Warmair
VETERINARY AUTOMATIC AIR WARMING SYSTEM

Veterinary Automatic Air Warming System

Operating Manual

Please read this manual carefully before operating this product and keep it properly for future reference.

TOOTOO MEDITECH CO., LTD

Warmair
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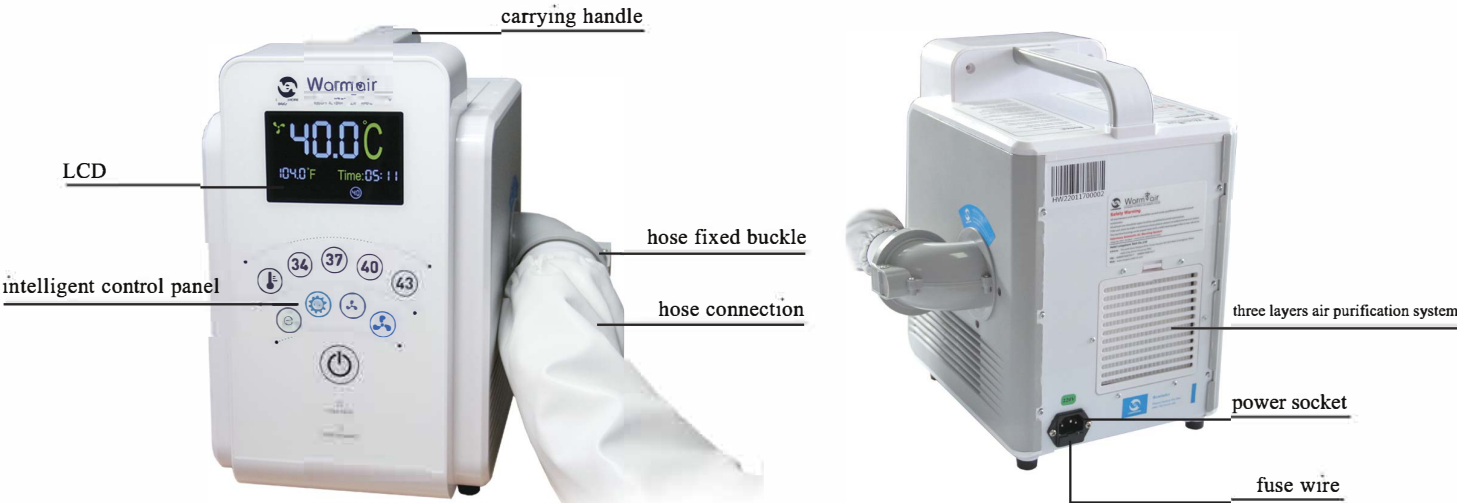Equipment Warranty

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Preface

Product Introduction

WARMAIR for Veterinary Automatic Air Warming System (hereinafter referred to as WARMAIR) consists of a five-range temperature management module, an internal cleaning and disinfection module, a hot air purification module and a number of other components, including WARMAIR reusable air cushion, disposable surgical air cushion and air cushion for impatient pet cage.

WARMAIR is connected to the warming air cushion through a hose. Warm air is generated in the main unit and forced into the air cushion through the hose. The warming air cushion of a proper model is placed around, on or under the pet to receive a surgery. Warm air will be evenly blown onto the pet through the small holes on the warming air cushion. To learn more about WARMAIR, warming air cushion or other accessories.

This Operation Manual includes the operating instructions and equipment specifications of WARMAIR. WARMAIR is applicable for use in all the clinical sites where the sick pet may have a lower body temperature for temperature management, including the operating room, the impatient pet cage, etc. Please be noted that only professional veterinary practitioners may use the WARMAIR system.

Scope of Application

WARMAIR for Veterinary Automatic Air Warming System is mainly used to prevent and treat hypothermia. In addition, if the environment conditions may cause drop in the body temperature of the sick pet, WARMAIR can be used to provide a comfortable temperature for the sick pet. WARMAIR is suitable for both adult pets and young pets.

