

**CQ-02**  
**INTELLIGENT SILENT DEHYDRATOR**  
**FOR WAVE GUIDE**

**INSTRUCTION MAN**

## Contents

1. Descriptions of the products.....	1
1.1 Brief introduction.....	1
1.2 advantages.....	1
1.3 main technical parameter.....	1
1.4 Appearance and interface.....	2
2. Cautions.....	2
2.1 Working ambience.....	2
2.2 before operation.....	4
2.3 move, transportation and storage.....	4
2.4 environment protection.....	4
3. Fundamental operations.....	5
3.1 unpacking and inspecting.....	5
3.2 connecting the feeder.....	5
4. Descriptions of the functions and operations.....	6
4.1 setting the working pressure.....	6
4.2 setting the counter.....	6
4.3 detecting the leak.....	7
4.4. diagnosing and removing the alarming faults.....	8
4.5. function of the remote signalling.....	8
4.6 setting the beeper.....	8
4.7 using the humidity observing window.....	9

5. Maintenance.....	9
5.1 maintaining a good working ambience.....	9
5.2 cautions for cleaning the dehydrator.....	9
5.3 replacing the dehumidifier material.....	9

# 1. Descriptions of the products

## 1.1 Brief introduction

CQ-02 Intelligent Silent dehydrator for Wave Guide is an advanced assisting equipment, important in the field of telecommunication systems, widely used on microwave station, radar station, satellite ground station, radio and tv transmitting station, responsible for the automatic Pressurizing works in these feeder systems. The function of the equipment is to keep the air dry, with a certain air pressure in the system, avoid humidity and make sure the signal transmit quality steady and reliable.

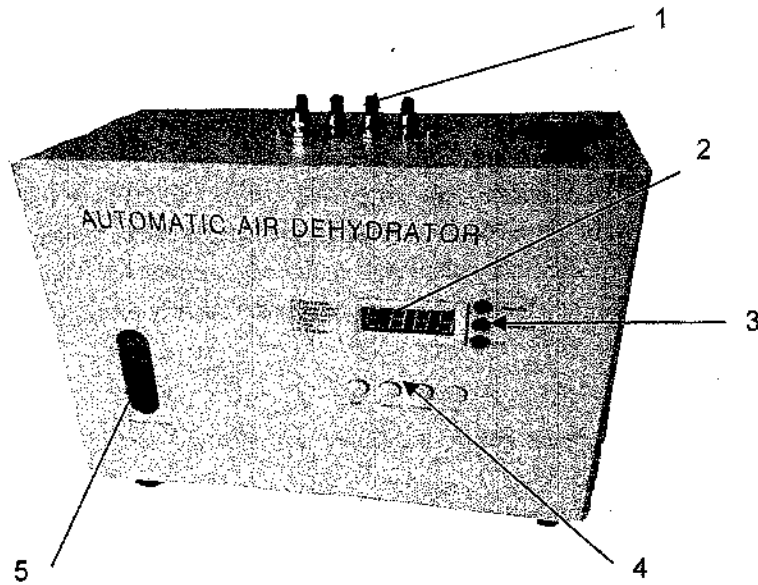
## 1.2 Advantages

1. Advanced electric circuit design. Intelligent and all logic control. Reliable and stable characteristics.
2. Special designed imported air compressor (pump). Clean and oil-free air output. Low noise. Small power consumption.
3. Synthetic fault alarming function.
4. Patented dehumidifier cylinder. High characteristic dehumidifier silicon gel. Strong hermetic seal. Good effect of dehumidifier. Long durability of the dehumidifier agent.
5. Small & light-weight, easily to be installed and convenient in maintenance work.
6. Four-way outlet systems, could realize maintain more feeders in the same time.

## 1.3 Main technical parameter

- Voltage : AC 220V 50Hz/60Hz
- Wattage :  $\leq 80W$
- Working pressure : 1kPa ~ 50kPa
- Working temprature :  $-10^{\circ}C \sim +55^{\circ}C$
- Working humidity :  $< 90\%$  (  $20^{\circ}C$  )
- Dew point at output : better than  $-45^{\circ}C$  (  $20^{\circ}C$ , 80%RH )
- Flow rate of output :  $> 0.5m^3/h$
- Noise while working :  $< 45dB@1m$
- Dimensions : 310mm $\times$ 155mm $\times$ 280mm (Length \* width \* height)
- Weight : 9kg

## 1.4 Appearance and interface



1. Inflatable mouth
2. Digital display window
3. Indicator light, red for the alarm indicator, green for the inflatable indicator, yellow for the missing indicator
4. Operation buttons
5. Air drying degree of observation window

## 2. Cautions

### 2.1 Working ambience

#### [Warning]

In order to avoid faults, the dehydrator should work in the following limited ambience:

#### ■ Power source

The power source is one of the main factors that cause faults of the dehydrator. It is necessary to make sure the power source is to satisfy the requirements. The voltage

of the power source generally is AC 220 V 50/60 Hz. If the power source always has an extremely higher or lower voltage, clients are advised to use a regulated power supply to connect the dehydrator and the power source.

