CM100 Medical Air Compressor

User's Manual

Beijing Eternity Electronic Technology Co. Ltd.

Statement

Everything written in this manual is considered to be correct. Eternity is not legally responsible for any mistakes printed within and any damages caused by incorrect installation and operation. Eternity does not supply privileges endowed by the patent law to any other parties. Eternity is not legally responsible for the results caused by patent law breaking and any rights of the third party violating.
Refer to this manual before any Eternity product is used. The manual includes operating procedures which must be performed with cautiously, operations that may result in non-normal working conditions and the dangers which may damage equipment or cause bodily harm. Eternity is not responsible for the security, reliability and function of the equipments in case that the dangers, damages and non-normal phenomenon mentioned in this manual happen. Free repairs for these malfunctions will not be provided by Eternity.
Eternity have the rights to replace any content in this manual without notice.

User Responsibility

This product will perform in conformity with the description contained in the operating manual and accompanying labels and /or inserts, when assembled, operated, maintained and repaired in accordance with the instructions provided. This product must be checked periodically. Do not use product if defective. Replace all broken, missing, worn, distorted or contaminated parts. If repair or replacement becomes necessary, a telephone call or written request for service advice should be made to the nearest Eternity customer service center. This product or any of its parts must be repaired in accordance with the written instructions provided by Eternity and by Eternity trained personnel. The product must not be altered without the prior written approval of Eternity. The user of this product shall assume the full responsibility for any malfunction resulting from improper use, faulty maintenance, improper repair, damage or alteration by anyone other than Eternity personnel.

Manufacturer Responsibility:

Eternity is responsible for the security, reliability and function of the equipments when to following conditions are adhered to:

1、 Installation, adjustments, mending and repairs must be performed by individuals authorized by Eternity;
2、Necessary electrical equipment and the working environment must be in accordance with the national standards, professional standards and the requirements listed in this manual;
3、Equipment must be used as instructed in the operating instructions.

CAUTION: This equipment is not for family use.

CAUTION: Malfunctioning equipment may become invalid and cause bodily injury if a set of effective and approving repairing proposals cannot be submitted by the institution which is responsible for using this equipment.

The paid theoretical framework diagram will be supplied according to customer requirements by Eternity, plus calibrating method and other information to help the customer, under the assistance of qualified technicians, repair the equipment parts where can be done by customer himself based on the stipulation by Eternity.

Warranty:

Manufacturing techniques and materials:

For a period of one year from the date of original delivery, the components and assemblies of this product is warranted to be free from defects manufacturing techniques and materials, provided that the same is properly operated under the conditions of normal use and regular maintenance. The warranty period for other parts is three months. Expendable parts are not included. Eternity's obligation under the above warranties is limited to repairing free of charge.

Free Obligations:

a) Eternity's obligation under the above warranties does not include the freight and other fees;

b) Eternity is not responsible for any direct, indirect or final product broken and delay which result from improper use, alteration by using the assemblies unratified and maintenance by anyone other than Eternity;

c) This warranty does not apply to the followings:

Improper use

Machines without maintenance or machines broken

The label of Eternity original serial number or mark is removed or replaced

Other manufacturers' product

Return

Follow the steps in case that the product needs to be returned to Eternity :

1. Obtain the rights of return

Contact with the customer service of Eternity by informing them the number and type of the product. The number is marked on the surface of the product. Return is unacceptable if the number cannot be identified. Enclose a statement of the number, type and the reason of return as well.

2. Transportation charges

Transportation and insurance charges must be prepaid by the user for transporting the product to Eternity for repairing. (Customers charges is added with regard to the products sold to non-Chinese mainland users)

Security, reliability and operating condition:

Eternity is not responsible for the security, reliability and operating condition of this product in case that:

1) The assemblies are disassembled, extended and readjusted

2) This product is not operated correctly in accordance with the manual instruction. The power supply used or operating environment does not follow the requirements in this manual.

NOTE:

Each Eternity product has a serial number, such as

CM100 E xx xx xxx

CM100: compressor model

E：english version

the first xx : the year of manufacturing

the second xx : the month

the xxx : equipment number

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CE **0123**

Conformity according to the Council Directive 93/42/EEC concerning Medical Devices

Contents

1) Introduction

1.1 What is CM100 Medical Air Compressor

CM100 medical air compressor (Hereinafter referred to as CM100) made by our company (hereinafter simplified as compressor) is a device which can provide continuous airflow. It outputs the purified air with a certain pressure and flow. It is manufactured with the latest technology and features a compact structure, convenient use, long service life, output of pure, clean and dry air without any oil.