Special Statement

1. The instrument is only applicable to animal surgery or rehabilitation treatment and is strictly prohibited from being used in human surgery.

2. During use of this instrument, it is strictly prohibited to use a reusable or disposable warming air cushion other than the WARMAIR product, otherwise severe burns may be caused. (To the maximum extent permitted by law, the manufacturer or the distributor is not responsible for the burns in use of this instrument in conjunction with other products other than the WARMAIR products.)

3. When the over heat warning light is on or the alarm sounds, immediately stop the operation or rehabilitation, otherwise it may cause burns. Please unplug the power plug and contact the technical service personnel.

4. Do not leave the sick pet unattended when prolonged warming is required for a surgery to avoid possible burns.

5. Do not use the instrument for treatment until it has reached the set temperature.

6. Do not use a hose other than the WARMAIR hose to avoid burns and connect the hose to the WARMAIR warming air cushion before treatment.

7. Do not directly warm the sick pet with the hose of the warming instrument to avoid burns, instead, the hose must be connected to the WARMAIR warming air cushion before use.

8. After the machine accumulatively been used for more than 100 hours, there will be a prompt tone to remind operating personnel to replace the HEPA filter. In this case, the new HEPA filter must be replaced to continue.

9. Do not re-use the disposable warming air cushion.

Warnings

1. Regularly monitor the vital signs of the sick pet during the surgery. Adjust the air temperature or terminate the warming when the treatment goal is achieved or the vital signs of the pet become instable, and immediately notify the veterinarian of the instable vital signs of the sick pet in the latter case.

2. The sick pet must be attended when WARMAIR is used for treatment.

3. Stably place WARMAIR before starting it, otherwise injury may be caused.

4. Place the WARMAIR on the operating platform to prevent it from tipping. The warming instrument is recommended to be placed at a height lower than 100cm and with a distance between shafts of at least a 65cm radius. Failure to comply with this requirement may result in instrument tipping and cause damage to the sick pet.

5. Anyone other than the engineer authorized by the manufacturer shall not dismantle WARMAIR. The instrument will be in the standby mode when energized. Be caution of electric shock due to its live parts.
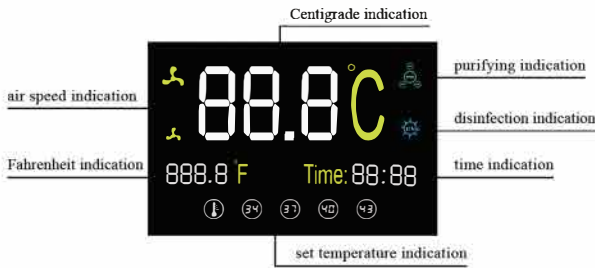
Standby Mode

WARMAIR will be in the standby mode when connected to a properly grounded power supply, but it has not been started yet.

When the instrument is operating at 34 ℃, 37 ℃, 40 ℃, 43 ℃ or an ambient temperature, press the Standby button to set it in the standby mode. The instrument in the standby mode is in the following status:

•The Standby button light flashes.

•The screen does not display any information.

•The fan and heater system are off.

•The alarm and fault detection functions are enabled.

Shutdown Mode

Press and hold the Standby button for 3 seconds in the standby mode, the instrument automatically turns off the screen and disables all other functions, only with the LCD backlight on.

