

Jiangsu Minnuo Group Co.,Ltd

- This air drying machine design for industrial purposes, please properly use
- Please read the instructions in the equipment operation again
- Please keep instructions for ready reference



DRYING MACHINE Air Dryer

Operating Instruction

Quality · Professional · Service

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FOREWORD

Honorific customers:

Thank you for your choice of our products, for you familiar with this product quickly, please carefully read this manual. Here I will outline the installation and using, operation and maintenance and simple settlement for the breakdown. The manual is a common operation, the illustrations and text on the letter is an example for reference purposes only, if you have any questions or ideas, or you want the latest information, please contact us or agents, and we will do for you.

Remarks: In order to provide better services, we rein the right to modify the content of the manual and not inform Remind you on the Porterage, installation, operation, maintenance, pay attention to the notice.

INSTALLATIONS

The installation includes inspection, carrying, placing, air connection, power wire connection, etc. To insure the user's right and the service life of the dryer, please read the contents below carefully.

1、 Inspection

Please check if the dryer has been damaged during transportation after opened the packing. To check the accessory according to the packing list, if any assort & detection, please notify the agent with written form within 2 days.

2、 Porterage

- The fork can carry the dryer by the bores on the base of the dryer.
- To be sure the fork capacity can meet the request.
- Keep the machine in balance, and avoid the inclination or handstand, handle with care.

⚠ Forbid using forked vehicle to carry from side, if do it machine will fell down and lead to the damage the machine and personnel

3、 Placing

- The ground should be a strong and tough cement ground or stability of level to have no the vibration's ground, and the strength must bear the weight of the machine enough.
- The machine and surroundings objects should keep 1 meter above distance, the drain, airiness & the space for maintenance shall be considered.
- Any placing at the moisture, the causticity, outdoor, high heat or the dust are not allowed.

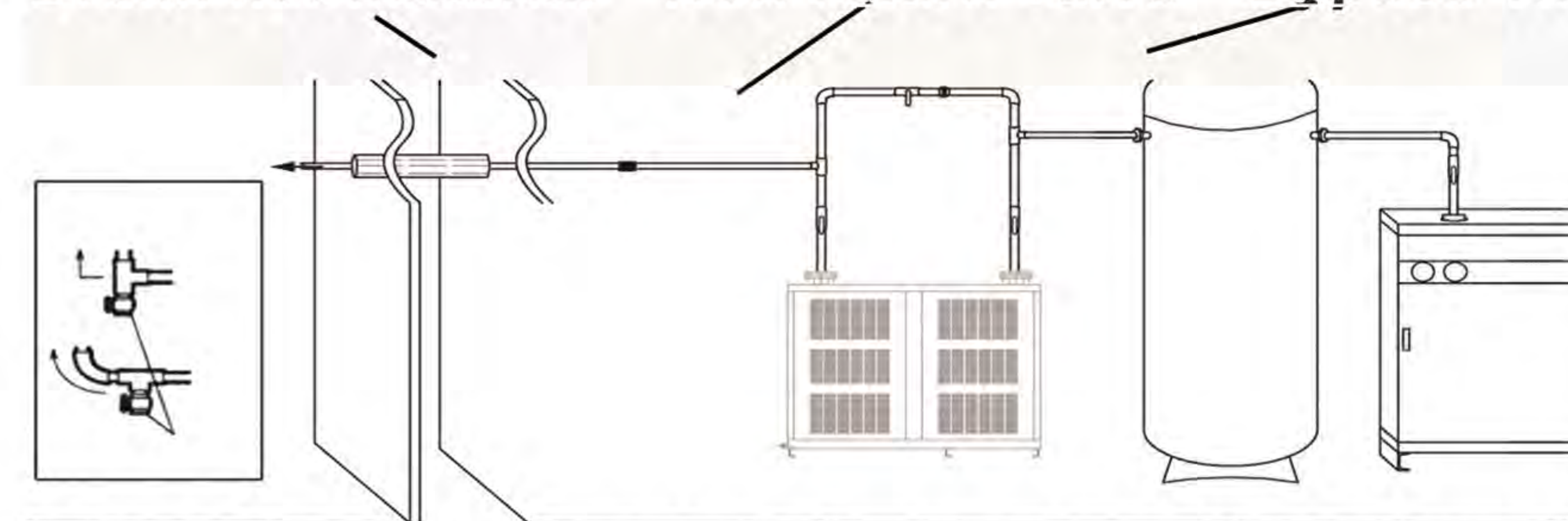
4、 Compressed air tube conjunction

- To avoid too long tube, too many link knot & too small diameter, ina、

order to prevent pressure decline.