⚠ **WARNING** **The user of CM100 must be professional and trained.**

⚠ **WARNING** **CM100 is unsuitable for use in a magnetic resonance imaging (MRI) environment.**

1.1.1 Intended Use

The CM100 is intended for use in hospitals as an alternative to hospital air or cylinder air to supply the medical air requirements for ETERNITY MEDICAL ventilators. It can also be used as a backup medical air supply for these ventilators in case of failure of their normal air supply.

1.1.2 Contraindication

Not find any contraindication at present.

1.2 Symbols

⚠ Warnings and ⚠ Cautions indicate all the possible dangers in case of violation of the stipulations in this manual. Refer to and follow them.

⚠ **WARNING**: indicates potential hazards to operators or patients

⚠ **CAUTION**: indicates potential damage to equipment

Instead of illustrations, other symbols may also be utilized. Not all of them may necessarily appear in the equipment and manual. The symbols include:

	ON（Power）		Type B equipment
	OFF（Power）		Warning or Caution, ISO 7000-0434
	Alternating Current		Caution, hot surface
	Dangerous Voltage		Date of manufacture
	Address of manufacture		Gas outlet

2) Compressor Structure

2.1 Front View

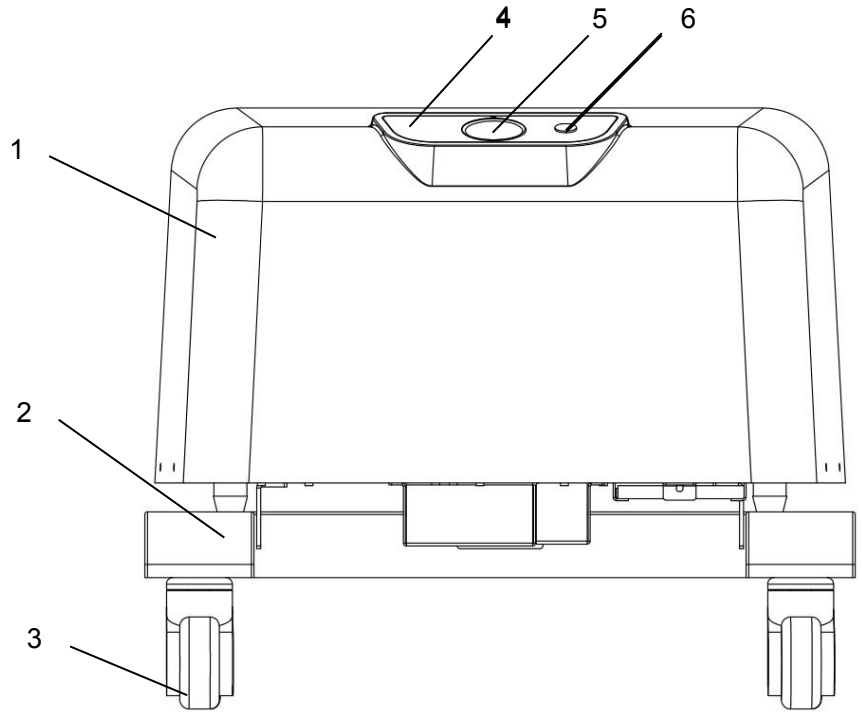
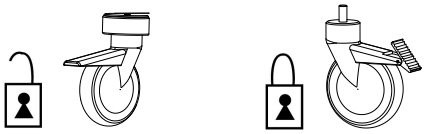


Figure2-1 Front View

1. shell
2. base
3. castors(with break)
4. facial mask
5. Pressure gauge
6. Indicator light

2.1.1 Castors

Push down to lock, and pull up to unlock.