Air Speed Setting

With WARMAIR in the Standby mode, first set the air speed and then the temperature. The instrument has two ranges of air speed: High speed and low speed. Press the corresponding air speed button, the button indicator light is on and the screen shows the icon of a rotating fan.
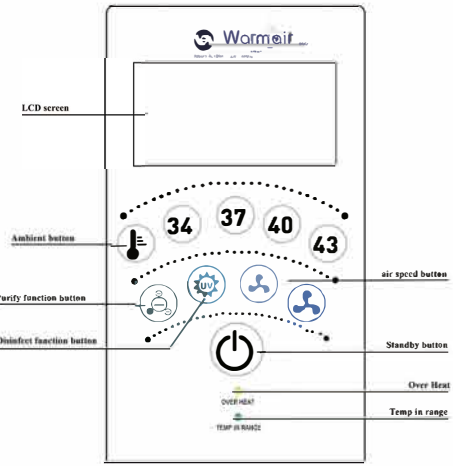
Temperature Setting

Press the 34 ℃, 37 ℃, 40 ℃ or 43 ℃ button to select the target temperature：

•Press the Ambient button, the instrument is not heated and air will be supplied at the ambient temperature.

•The corresponding button light is on and the screen shows the set temperature value.

•The temperature of the air supplied to the air cushion will be displayed on the screen in real time.

The temperature is switched from high value to low value, in the following steps:

To set a temperature lower than the current operating temperature, press the Ambient button. When the air temperature drops below the set temperature value, press the temperature button as required.

Instructions for Use

Purifying Mode

Press the Purify function button (⊖) in any mode to activate the negative ion purification function.

Disinfection Function

Press and hold the Disinfect function button (UV) for 3 seconds in the Standby mode to activate the disinfection function. When the disinfection mode is activated, all other buttons are disabled, the screen shows 5 minutes countdown, after which the disinfection function is automatically disabled. Press and hold the Disinfect key for 3 seconds at any time during the disinfection process to terminate disinfection.

Constant Temperature Indicator

When the actual temperature of the warm air reaches ± 0.5 ℃ of the set temperature, the constant temperature indicator light is on, indicating that the air temperature of the air cushion reaches the standard and the air cushion can be used. The indicator light is off in the Ambient mode.
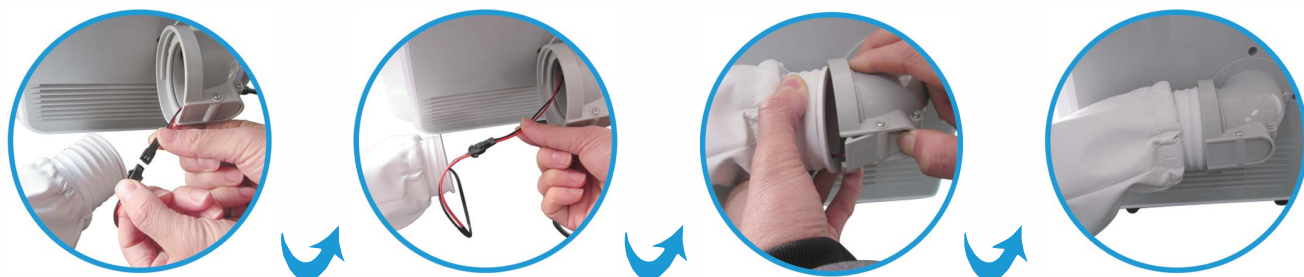
Over Heat Indicator

If the instrument detects an over high temperature, the yellow overheat indicator will flash and the alarm will sound.

Operation steps

Operation of WARMAIR is described as follows.

1. Place the instrument on a flat, hard and dry surface, such as a table, a workbench, etc. before it operates. Do not place the instrument on a soft, uneven or apparently damp surface.

2. Insert one end of the hose of the instrument into the air inlet of WARMAIR warming air cushion and fasten the rope to prevent leakage. Connect the other end to the air outlet of the main unit as shown below.

3. Connect the instrument to the power supply; the instrument enters the standby mode. (1-1)

4. Press the corresponding air speed key to set the air speed, the fan starts running. (1-2)

5. Press the corresponding temperature setting key (i.e. 34 ℃, 37 ℃, 40 ℃, 43 ℃ or the ambient temperature (🌡)) to select the target temperature, the heater starts to work. When the air temperature reaches the set constant temperature range, the constant temperature indicator light is on, and then the instrument can operate normally. The indicator light is off in the Ambient mode.(1-3)

| 1-1 | 1-2 | 1-3 |

6. Regularly monitor the vital signs of the sick pet during the surgery. Adjust the air temperature or air speed or terminate the treatment when the treatment goal is achieved or the vital signs of the pet become instable, and immediately notify the veterinarian of the instable vital signs of the sick pet in the latter case.