- Considering to the pipeline sketch match to set between the compressed air treatment equipment.。
- To install a by-pass valve in the inlet and outlet of the dryer, in favorable to test and fix.
- Advise you to set filter when install the pipeline, in order to filt the oil and the impurity.
- Install the pipeline,advise you to set the waterspout at the end of the pipeline or the low place ,and drain the water timing.

Break hot material Non-return valve Bypass valve



After tubing, open the auto drain, in order to filt the impurity and the dust after the comress air in.(close the auto drain after a few minutes)

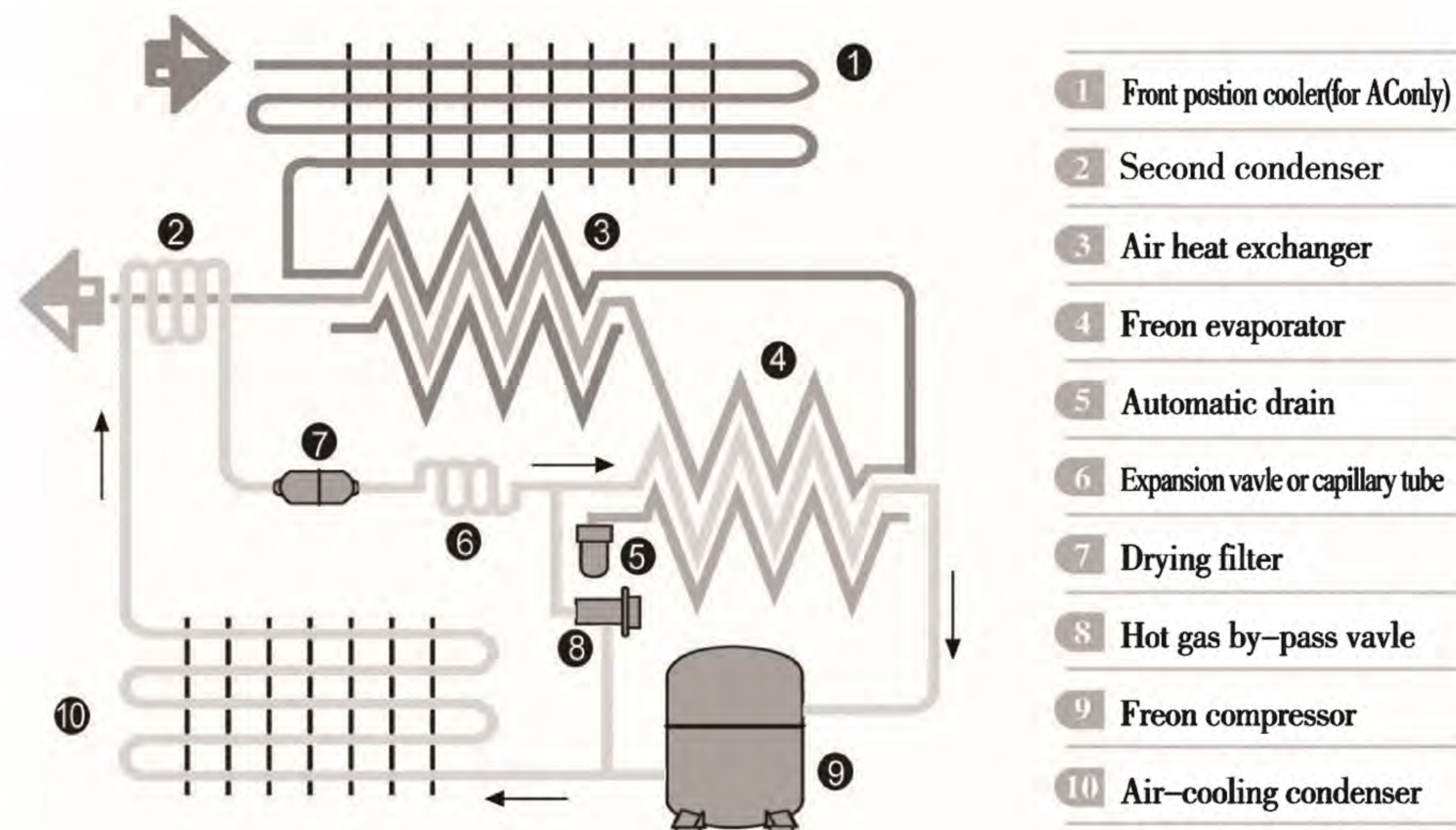
5、 Power wire installation

- According to the nameplate, the user shall prepare the circuit breaker and fuse.
- Please connect the ground line or other protective switch for the safety.
- Be sure the voltage is correct and the juncture is tight after circuit conjunctions complete, please tight again when the shipment cause the power wire to be loose.
- to choose the section diameter of the power wire should base on the electricity on the nameplate.