2.1.2 Monitor panel

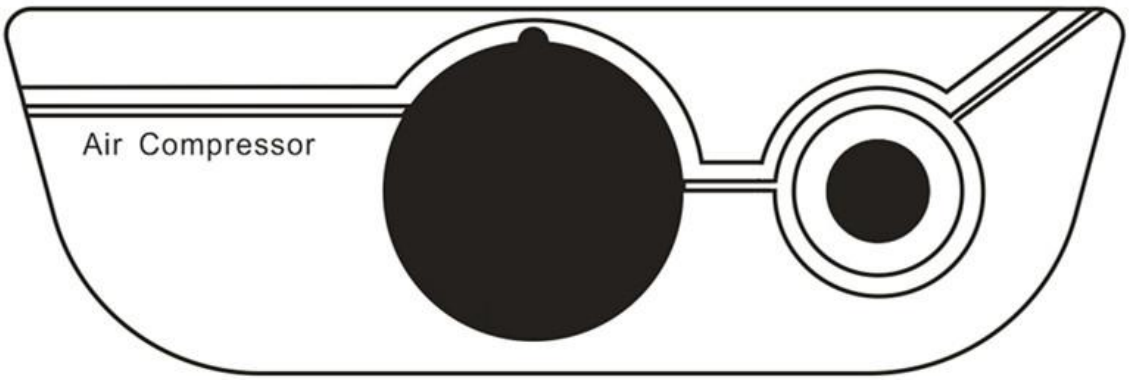


Figure 2-2 monitor panel

The indicated lights:

RUNNING light (green color)	When the compressor works,the light is on.

Pressure gauge

Display pressure	When the compressor is started, the pressure is displayed on the 0.4MPa

2.2 Back View

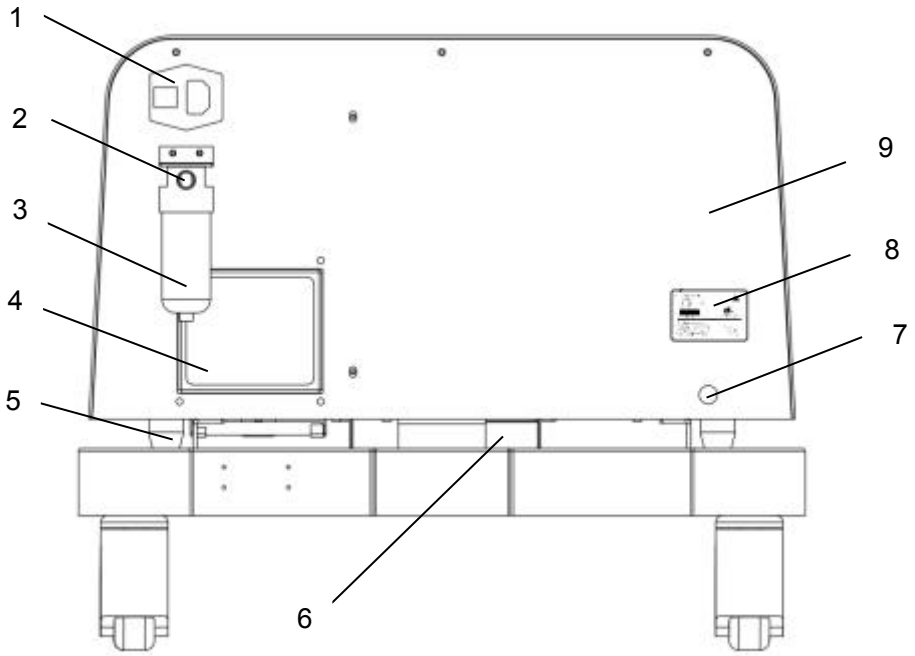


Figure 2- 3 CM100 Back View

Item	Description
1	A fixed power cord socket with a switch and fuse drawer Fuse :F 6.3 A H/250 V/T 8.0 A H /250 V
2	compressor outlet connector. Quick -release female connector. The output pressure is 400KPa and the continous flow is 50L/min.
3	Manual drain filter. Observe the water internal of the filter, if too much water ,manually drain.
4	Air inlet. There is a dust filter on the air inlet. The dust filter port should be cleaned weekly in case ventilation is abnormal.
5	Reduce machine oscillation
6	Device for reducing noise
7	Manual exhaust valve
8	Rating plate .Describes manufacturer's and product's information.
9	Supporting air compressor parts

⚠ **WARNING:** **No block of air inlet port.**

3) Operating Guide

This section tells you how to set up the CM100 for operation, including connecting the air hose and the electrical supply and startup.

3.1 Check before operating

Before operating, the user should checkout the following items:

1. Check the power supply:

   Check that the operating voltage specified on the rating Plate matches the line voltages.