■ Power source outlet socket

A three holes and perfect grounded power outlet socket should be used for the dehydrator. Especially attention to that the dehydrator should not be connected to a power outlet socket that is used to connect to a large power consumptive equipment which may greatly change the electric voltage and current while it works, and the electric circuit of the dehydrator will be damaged.

■ Power source plug

A good quality, three pin and perfect grounded power source plug should be used for the dehydrator. The power source plug must be plugged into a perfect grounded power source outlet socket. A perfect grounding is the important guarantee of the good performance of the dehydrator. The unauthorized replacement of the standard power source cord may cause serious results. The maximum length of the power source cord should not exceed 3 meters.

■ Ambient temperature

The ambient temperature should be  $-10^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$ . The extremely high and low temperature will cause the dehydrator to be damaged and aged rapidly, thus its working life may be shortened. The dehydrator should be placed in a good ventilated place so that the temperature of the dehydrator can be regulated easily. It would be better to place the dehydrator into a room with air conditioning.

■ Ambient humidity

The ambient relative humidity that the dehydrator is going to be used to work should be less than 90%. If the air is extremely humid, the dehydrator may be caused to dew on its surface, and circuit components, contactors and leads on the electric circuit board may be to rust and mildew, thus the circuits may be broken or shorted. To avoid the corrosion of the dehydrator due to water and other liquid, the dehydrator should be run for 2 hours every week to keep its inner parts dry in a rather humid ambience.

## **2.2 Before operation**

Before operating the dehydrator, the following preparative works must be done properly:

1. Read carefully and understand thoroughly the instruction manual and other documents provided with the dehydrator.
2. Place the dehydrator in a dry and good ventilated place where the feeder interfaces and power source socket are located close nearby.
3. Keep the packaging materials so that they can be used when moving the dehydrator.

### **[Warning]**

Connecting the dehydrator to the power source and starting it at the low temperature may cause the dehydrator troubles which may be unable to repair. So it should be ensured that the dehydrator should be placed under a condition of a room temperature more than 2 hours to recover before starting the dehydrator.

### **[Attention]**

Make sure the connecting, power source and other items of the dehydrator can satisfy the requirements of this instruction manual.

## **2.3 Move, Transportation and Storage**

### **[Attention]**

When the dehydrator needs to be moved, first of all, all connections to the power source must be broken. Plugging and unplugging are prohibited while the plug is getting power.

The dehydrator must be put into the original packaging box during transportation.

Severe vibration, bump and shock should be avoided.

The dehydrator should be placed and stored in a ventilated and dry place.

## **2.4 Environment protection**

Names and contents of the poisonous and harmful substances and elements in the products :

Name of the parts	Lead	Mercury	Cadmium	Chromic	Polybromide biphenyl	Polybromide diphenyl ether
	Pb	Hg	Cd	Cr(VI)	PBB	PBDE
Circuit boards	x	o	o	o	o	o
casings	x	o	o	o	o	o
accessories	x	o	o	o	o	o

o: It shows that the contents of the poisonous and the harmful substances in the materials of the parts are lower than the contents specified by the standard of SJ/T1163-2006.

x: It shows that the contents of the poisonous and the harmful substances at least in a certain material of the parts are higher than the contents specified by the standard of SJ/T1163-2006.

**[Attention]**

Garbage and waste produced by the dehydrator (include its consuming things) and the scraped dehydrator itself must be disposed according to the laws and regulations about the waste disposal of the country (region) where the clients stay in.

**3. Fundamental operations**

**3.1 Unpacking and Inspecting**

Open the paper box and take out the formed plastics from the packing box. Take out the installing accessories, instruction manual and the dehydrator carefully. Check whether the equipments are coincident with the contents of the packing list. Inspect the dehydrator whether it is damaged due to transportation and its parts are loosened.

**[Reminding]**

Once the dehydrator is used, it is regarded that the dehydrator is coincident with the contents of the packing list.