OPERATIONS

The user shall know the operations of the machine contain the item of start ,stop ,debug and record for the components, and learn to observe and record the number on the meter.

1、 Chart of principle for machine



2、 Work principle

- The compressed air with the moisture and high heat flow into the front cooler (Special for the high temperature), and then flow into heat exchanger after the heat dropped away, and to exchange the heat with the cool air from the evaporator, so the temperature of the compressed air debase.
- The air fell down temperature flow into evaporator and exchange heat with the refrigerant, the heat will be moved, the compressed air will be cool soon .the moisture in the moist air condense to water drop, and are discharged out from the auto drain by the gas and water separator.

c、 The dried air flows through the air heat exchanger and exchange with the inlet high temperature air, the temperature of cool air raised after absorbed the inlet heat air. The outlet air temperature will be raise after flew into the second condenser and high heat Freon exchanger, to insure the outlet air pipe no dewdrop. Fully utilize of the source of cool outlet air, reducing the refrigerant system's bear and insure the quality of the outlet air .

3、 The instruction of the main machine instrument and controlling switch

Main instrument succeed by air pressure gauge、 Freon-high pressure gauge, Freon-low pressure; Control electrical source by ON/OFF according to refrigeration electrical source button、 high or low protect switch for the freeze system , and antifreezing switch composes . Its function synopsis lain as follows.

3.1、 Main instrument

- Air pressure gauge(stainless steel frame) fit in instrument board used to show compress air pressure of the machine. Mpa and Kg/cm² representative unit of pressure. When you read the unit of pressure, look at the opposite scale value add to the unit?
- Freon-high pressure gauge(red frame) fit in meter board, used to show the pressure and temperature of freeze system, Psi and Kg/cm² under the meter is pressure's unit, °C is temperature's unit ,when you read the unit of the pressure, look at the opposite scale value add to pressure's unit when you look at the temperature of the dewpoint , please base on the variety of the Freon on the nameplate
- Freon-low pressure (blue frame), fit in meter board, used to show low pressure or temperature, it built up several scale, and the way to look into the temperature is the same as the high-pressure meter.



Air pressure gauge



Freon-high pressure gauge



Freon-low pressure

Note: different types, equipped with different actual configuration in kind prevail.

3.2、 Main control

- ON/OFF press button fit on to machine board , main use to control the running and stopping
- The high-low pressure protected switch for the refrigeration system use to control the pressure of the high pressure side and the low side ,avoid the damage which from the over pressure of the machine .(press “RESET” to restoration)
- Antifreezing switch install in the machine, use to control the condensation pressure of the machine avoid the condensation pressure too low, cause the evaporator stop.

Remarks: the model is different , the component is different ,it is base on the real thing

4、 Operations

4.1、 To check the items below before operating

- Power supply, phase, frequency shall accord with convention (refer to nameplate), and the electric wire connect tight.
- The pipe of the system connect tight.
- Place dryer well, the ambient temperature shall meet request.

d、 Check the refrigeration system pressure. when it lower than 25Psig,please check the ambient temperature ,if it is not base on the low ambient temperature ,please contact us or the wholesale .

d、 Ball valve in front of the auto drain valve should be opened. In order to improve the quality of the air , please open the air compressor and let it run steady ,then put in the compress air

4.2、 Starting and running

- Send the power to the control box , press 'ON' on the control panel which have the power protected switch and control protected switch, then press ON on the ON/OFF button, the machine contact well indicator light, and compressor running. Normally the Freon low-pressure scale between at 60-85 psig. (applicable for R-22) .R-134freon should press between at 25-45psig.If over ,please base on the 4.4 to adjust.
- When compressor running placidity the Freon-high pressure arrow go up between 140and 280psig , (R-22) ,R-134a Freon will show between120 and 240psig.When the Freon’s pressure too high, please check the condenser, the inlet temperature of the dryer and the ambient temperature.
- When high pressure lower than 140Psig antifreezing switch as operation, condensation fan stop running, in order to keep normal running. If sets of long issues of running competent please check the refrigeration system is not leak down and the ambient temperature is too low.

⚠ In order to avoid compressor damaged, not to start frequency, if re-start need to wait more than 3 minutes.