7. Press the Standby key to turn the instrument in the standby mode and discard the used disposable product when the surgery is completed.

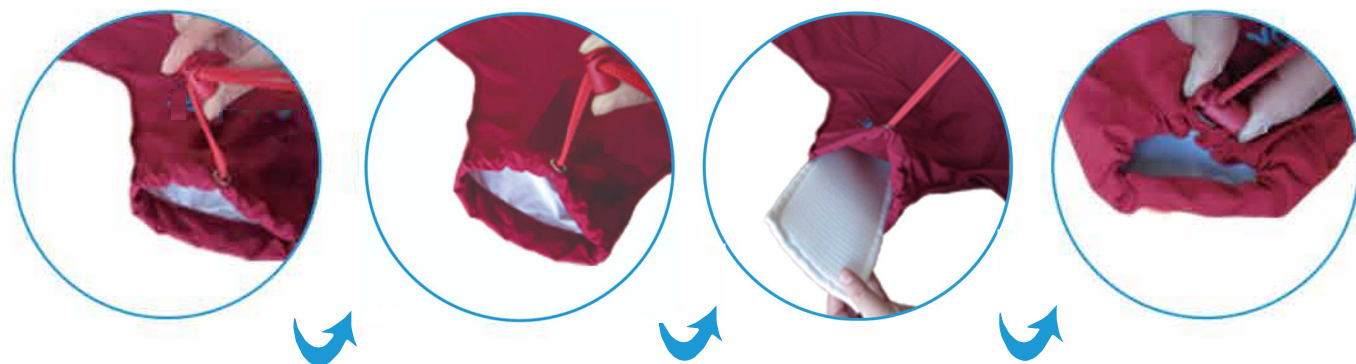8. De-energize the instrument when it will be left idle for a long time.

Standby button

Warming Air Cushion

WARMAIR Reusable Air Cushion

1. The air cushion which adopts honeycomb mesh double layer structure is soft and durable and fits the body, and can facilitate uniform air laminar flow and rapid temperature transmission.

2. The product can provide accurate temperature control during a long surgery of the sick pet to maintain a constant body temperature of the pet.

3. The warming air cushion will provide a dry and warm environment for the sick pet during its treatment by infusion and hospitalization to reduce and alleviate cold and wet stimulation of the skin caused by limited activity and significantly reduce the probability of occurrence of eczema, bed sores (pressure ulcers), which will greatly help its rehabilitation.

Method for Cleaning Reusable Air Cushion

1. Unzip the zipper at the bottom of the air cushion bag, remove the two pieces of filler and wash the bag with hands.

2. The fillers also need hand washing. When putting the fillers into the air cushion bag, the face with small meshes which has logo shall face up.

WARMAIR Disposable Warming Air Cushion (optional)

1. The professional WARMAIR disposable warming air cushion can gather the warm air around the entire trunk and limbs of the sick pet to prevent the loss of body temperature.

2. The disposable medical non-woven material used is safe and environmentally friendly and can quickly form a shape.

3. The disposable warming air cushion cannot be recycled. (WARMAIR shall not be responsible for the risk of infection due to improper recycling)

Troubleshooting

Method for Handling Over Heat

If the temperature is too high and more than 44.9 ℃, the yellow overheat indicator light will be on and the alarm sound, but the instrument will still operate properly. Take the following measures when the temperature is too high:

1. Set the temperature to the Ambient mode to reduce the temperature to a safe range.

2. If the temperature still cannot be reduced, unplug the power plug of the instrument and contact the professional technical engineer of the manufacturer.