2. Check the air hose connect to compressor:

   Check whether the air hose has been connected to the air compressor and whether there is any air leakage.
   Firmly insert the connector on the air hose into the quick-release coupling on the compressor.

3. Check the work environment:

   Place CM100 in a cool place, away from radiators and other source of heat . Entrue that air can circulate freely around the compressor.

3.2 Connect column

When CM100 is intended for use in hospitals or homes as an primary air to supply the medical air requirements for ETERNITY MEDICAL ventilators or other,the column need be installed.

the user should operate as the following steps:

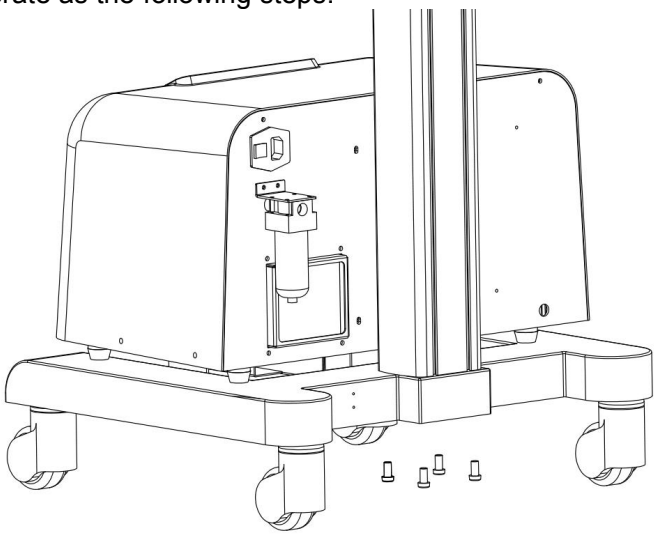


Figure 3 Install

3.3 Starting system

3.3.1.1 Press power switch on the rear .

3.3.1.2 the green light (RUNNING)on the monitor panel shall be lit

3.3.1.3 the CM100 can emit a soft and continous humming.

⚠ **WARNING** **While this device is operating normally, do not dismantle, fasten or repair the components or parts of the device with voltage and electricity.**

⚠ **WARNING** **To minimize the risk of electrical shock, plug the power cord into a grounded ac power outlet. To ensure grounding reliability, use a special hospital-grade outlet.**

⚠ **CAUTION** **If air leakage or abnormal noise has been found on the air compressor, immediately power off the device and stop its running; The device can be powered on for operation only after the reasons have been found and the troubles have been removed. If the user is unable to remove the trouble, contact our company immediately. Our company shall send professionals for their solution.**

⚠ **CAUTION** **The device should be in wardship at any time when used.**

⚠ **CAUTION** **The device should be often equipped with an gas source when used, oxygen bottle for example, in case of power cut off.**

⚠ **CAUTION** **The CM100 normally emits a soft, continuous humming. If the unit sounds unusual, contact service.**

3.4 Switching off

After switching off the ventilator

1. Press power switch on the rear.
2. The green state led(RUNNING led) goes off.

3.5 Wide disinfection

To prevent any damage,we recommend that only detergents and disinfectants are used that are compatible with the materials used in the compressor and its accessories,e.g. surface disinfectants on the basis of aldehydes, alcohol,or quarternary ammonia compounds for disinfection of the main unit.
Wipe compressor housing, hoses and cable with disinfectant .

The following table shows the cleaning and disinfection methods recommended by the company, including the first use and reuse.

Parts	Recommended interval	Clean					Disinfect
		A Flushing	B Immersion	C Wipe	D Rinsing	E Drying	F Pressure steam
Outer surface of air compressor (including casing, power line and high-voltage pipe)	Per patient / week			C			
Air filter cotton	Per patient / week			C			

Methods of Cleaning and Disinfecting：

Cleaning:

Wash：

A. Rinse with running water for 2 min to remove surface contaminants;

B. Rinse the sample in 1L purified water for 3 times, 1 min each time.

Dip in：

Soak the contact part between the sample and the human body in the cleaning agent for 5 min.

Wipe：

A. Wet the soft clean cloth in the cleaning agent and wipe the surface of the sample thoroughly 5 times.Replace a clean soft cloth after each wipe.If there are still visible contaminants, wipe repeatedly until no contaminants are visible to naked eyes;

Rinse：

A. Rinse with purified water for 2 min to remove residual cleaning agent;

B. Rinse the sample in 2L purified water for 3 times, 1 min each time, and remove the residual cleaning agent on the surface.