⚠ The valve has been regulated in the factory; to avoid unnecessary damage, don't regulate it except technician.(except manual drain)

4.3、 Stopping

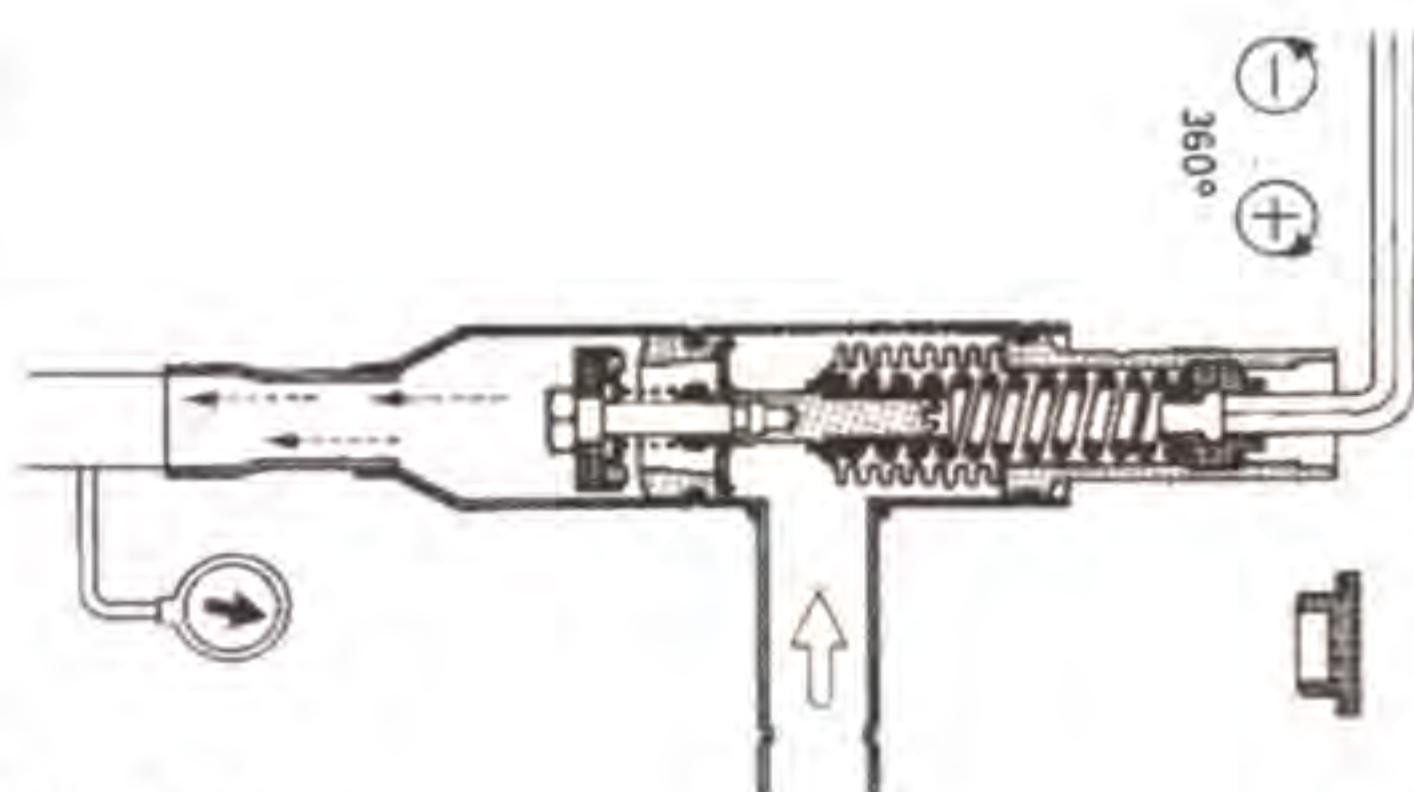
- a、 Close the power before stop the air compressor.
- b、 Press 'OFF' before close the compressor, the machine stop running.
- c、 Cut off the power.(do not cut off the power if the machine have heating protected component in winter)

Stop the compressed air after to stop the dryer, discharge the compressed air in the pipe completely to be sure there is no moisture, in order to insure the air quality.

4. 4、 Debug (Evaporating Pressure Regulation)

The hot gas by pass valve which install on the cooling system pipeline mainly control the evaporator pressure of the machine, when it's abnormal ,please regulate the hot gas by pass valve under the below ways :

- a、 If use R-22 Freon, evaporating pressure be under 60 psig, to regulate the hot gas by-pass valve with clockwise by spanner, then the heat flow into the system, evaporating temperature raise; when it be over 85 psig, to regulate with counter wise to fall the evaporating temperature.
- b、 When use the R134a Freon, the pressure will between 25-45psig, the way is the same as R-22 Freon.
- c、 Check the dryer's load before regulating the by-pass valve, and check the ambient temperature & inlet temperature not be over high, and the condenser shall not block, fix all breakdown before regulating.



The evaporating pressure has been regulated in the factory; don't regulate it except the pressure has any change.