Fault Codes

The software of WARMAIR can automatically identify several very dangerous conditions and display the fault codes for these conditions on the LCD screen. In the case of any of these faults, the instrument will automatically turn off the heater and fan, and all keys will be disabled. The fault codes are as follows:

E01: Fault with the temperature sensor at the air outlet of the heater.

E02: Fault with the temperature sensor at the air inlet of the heater.

E04: Fault with the temperature sensor at the air inlet of the warming air cushion.

E08: Fault with the AC zero passage signal.

E16: Fault with the ventilation duct.

In the case of any of the above faults, take the following measures immediately:

1. Stop all the operations of the instrument during the surgery.

2. Unplug the power plug of the instrument.

3. Contact the professional technical engineer of the manufacturer.

Routine Maintenance

Cleaning Method

1. De-energize the instrument before cleaning.

2. Wipe the outside of the instrument and the hose with a piece of slightly damp soft cloth and flexible detergent or antibacterial spray, and then wipe dry with another piece of soft cloth.

Routine Maintenance

Precautions

1. Do not immerse the instrument or the hose in the liquid during cleaning to avoid damage to the components and instrument failure.

2. Do not clean the instrument with damp cloth, otherwise the moisture may penetrate onto the electrical contacts and damage the components.

3. Do not clean the instrument with alcohol or other solvents which may damage labels and other plastic parts.

4. Do not disassemble the instrument for internal cleaning without consent of the manufacturer.

Equipment Warranty

Technical Support

When you need technical support, please call our after-sales service hotline or contact the local dealer.

When calling us, please inform us the serial number of your WARMAIR which is located on the back of its main unit.

Warranty Terms

1. The warranty period of the instrument is one year since received by the client. If you need to extend the warranty period, please contact our company or the local dealer.

2. The instrument with fault should only be repaired by the engineer authorized by our company.

3. For details, please refer to the product warranty card.

Disclaimer

The manufacturer shall not be liable for the reliability, performance or safety of the instrument in the following cases:

•The instrument has been modified or repaired by unauthorized personnel.

•The instrument has not been used as per the operating manual.

•The instrument has been installed in an environment that does not meet the appropriate electrical or grounding requirements.

Specifications

Temperature control system

Recommended operating environment	•Temperature: 5℃-28℃ •Humidity: Maximum relative humidity 80% •Minimum relative humidity 35% •Altitude: Maximum 3200 m	Temperature control accuracy	±0.1℃
Time for reaching the operating temperature	•2-8 mins. (depending on the ambient temperature and the model of the warming air cushion)	Temperature for storage or transport	-10 ℃ to 45 ℃, the instrument should be stored in a cool dry place when not in use
Overheat alarm	•If the temperature is too high and more than 44.9 ℃, the yellow overheat indicator light will be on and the alarm sound.		

Filtering system

Filtering system	•Three-layer air purification and filtering •Efficient 0.2umHEPA air filter screen •254nm UV efficient sterilization lamp •In the case of negative ion DC 5V, ≥ 6x106 PCS / cm3 ± 10%	Recommended filter replacement cycle	100 hrs. after use

Electrical parameters

Heating PTC	700W resistance	Leakage current	Meet the requirements of IEC60601 standard
Fan speed	110V/3540RPM 220V/945RPM	Air volume	2.7/3345　CMM/RPM
Fan power	45W	Fan noise	49dBA (high speed) 43dBA (low speed)
Static pressure	110V/26mmAq 220V/18mmAq	Equipment grade	110-120VAC/50/60Hz/11A 220-240VAC/50/60Hz/7.2A
Fuse	10A	Ampere rating	12A(110-120VAC) 8A(220-240VAC)
Operating speed	F (fast)	Breaking capacity	15A,12A:10000A(125VAC) 8A:200A(250VAC)

Packaging specifications and other parameters

Dimensions	Depth ⅹ Width ⅹ Height: 47.5cm ⅹ 36.5cm ⅹ 46.5cm	Weight	6.2kg
Hose material	Food grade, PU	Hose length	1.4m