Desiccation：

A.Use a dry absorbent soft cloth to wipe the residual water on the surface of the sample.

B.Place the sample in a dry place and let it dry thoroughly.

Disinfecting:

Autoclaving:

The recommended disinfection time is 15 minutes when the temperature is 134℃ and the pressure is 188.4 kPa to 210.7 kPa.

Following table list the allowable cleaning and disinfecting agents and autoclaving process.

Name	**Category**
Suds(PH ranges from 7.0 to 10.5，Concentration of 5%)	Cleaning Agent
Autoclaving process*	Disinfecting Agents

Autoclaving process*:The components can be autoclaved up to a maximum temperature of 134 ºC (273 ºF).

⚠ **CAUTION** **the compressor housing consist of materials that are sensitive to certain organic solvents sometime used for cleaning and disinfecting(e.g.,phenols,halogen releasing compounds,strong organic acids,etc).exposure to such substances may cause damage that is not always immediately apparent.**

4) Maintenance

⚠ **CAUTION:** **To prevent damage:**

- **Refer to the data supplied by the manufacturer if there are any questions about the agent.**
- **Never use any organic, halogenate or oil base solvent, anesthetic, glass agent, acestone or other irritant agents.**
- **Never use any abrasive agent to clean any of the components (i.e. Steel wool, silver polish).**
- **Keep liquids far from the electrical components.**
- **Prevent liquid from entering the equipment.**
- **Do not immerse the synthetic rubber components more than 15 minutes: any longer will cause inflation, or accelerating aging.**
- **Only the components marked 134℃ are pressure-resistant and heat-resistant.**

Follow these maintenance procedures to ensure the safety and reliability of the CM100 . All the procedures in this manual are intended to be performed by the operator. For further maintenance procedures, contact service.

4.1 Preventive maintenance

Perform preventive maintenance on your CM100 according to the schedule in Table below:

Interval	Part	Procedure
Between patients and according to your hospital's protocol	Entire CM100 compressor	Run the "check before operating".
Every week	air intake filter (back panel)	Check for dust filter,if needed, clean or replace (see "Checking air intake filter").
Every 5000 hours	Internal air intake filter element	Have a qualified service technician perform maintenance according to instructions in the service manual.
	Water trap	
	Entire CM100	

⚠ **CAUTION:**

Eternity recommends that you document all maintenance procedures.

Dispose of all parts removed from the device according to your institution's protocol. Follow applicable regulations regarding disposal or recycling.

The following subsections provide details for some of these preventive maintenance procedures.

4.2 Replacing fuses

⚠ **WARNING:** **Disconnect from power supply before replacing fuses, otherwise that can injure operator even death.**

⚠ **WARNING:** **Replace fuses with only those of the specified type and current rating, otherwise that can damage the equipment.**

⚠ **CAUTION:** **The fuse is fragile, so replacement should be carefully. Do not use excessive force.**

Replacing steps:

1. Plug the screwdriver to groove on the end of fuse box.
2. Pry it lightly then pull out fuse tubes lightly.
3. Take off fuse tubes.
4. Enclose the new ones.
5. Push fuse tubes to original place gently.
6. Push the box to the groove.
7. Connect mains supply.

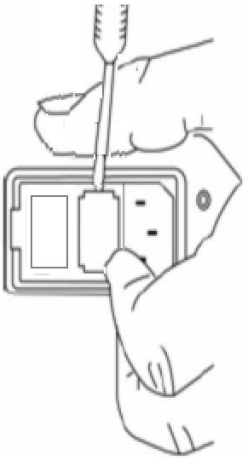


Figure 4- 1 Pry out the fuse holder

4.3 Check air intake filter

⚠ **WARNING**: **Don’t try to use a Alternatives, the unmatched dust filter will result compressor pump overheat, please contact Eternity or current distributor for air dust filter,**

Check the sponge air intake filter every week. If it is dirty, remove it. Wash it with warm, soapy water, rinse it well, then let it dry completely. Reinstall it. Alternatively, you can replace a worn or extremely dirty filter with a new one.