Maintenance

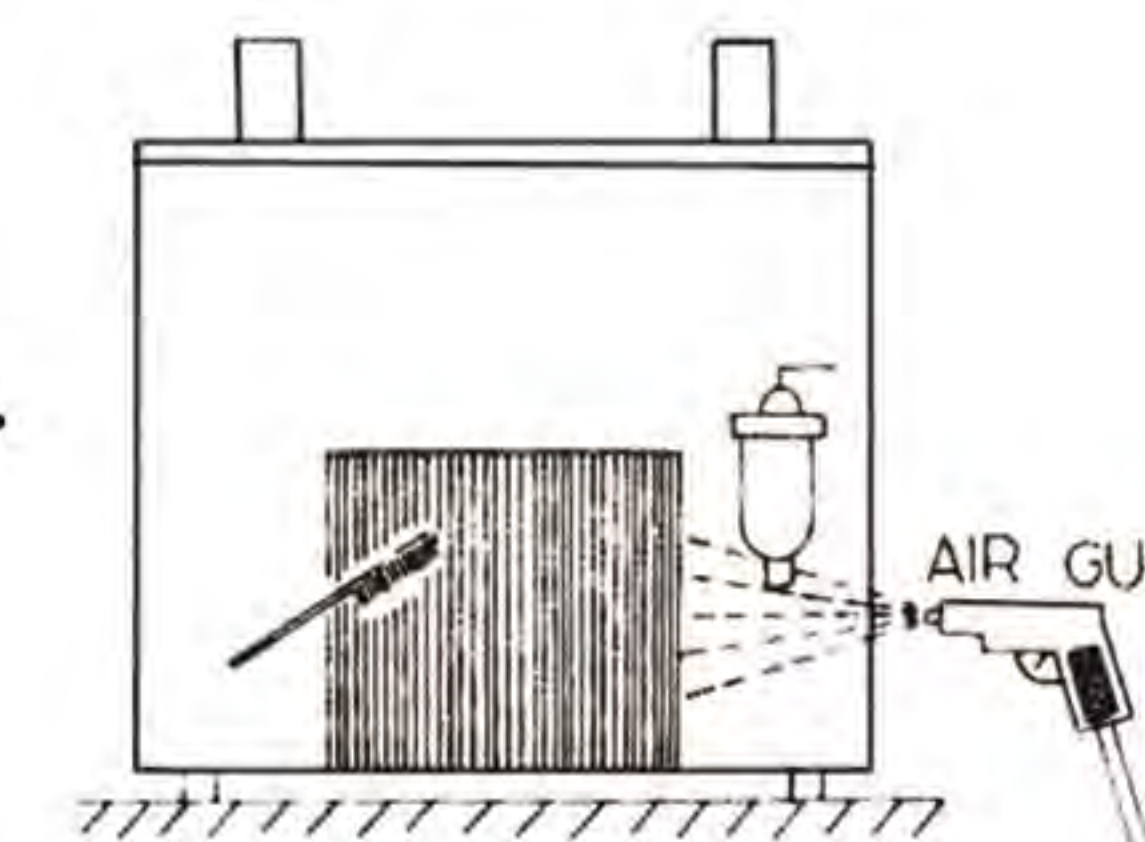
Put the maintenance in order to ensure to the machine can move in gear, and quality of air, it can detach in to daily and moment.

1、 Daily maintenance

- a、 Checking the back of machine to be sure the condensation is clean, in order to avoid the caloric to emanate.
- b、 After the machine platform starts and the compressed air is entered, check the working pressure is normal
- c、 Check the auto drain to be sure it can drain water after the compress air is running normally.
- d、 Please open the drain valve to out the water every week two or more times.
- e、 Please open the manual drain valve two or more times everyday.
- f、 When the ambient temperature is over 40℃ , please improve it ,or it will cause the machine into trouble.