**3.2 Connecting the feeder**

The product of CQ-02 has 4 output nozzles , which can be connected to 1-4 output hoses. Every output nozzle has a plugging cap. When the nozzle is used to connect the feeder, the plugging cap needs to be screwed off first (the plugging caps should be kept properly in order to use them later on).



## 4. Descriptions of the functions and operations

### 4.1 Setting the working pressure

- The upper and lower limit of the working pressure of the dehydrator are set at certain rational values before delivery. If there is not any special demand, the inspection of the dehydrator, the installation and the connection of the system have been done, customers can press the power source button. The dehydrator will work normally.

- Setting the working pressure

- ①. Click the key for setting up functions once, H is displayed on the indicator of counter. Now the pressurizer is in the state that the upper limit of the dehydrator can be set. Press the key ▲ or key ▼ to increase or decrease the set value. The range of the setting value is 1 kPa to 50 kPa. The resolution is 1 kPa. After setting up, press the key for setting up functions three times and the dehydrator returns to the normal state.

- ②. Press the key for setting up functions twice, L is displayed on the indicator of counter. Now the dehydrator is in the state that the lower limit of the dehydrator can be set. Press the key ▲ or key ▼ to increase or decrease the set value. The range of the set value is 1 kPa to 49 kPa. The resolution is 1 kPa. After setting up, press the key for setting up functions twice and the dehydrator returns to the normal state.

**[Attention]**

The lower limit value of the pressure to be set can not be greater than or equal to the preset value of the upper limit.

The upper limit value of the pressure to be set can not be less than or equal to the preset value of the lower limit.

### 4.2 Setting the counter

- The counter of the dehydrator can be set according to the customer's need. The times of the air-charging are able to record automatically. From the recorded times the operator can know the sealing situation of the feeder so as to ensure that the dehydrator is used normally and rationally.

- Press the key for setting up functions three times, and C is displayed on the indicator of pressure. Now the dehydrator is in the state that the counter can be set.

Press the key ▲ or key ▼ to increase or decrease the set value. The range of the setting value is 1 to 255. After setting up, click the key for setting up functions once, and the dehydrator returns to the normal state.

- If the times of the air-charging in 24 hours is greater than the preset value, the alarming pilot lights and the beeper alarms . It does not work until the next period of 24 hours.
- Switch off the power source and start the dehydrator again. The counter will be back to zero.

[Attention]

- If the sealing of the feeder is good, the times of the air-charging will be fewer. Besides the air-charging for the first time, the times of air-charging in every 24 hours should not exceed 8 times ( $\cong 8$ ). Otherwise, operators should inspect and repair the feeder system in time.
- Starting the dehydrator frequently may affect the lifetime of the dehydrator seriously.

### 4.3 Detecting the leak

- The sealing situations of the feeder system can be examined through the leak detecting push button. Push the leak detecting button, the leak detecting pilot lights. The sealing situations of the feeder can be observed through the variation of the pressure value displayed on the digital indicator of pressure. If the pressure value decreases rapidly, it is shown that the sealing of the feeder system is worse. If the pressure value is stable, it is better.
- Push the leak detector button again, the air pump recovers providing the air.

[Warning]

If the sealing situation is worse, the operator should inspect and repair the feeder system in time.

### 4.4 Diagnosing and removing the alarming faults

Alarming phenomena	Reasons of faults	Removing method
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When the air-charging operation running continuously for 60 mins. And still in active, then the alarm light sparking and the beeper sounding up. After this, dehydrator works under a regulation; running for 1 hour then resting for 1 hour repeatedly.	The feeder system leaks	1. Inspect the feeder system and repair the sealing. 2. Switch off the power source and start the dehydrator again.
The times of the air-charging in 24 hours is greater than the preset value, the alarming pilot lights and the beeper alarms	The feeder system leaks	1. Inspect the feeder system and repair the sealing. 2. Set the times of air-charging again.

#### 4.5 Function of the remote signalling

- The remote signalling interface of the dehydrator is a pair of contactors, the output of the alarming is the typical relay output type. Capacity of the contactor's head is 3 A.
- The dehydrator can be monitored remotely according to customer's need, which must be carried out by specialist person. Firstly take out the remote signalling interface from the accessories which are provided with the product, unscrew the plug and connect it to the terminal with the double core cable, and push the plug into the remote signalling interface on the top of the dehydrator. After connecting the output leads to the sound, light and electric alarming devices, the remote monitoring and alarming are realized.