Replacing steps:

1. Remove the dirty or worn dust filter.
2. install the new dust filter carefully.

5) Troubleshooting

⚠ **CAUTION:** **Maintance or repair of CM100 shall be perform only by Eternity authorized technical service represententives.**

Trouble	Concomitant State	Possible Cause	Shooting Method
No air output	If the power switch is on，But the green LED don't light	a) The power supply is broke down. b) The fuse is break off.	a. Mend the power supply and starting up again b. Replace the new fuse.
	Green LED light up, the air pipe is well, but exhaust inside the machine can be heard.	Pipeline inside is fall off.	Report to repair
	Green LED light up,No air output, after long time use	The compressor pump is breakdown	Report to repair
		Over temperature cut off switch has activated, because motor has overheated.	a. Check the installation of the pump core filter, Wash or replace. b. Check for the back of the compressor the air inlet port filter , Wash or replace. c. Check for evidence that cooling fans are working (sound, air flow). If you suspect that they are not, contact service.
Compressor starts up although pressure in the medical air hose is over 450kPa	Compressor vibrating excessively	Pressure relief valve defective	Report to repair
CM100 noisy	Compressor vibrating excessively	Sping feet on compressor unit defective.	Report to repair

6) Specifications and Theory

6.1 Physical Specification

All specifications are approximately, maybe changed at any moment without inform.

⚠ **CAUTION:** **Do not put CM100 into the shock environment.**

⚠ **CAUTION:** **Do not lay the heavy on the top or into the draws.**

Main unit dimension	Height	480mm
	Width	540mm
	Depth	550mm
Weight	Approximately 52kg	

6.2 Environment requirements

Temperature	Operation:	+5℃～+40℃
	Storage:	-20℃～+55℃
	Transport	-20℃～+55℃
Relative Humidity	Operation:	≤80％
	Storage:	≤93%
	Transport	≤93％
Atmospheric Pressure	Operation:	70kPa～106kPa
	Storage:	70kPa～106kPa
	Transport	70kPa～106kPa

⚠ **CAUTION:** **The machine should storage in the room where has no corrosive air and high magnetic field in.**

6.3 System Technical Specification

6.3.1 Classification

According to EN60601-1, CM100 belongs to the following classifications:

- Class I equipment
- Type B equipment
- General equipment
- Mobile equipment
- Flammable anesthetic cannot be used
- Operate continuously

The CM100 meets the essential requirements of the Council Directive 93/42/EEC, Annex I, and bears the CE mark.

Classifications IIb
as per 93/42/EEC
Annex IX

6.3.2 Power Supply

Voltage	EN:AC 230V/50Hz ; ANSI: AC 110V /60Hz
Continuous Flux	≥50L/min
Input power:	≤650VA
Fuse at mains supply inlet:	EN: F6.3AH,250V φ5X20 ANSI: T8AH,250VP φ5X20

6.3.3 Power cord

Length:	3 meters
Rating voltage:	EN:90 to 264VAC or ANSI:220VAC
Capacity of current:	EN:250VAC 10A or ANSI:125VAC 10A
Type:	Three-core cable

6.3.4 Performance

Output pressure:	0.4MPa，the error is :±30kPa。
Continuous flow:	≥50L/min
Peak flow:	Not less than 120L / min
Dew point depression at the operating pressure	5℃ below ambient temperature at ≥ 50L/min, and maximum ambient temperature is 40℃
Air quality:	Dust-free and oil-free compressed air
Pressure increase time:	The time from starting-up to the while when pressure has raised to 400kPa±30kPa is not more than 30s.
filter	≤5 micron
Compressor air outlet	Quick-release coupling with check valve
Noise of whole unit:	Testing distance ≥1m; noise of the natural working ≤ 54dB(A)。

6.4 Operation Theory

After the air compressor is powered on, the motor of compressor starts running (the indicating light of RUNNING shall be lit). Ambient air is dry in via air intake filter firstly ,then via dust filter, compressed in compressor pump and cooled in the cool coil by radiated fans. Exhaust valve briefly opens system when the compressor starts up ,in order to prevent motor start with full load.
The pressure relief valve limits system pressure to 450Kpa,and protects the unit against excessively high pressure from medical air pipeline system.
The compressed air is cleaned by water filter, the condensate water is collected and removed via water trap. Water trap can automatic drain water, The water will be collected to box via exhaust water tube.
At last, the dehumidified air flow into pressure tank and ready to supply.