2、 Sections of maintenance's item

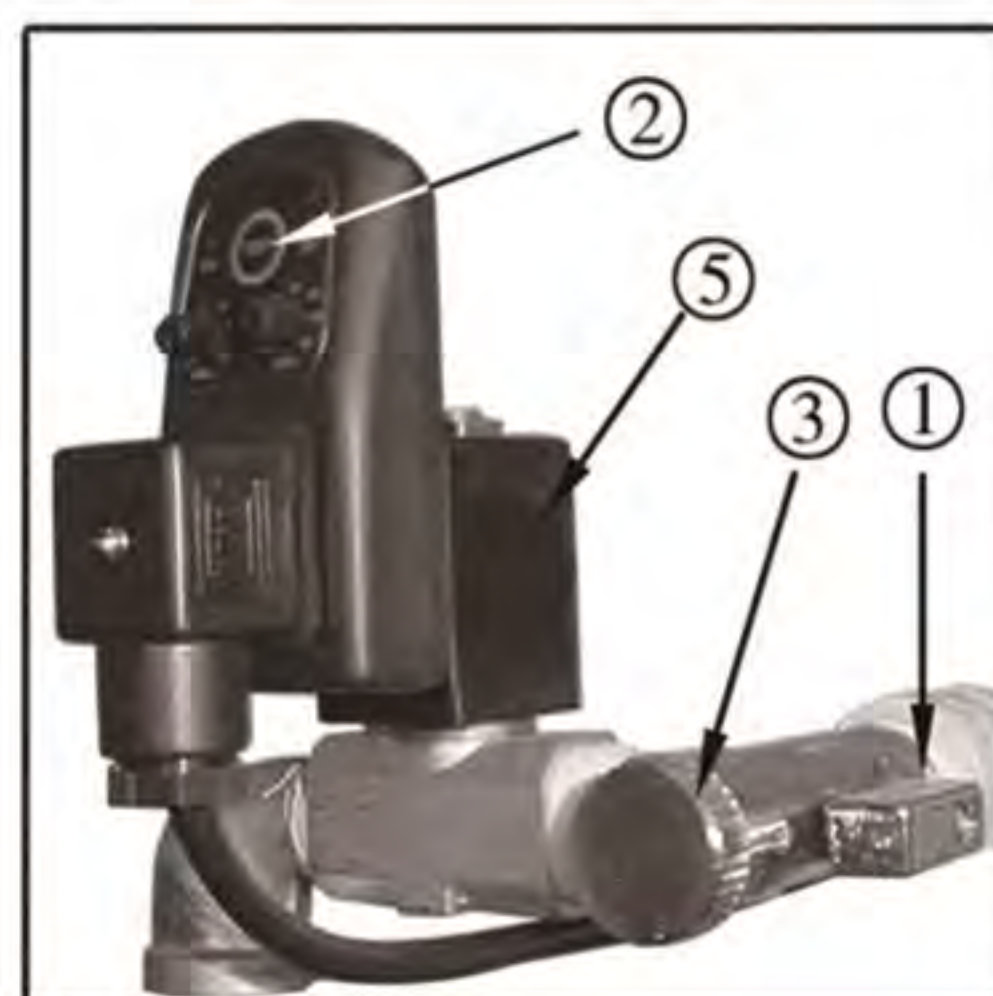
- a、 Every two weeks or the back of the condenser have too much dust ,use the dry compress air or brush to clean the back of the condenser .(look at the picture)
- b、 Per month it need to check auto drain to be sure normal , such as working abnormal (drain off water or it is be bad to drain -off water) please washing (wash method according to drain off water drain protect).
- c、 Check every three month whether fan vane work as hot wind as alike bad shaking instance.
- d、 Every year check and tight all the bolt and the fixed setting .
- e、 Every year check ,clean and tight all the electric conjunction.



3. Electronic drain valve maintenance

3.1、 Electronic drain valve acts normal, but can't drain water, maybe the strainer stops up, should clean the strainer.

- a、 Closes the front ball valve① of the drain valve
- b、 Press down the text button②, discharge the rudimental compressed air
- c、 Screw the strainer's plug③, takes out the strainer④
- d、 Put the strainer ④ immerse in the soapy water for approximately 10 minutes, then flushing with the clear water (or blows with compressed air which have been purified)
- d、 After the cleaning completes front end, installs back the strainer④ and the plug③ ,opens the front ball valve①



3.2、 IF the components were not damaged, the electromagnetism leaks air, the reason possibly is that massive powder in the condensed water goes through the strainer, going into the gap between the valve core and the protective covering, catches the valve core, now should clean the valve core.

- a、 Refer to a and b in chapter3.3.1
- b、 Shuts off the power source of the drain valve
- c、 Takes down the coil, twists off the hexagonal nut, takes out the valve core and two springs, cleans the valve seat, the valve core , spring and the valve core protective covering, reinstalls again.

⚠ the electronic of the drain valve should cut off before taking down the loop, otherwise the loop would be burned down after it separated from the valve lever, other matters please refer chapter 3.1 and 3.2

POINTS TO FIX THE BREAKDOWN

THERE ARE SIX FACTORS CAUSED THE BREAKDOWN BY AIR DRYER ITSELF AND OUTSIDE REASONS:

1、 The pressure fall too sharp

CONDITION	CAUSES	BREAKDOWN FIXING
The fitted pipe System is out of order	The pipeline valve is not full opened	Full open the valve
	The pipe diameter is too narrow	Increase the pipe diameter
	The pipeline is too long and too more link knot	Design the pipeline system again
	Over two compressors parallel air dryers can't fit well	design the pipeline system again
	Filter stoppage in the pipeline	Renew or clean the filter
	More leaks of pipeline contact	Check the link points
The condensed water is freezing in evaporator	Temperature or pressure Switch is poor	Renew or check the Circuit correct the switch
	Expansion valve or hot gas by-pass is breakdown	Renew or check if the circuit is stoppage, correct the switch
	Radiator unit direct to the wind	Improve ventilation