#### 4.6 Setting the beeper

- The state on or state off of the beeper can be set according to the customer's needs.
- Click the key for setting up functions four times, and the letters bP are displayed on the indicator of counter. It shows that beeper is in its setting state; Click the ▲ key, and the letters ON are displayed on the indicator of pressure. It shows that the beeper is in its on state; Click the ▼ key, and the letters OFF are displayed on the indicator of pressure. It shows that the beeper is in its off state ;
- Click again the key of setting up functions, and the beeper returns back to its normal state.

## **4.7 Using the humidity observing window**

The situations of the dry grade of the air output can be observed and understood effectively through the humidity observing window.

1. When the colour of the silicon gel is orange, it is shown that the dry grade of the output air is better.
2. When the colour of the silicon gel is yellow-brown, it is shown that the dry grade of the output air is not bad.
3. When the colour of the silicon gel is dark-green, it is shown that the dry grade of the output air is bad.

## **5. Maintenance**

### **5.1 Maintaining a good working ambience**

The working ambience of the dehydrator plays an important role in whether the dehydrator works normally or not; its performances are good or bad and its working life is longer or shorter. The specific requirements for the working ambience are listed in 2.1, please refer to them.

### **5.2 Cautions for cleaning the dehydrator**

The dehydrator will need to be clean dust and smudge frequently:

Before cleaning, first of all, switch off the power source and draw out the power source cord.

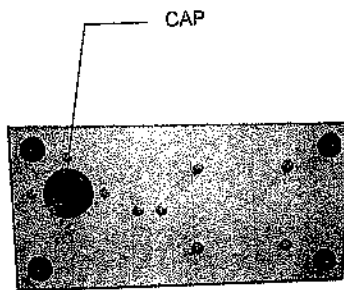
After the dehydrator is cleaned and it is dried thoroughly, then switch on the power source.

### **5.3 Replacing the dehumidifier material**

The high characteristics and colour changeable silicon gel is used as dehumidifier material in the dehydrator. Its colour can be observed through the humidity observing window on the panel. When its colour is dark-green, the material (colour changeable silicon gel) should be replaced or regenerated.

Step 1:

Switch off the power source, and draw out the power source cord. Wait till the dehydrator is cooled thoroughly. The lid of the dehumidifier cylinder is in the bottom of the dehydrator. Unscrew counterclockwise and open the lid.



**Step 2:**

Put the dehydrator on the table upside down, the filling hole is upward (the dehydrator should be supported and fixed tightly while it is put upside down). Fill the new or regenerated agent into the filling hole. It is enough to fill the agent up to 90%. Clear away the small granular agent from the place round the hole. Screw tightly the lid of the dehumidifier cylinder.

**Regenerating the dehumidifier agent**

Pour the dehumidifier agent that is pink in colour into the shallow vessel. Put the vessel into the microwave furnace or drier oven to heat the agent to  $120^{\circ}\text{C}\pm 10^{\circ}\text{C}$  for 15 to 20 min.. The colour of the agent is changed to blue, and then, cool the agent naturally.

**[Warning]**

While replacing the agent, it is not necessary to take out the dehumidifier cylinder from the dehydrator, thus the loosening of the connecting leads and air tubing can be avoided and the normal work of the dehydrator may not be affected.

# Test report

Serial No: 198002

Temperature: 22°C

Relative humidity: 65%

1. Product Name: Dehydrator

2. MODEL: CQ-02

3. S/N: A1337

4. Standard: Q/KD001-2007

5. Test date: 2019/05/14

6. Test results:

Items	Product standard	Test date	Result
Voltage	AC 220V; 50/60Hz	AC 220V; 50Hz	Passed
Power consumption ( in action)	80W	80W	Passed
Charging pressure	1kPa~50kPa	1kPa~50kPa	Passed
Flow	500L/H	510L/H	Passed
Noise	<35dB@1m	32dB	Passed
Humidity	Less than -45°C	-51.2°C	Passed
Control functions	With warning, pressure adjustment , time count , leak detection functions	Warning, pressure adjustment, time count, leak detection functions working well.	Passed
Airtightness Test	Less than 3kPa (60min)	1kPa	Passed

## Packing List

Description	Unit	Quantity	Reworks
Dehydrator	Set	1	CQ-02
Ac power cable	Piece	1	
Φ4*6 PU pipe	m	20	
Fuse holder	Piece	2	2A
Remote singalling connectings	Piece	1	
Feeder connector	Piece	8	4 ↑ Φ6-M12 4 ↑ Φ6-R1/8
Expansion screws	Piece	2	M6×50
Clasp	Piece	2	
Instruction manual	Copy	1	
Test Report	Copy	1	
The label	Copy	1	Stick box shell