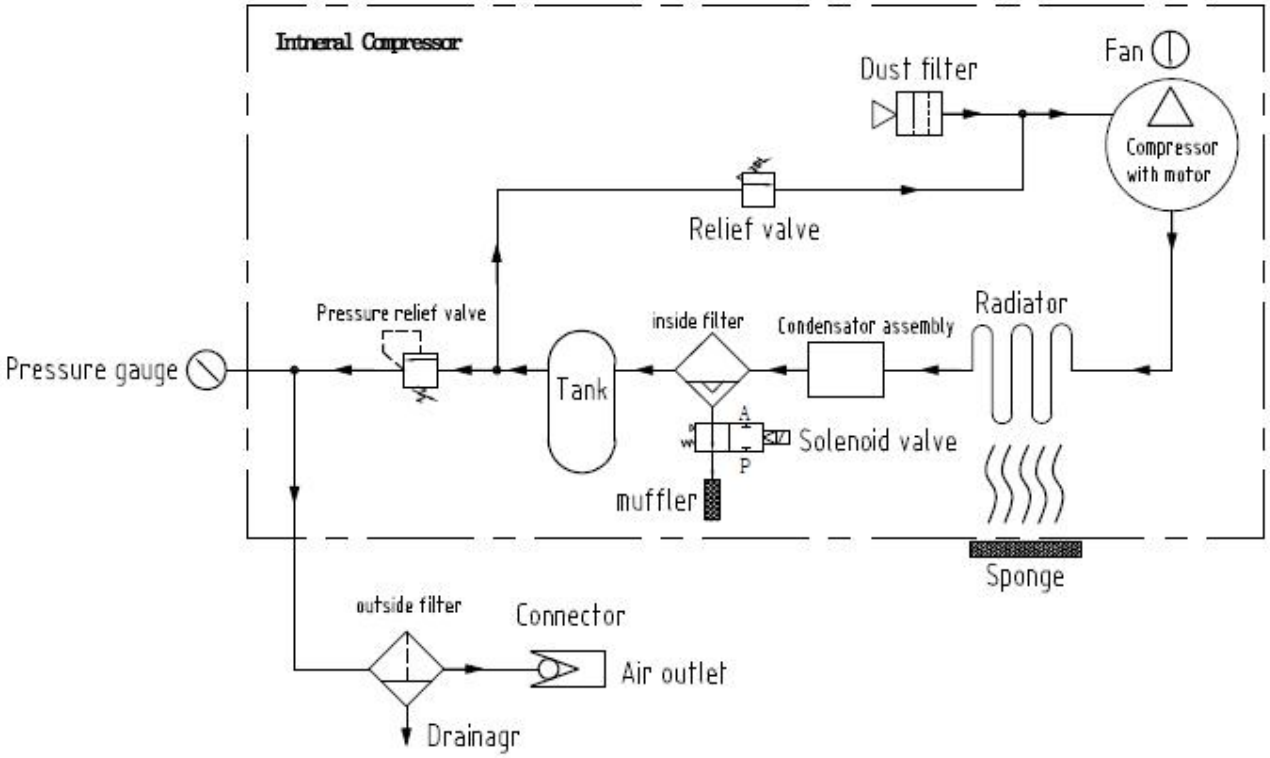


figure 6- 1 CM100 Operation Theory Diagram

6.5 Electromagnetic Compatibility

Changing or reassembling this equipment without Eternity's authorization may cause electromagnetic compatibility problems. Contact with Eternity for assistance. Designing and testing this equipment is in accordance with the following stipulations.

⚠ **WARNING:** **using cell phone or other radio radiant equipment near this product may cause malfunction. Closely monitor the working condition of this equipment if there is any radio radiant supply nearby.**

Using other electrical equipment in this system or nearby may cause interference. Check if the equipment works normally in these conditions before using on a patient.

Be careful of the following when CM100 is connected:

Do not put any object which is not in accordance with EN60601-1 in the 1.5M range of patients.

An isolated transformer must be used for alternating current supply (in accordance with IEC60989), or additional protective ground wires are equipped if all the devices (for medical or non-medical use) are connected to CM100 by using signal input/signal output cable.

If a portable all-purpose outlet is used as the alternating current supply, it must be in accordance with EN60601-1-1 and cannot be put on the floor. Using another portable all-purpose outlet is not recommended.