2、 Air dryer can not dispel water well

CONDITION	CAUSES	BREAKDOWN FIXING
Fitted pipe system Is abnormal	By pass valve isn't full opened	Fasten by pass valve
	The air doesn't pass the air dryer	Full open the inlet valve of the dryer
	Dryer isn't put on the level	Place the dryer level
	Auto drainer inclines	Place the dryer level
	Discharge pipeline is Higher than auto drainer	Set the discharge pipeline again
Air flow volume is over	Pressure fall too much	Redesign the air compressed system
Drainage system is abnormal	Drainer is poor or electro magnetic valve is breakdown	Clean or renew
Evaporator temperature meter indicates abnormal	The front valve of drainer isn't full opened	Be sure the valve is full opened
	The dew point temperature is too high/low	Regulate the, water flow switch, hot gas by-pass valve
	The ambient /inlet temperature is over low	Stop using when the temperature is lower than 2℃
	Inlet temperature is over high	Add a after cooler
	Surrounding air is foul, ventilation is poor	Choose a suitable place or Improve the ventilation
	Freon leaks, cooling is poor in efficiency	Fix the leaks, fill up with FREON

Can not operate all

CONDITION	CAUSES	BREAKDOWN FIXING
Power supply is not normal	The fuse has blown or trip	Be sure if the power is short circuit less phase, ground connection, and the switch is normal
	Broken wire	Find out the broken wire and fix it
Can not be Operated under power	Voltage abnormal	Please up to the voltage Range $\pm 10\%$, it is on the nameplate
	Switch is poor	Renew
	Contactors is poor	Renew
	Over relay is poor	Renew
	High/low pressure switch is poor	Renew
	Start Relay is poor	Renew
	Capacitor is poor	Renew
	Temperature Switch is poor, flow volume switch is poor, oil pressure switch is poor	Renew
	Compressor is poor	Renew
	The switches are Normal all, But can't start	The trip isn't back, electro-magnetic switch bounced isn't back
Compressor is open circuit		Renew
Wire is loosen		Find out, fasten it

4、 Out of order after starting

CONDITION	CAUSES	BREAKDOWN FIXING
Voltage abnormal	After starting for a while, short circuit, smell charred	Reset the circuit and switch, find out the reason of abnormal
Reset the high-pressure trip, but can't start yet	Pressure/temperature switch is poor, fan is stopped	Renew the switch
	Overload and trip	Check the relay
	Condenser is too dirty	Clean
Over relay and trip	Relay is poor	Renew
	Capacitor is poor	Renew
	Pressure/temperature Switch is bad, fan is stopped	Renew
	Oil switch is poor, or not exist	Renew
	Start it continuously	Over 3 minutes after per starting
	Compressor is overload	Dryer is over load, reduce the air treatable volume
	Dryer inlet/ambient Temperature is over high	Add a after cooler or increase fan to improve the ventilation
	The electricity setting is too low	Regulate current setting
	Relay doesn't contact well	Clean or renew
	Phase isn't enough	Fuse has blown or power switch is poor
Contactors or contact is poor	Clean or renew	

