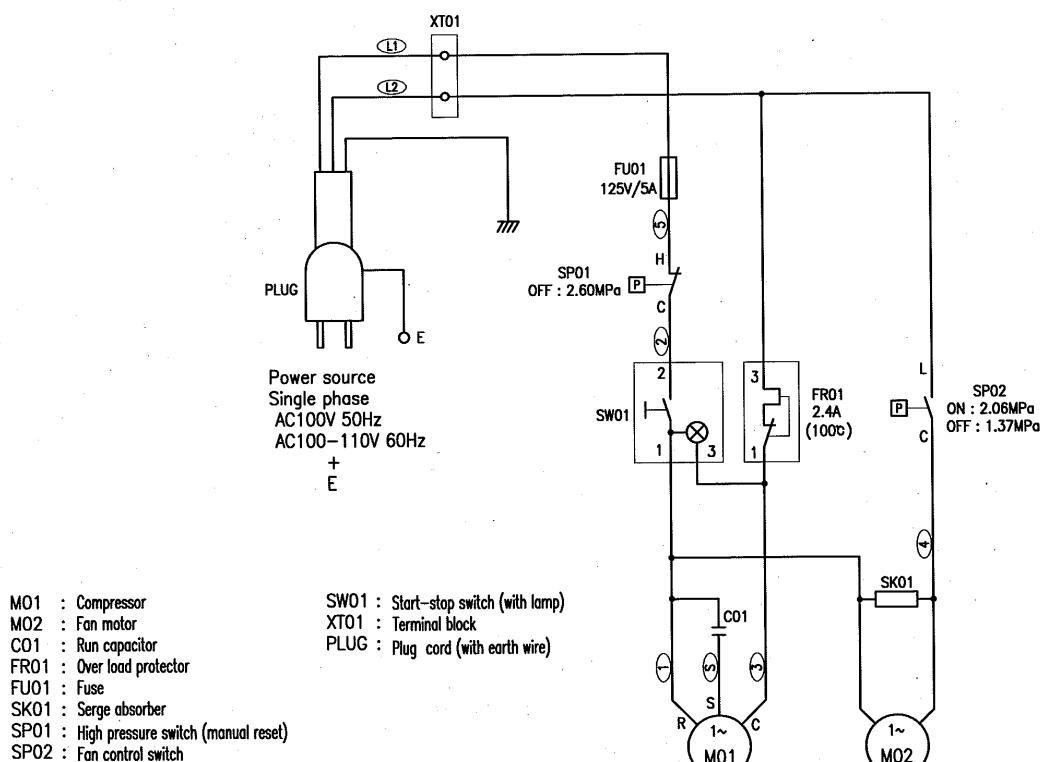


## Note

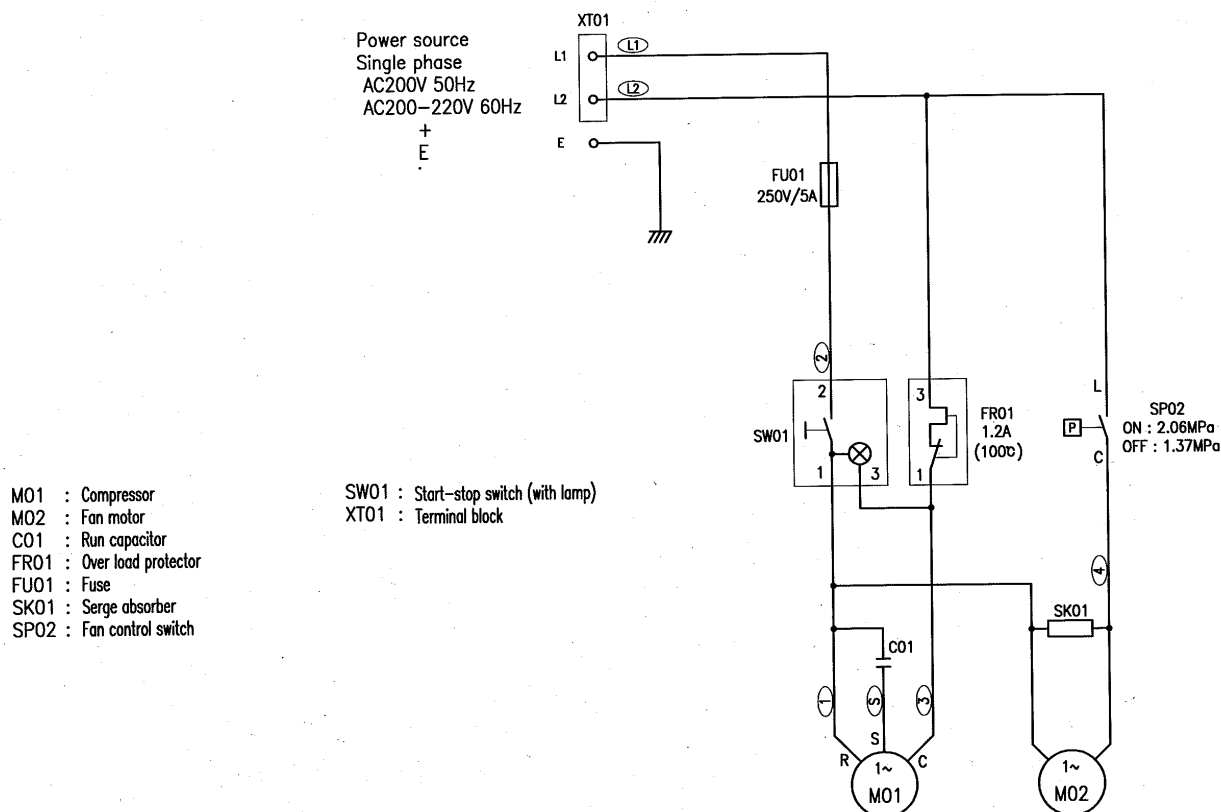
1. Outside length of the drain hose is about 1.8 m.  
(Size I.D.  $\phi 6 \times$  O.D. 10 mm)
2. Plug cord (with earth wire) is only 100V AC, outside length of the plug cord is about 2.5 m.
3. The brackets are accessories.