Do not connect the non-medical equipment directly to the alternating current outlet on the wall. Only the alternating current supply of the isolated transformer can be used. Otherwise, the surface leaking current may exceed the range permitted by EN60601-1 under the normal conditions, and misoperation may cause injury to patients or operators.

⚠ **WARNING: medical electrical equipment operators contact non-medical electrical equipment and patients at same time. It is dangerous of patients or operators.**

Guidance and manufacture's declaration – electromagnetic emissions-
for all EQUIPMENT and SYSTEMS

Guidance and manufacture's declaration – electromagnetic emission		
The CM100 is intended for use in the electromagnetic environment specified below. The customer of the user of the CM100 should assure that it is used in such and environment.		
Emission test	**Compliance**	**Electromagnetic environment – guidance**
RF emissions CISPR 11	Group 1	The CM100 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emission CISPR 11	Class B	
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Guidance and manufacture's declaration – electromagnetic immunity – for all EQUIPMENT and SYSTEMS

Guidance and manufacture's declaration – electromagnetic immunity			
The *CM100* is intended for use in the electromagnetic environment specified below. The customer or the user of *CM100* should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floor are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 sec	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the *CM100* requires continued operation during power mains interruptions, it is recommended that the *CM100* be powered from an uninterruptible power supply or a battery.
Power frequency magnetic field IEC 61000-4-8	3 A/m	3A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE U_T is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacture's declaration – electromagnetic immunity – for EQUIPMENT and SYSTEMS that are not LIFE-SUPPORTING

<table>
<tr><th colspan="4">Guidance and manufacture's declaration – electromagnetic immunity</th></tr>
<tr><td colspan="4">The CM100 is intended for use in the electromagnetic environment specified below. The customer or the user of CM100 should assure that it is used in such an environment.</td></tr>
<tr><th>Immunity test</th><th>IEC 60601 test level</th><th>Compliance level</th><th>Electromagnetic environment - guidance</th></tr>
<tr><td>Conducted RF
IEC
61000-4-6

Radiated RF
IEC
61000-4-3</td><td>3 V_{rms}
150 kHz to 80 MHz

3 V/m
80 MHz to 2.5 GHz</td><td>3V_{rms}

3 V/m
80MHz to 800MHz

3V/m
800MHz to 2.5GHz</td><td>Portable and mobile RF communications equipment should be used no closer to any part of the CM100 , including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
Recommended separation distance
$d = \left[\frac{3.5}{V_1}\right]\sqrt{P}$
$d = \left[\frac{3.5}{E_1}\right]\sqrt{P}$ 80 MHz to 800 MHz
$d = \left[\frac{7}{E_1}\right]\sqrt{P}$ 800 MHz to 2.5 GHz
Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m).
Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range.
Interference may occur in the vicinity of equipment marked with the following symbol:
  </td></tr>
<tr><td colspan="4">NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</td></tr>
<tr><td colspan="4">[a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the CM100 is used exceeds the applicable RF compliance level above, the CM100 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the CM100 .
[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.</td></tr>
</table>

Recommended separation distances between portable and mobile RF communications equipment and the EQUIPMENT or SYSTEM – for EQUIPMENT or SYSTEM that are not LIFE-SUPPORTING

Recommended separation distances between portable and mobile RF communications equipment and the *CM100*			
The *CM100* is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the *CM100* can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the *CM100* as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter (W)	**Separation distance according to frequency of transmitter (m)**		
	150 kHz to 80 MHz $d = \left[\frac{3.5}{V_1}\right]\sqrt{P}$	**80 MHz to 800 MHz** $d = \left[\frac{3.5}{E_1}\right]\sqrt{P}$	**800 MHz to 2.5 GHz** $d = \left[\frac{7}{E_1}\right]\sqrt{P}$
0.01	**0.12**	**0.12**	**0.23**
0.1	**0.38**	**0.38**	**0.73**
1	**1.2**	**1.2**	**2.3**
10	**3.8**	**3.8**	**7.3**
100	**12**	**12**	**23**
For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer. NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

7) Completeness

Name	Specification	Amount
Compressor	----	1
Power cord	3m	1
Air high pressure pipeline	Black, 5 meters, has connecting on the two ends	1
User Manual	----	1

CM100 Medical Air compressor

User Manual

Version: 21.01
Revised September 2021

Beijing Eternity Electronic Technology Co. Ltd.