5、 Normal operating but inefficiency

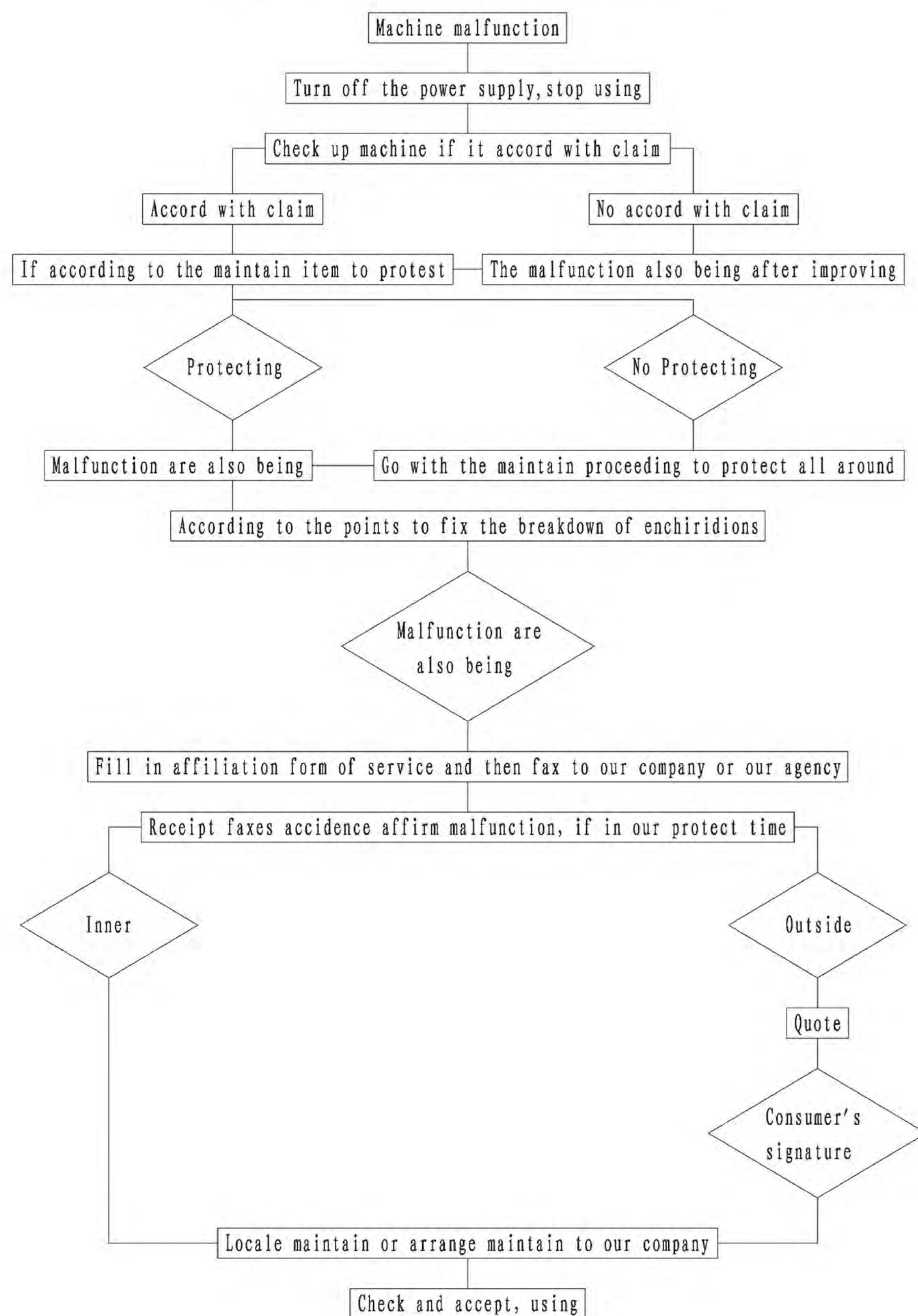
CONDITION	CAUSES	BREAKDOWN FIXING
The Temperature on The evaporator meter is over low	Evaporator temperature Meter is poor	Renew
	Expansion valve or hot gas by pass valve is breakdown	Renew
	FREON leaks	Supply leaks, replenish Freon
	Freon stoppage	Renew the dryer, exhaust air, fill up with Freon
	Temperature/pressure switch Setting is too low	Regulate the Temperature setting
	Ambient temperature is over high (40°C more over)	Add ventilation Equipment
	Expansion valve or hot gas by- pass valve is break down	Renew
	Condenser stoppage, poor ventilation	Clean
	Cooling water's temperature is Over high or in a poor cycle	Improve the cooling Water
	Large air treatable Volume with low pressure	Add a dryer connection
	The inlet/outlet valves of the Freon compressor are wear and tear	Renew
	Large air treatable Volume with low pressure	Add a dryer connection

6、 The auto drain system is poor

CONDITION	CAUSES	BREAKDOWN FIXING
Drain is broken or drain drain isn't expedite	The using voltage undet 1.5kg/cm ²	The normal using voltage of the drainer at the range of 2 ~10kg/cm ²
	The front part of strainer is stoppage	Clean
	The drainer isn't full open or break down	Renew or open the valve
	The drainer is tip or broken	Regular, fix or renew
	The pipe drainer is stoppage	Clean
	The using pressure is over high	Please use in accordance with the limited usage
Drain pipe is break	The drain pipe is stoppage	Clean
	Over pressure	Using according the rated pressure of the auto drain valve

QUALITY GUARANTEE

DEBAR MALFUNCTION SCHEME



Before leaving our factory, our products has performance testing and product inspection , Guaranteed time is from leaving the factory in 16 months or the test running date in 12 months (be base in who first reach the date) if machine destroy in our protect time for our production, we will repair it by free. But if it is broken by moving、 collision、 visitation of Providence、 battle、 and so on ,or don't use according to our handbook , or don't repair by our company, if it has condition like that , will not be in our protect time. At the same time , some indirect condition lead to the distorters in our protect time, we don't have the responsibility .

Our company advise all buyer ,when you find something wrong with our product ,please notice to us or our dealer, we will asked the service -personnel to deal with malfunction.please do not amend the system by self , operate the machine to working by force will cause to damage.