## 12 . Electrical circuit

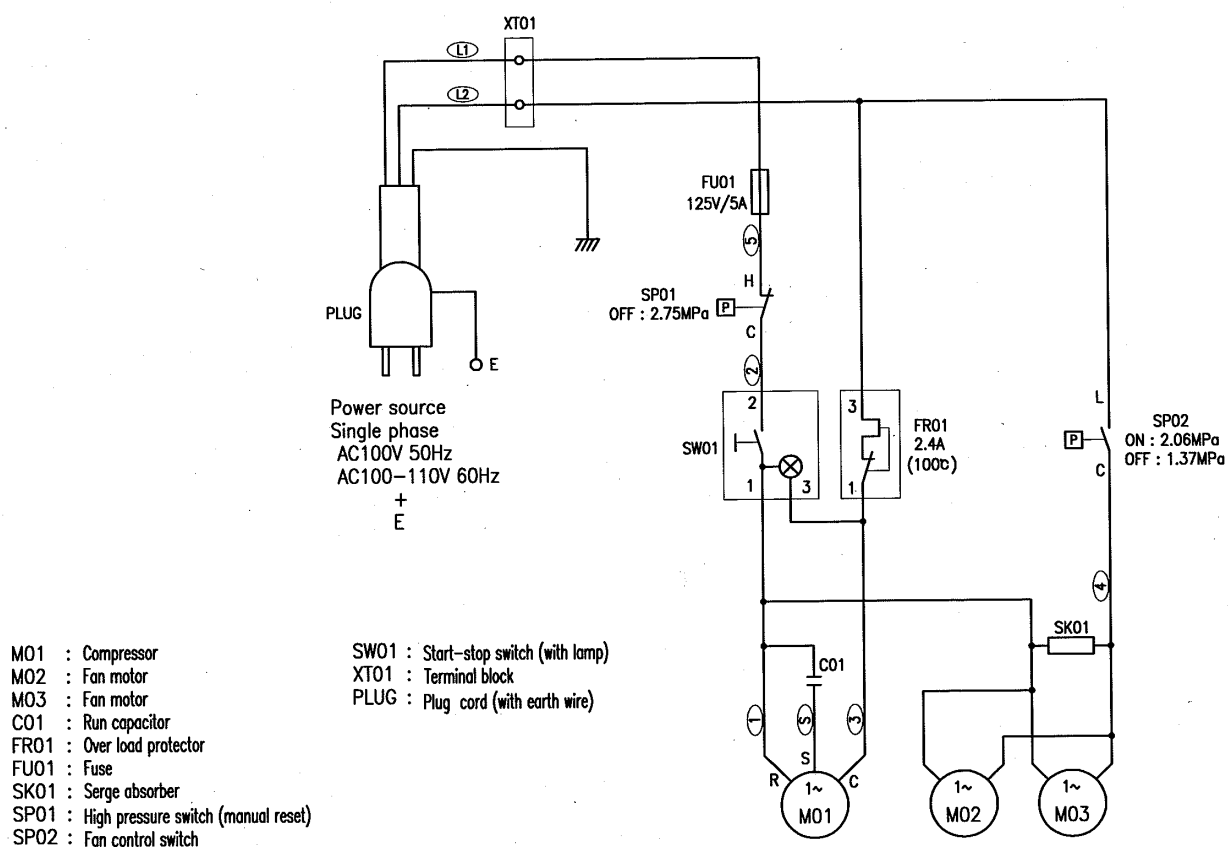
### 12.1 GK3103-AC100V



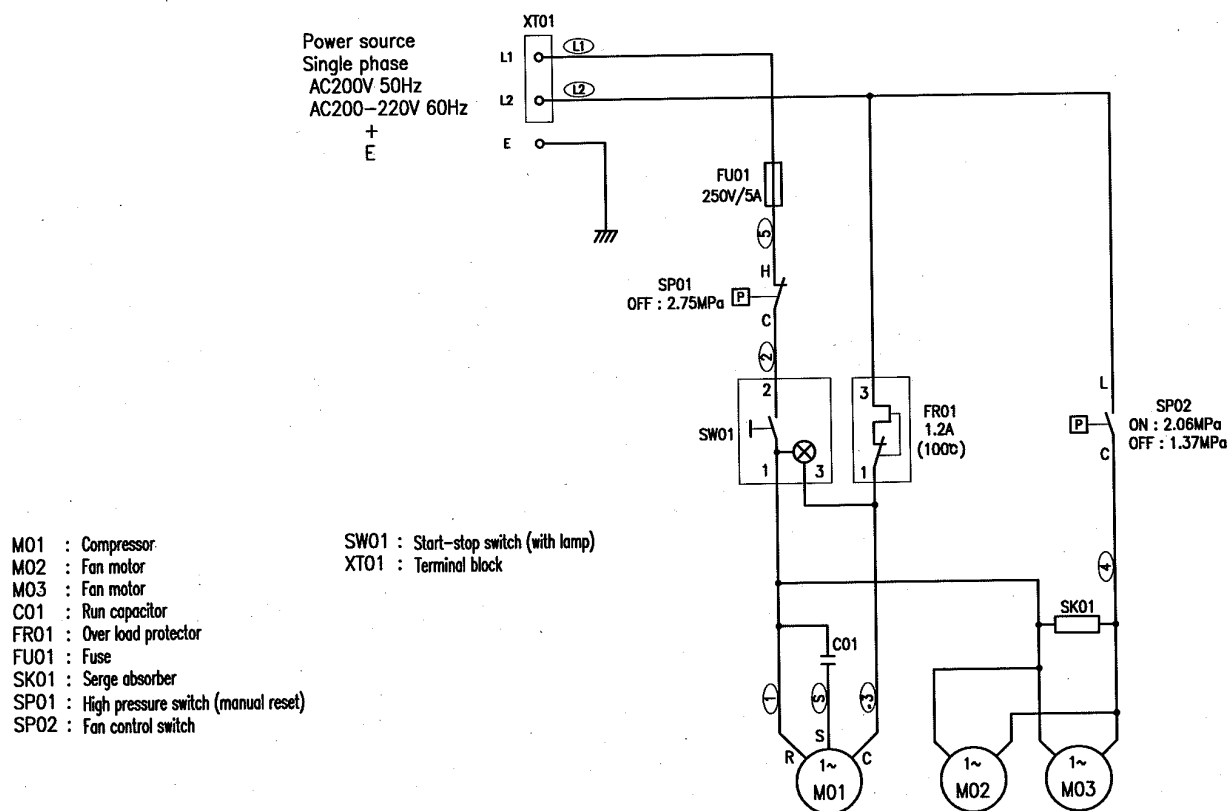
### 12.2 GK3103-AC200V



## 12.3 GK3106-AC100V



## 12.4 GK3106-AC200V



## 13. CKD WARRANTY

Subject to the conditions below, CKD Corporation ("CKD") warrants the first end user (the "Buyer") that CKD's products are free from defects in material and workmanship.

CKD will, at CKD's option, either repair or replace a defective product, including lowest transportation costs but not including installation or any other similar charges, provided that (1) the buyer notifies CKD in writing of the claimed defect within one year from the date Buyer received the product, (2) provides a complete explanation of the defect, the application of the product, and such other information concerning use of the product as CKD may request, and (3) returns the product to CKD in accordance with CKD's specific written instructions and authorization obtained from CKD prior to return of the product, and CKD's inspection confirms that the product was defective.

This warranty applies only if the product was used and applied correctly under normal operating conditions and good engineering practice; was installed, operated and maintained in accordance with all instructions issued or published by CKD; was used within stated pressure, media and operating limitations published by CKD and in effect on the date of shipment; and was not subject to abuse, misuse or unauthorized modification.

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CKD shall not be liable for any trouble, malfunction and damages of CKD products caused, directly or indirectly, by disaster or any other causes not attributable to CKD's responsibility. CKD also shall not be responsible for any trouble, malfunction and damages of CKD Products caused by the lack or malfunction of safety circuit or structure or function that should be commonly equipped in the Buyer's equipment in which the CKD products were used.

**CKD MAINTAINS A POLICY OF ONGOING PRODUCT DEVELOPMENT AND IMPROVEMENT. WE THEREFORE RESERVE THE RIGHT TO CHANGE DIMENSIONS, SPECIFICATIONS AND DESIGN WITHOUT NOTICE.**

### C K D corporation

〒485 - 8551 250, OUJI 2-CHOME, KOMAKI, AICHI 485-8551 JAPAN

P H O N E 0568 - 77 - 1111

Purchased air drier

Model name	
Manufacture number	
Purchase date	
Beginning of using date	

Sales shop name

TEL _____ Charge _____
---------------------------

Discontinue

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受付時間 9:00~12:00/13:00~17:00

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Home Page Address <http://www.ckd.co.jp/>

**China**

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CKD(SHANGHAI)CORPORATION

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