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AirTec
alternating air system

USER MANUAL

AirTec 5 Single & King Single

Alternating Air Overlay

Product code: M20-AMP-S, M20-AMP-KS

AirTec 8 Single & King Single

Mattress Replacement System

Product code: M22-AMP-S, M22-AMP-KS

Always read the User Manual prior to use

Contents

1. Introduction	1
2. Product Overview	2
3. Operating Instructions	4
4. Maintenance	9
5. Warnings	10
6. Troubleshooting	11
7. Warranty	12
8. EMC Declaration	13

^a Field strength 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 Alternating Pressure Mattress is used exceeds the applicable RF compliance level above, the Alternating Pressure Mattress should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the model

^b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the EQUIPMENT or SYSTEM for ME EQUIPMENT or ME SYSTEM that are not LIFESUPPORTING

Recommended separation distances between portable and mobile RF communications equipment and the MODEL Fitness Equipment.			
The Alternating Pressure Mattress is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Alternating Pressure Mattress can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Alternating Pressure Mattress 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 $d = 1.16\sqrt{P}$	80 MHz to 800 MHz $d = 1.16\sqrt{P}$	800 MHz to 2.5 GHz $d = 2.33\sqrt{P}$
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.			

1. Introduction

The Cobalt Health *AirTec* Alternating Air Systems provide alternating pressure relief that can be used to help prevent and resolve pressure injuries. They work by inflating and deflating air cells within the mattress in a precisely timed and controlled cycle, helping to redistribute pressure evenly across the body. This prevents the skin from coming into prolonged contact with any one area of the mattress, which can help to prevent pressure injuries.

Alternating pressure overlays and mattresses are typically used for patients who are at high to very high risk of developing pressure injuries, such as those who are bedridden or have limited mobility. They can also be used for patients who have already developed pressure injuries, to help promote healing.

The *AirTec* mattress is composed of two groups of air cells, an A group and a B group. The A cells inflate while the B cells deflate, and vice versa. This creates a wave-motion pattern that helps to redistribute the pressure points more evenly across the full length of the body. The mattress also has a timer that can be set to inflate and deflate the air cells at regular 10, 15, 20 or 25-minute intervals. This ensures that the patient is constantly being relieved of pressure, which can help to prevent pressure injuries from developing, or promote the healing of existing pressure injuries.

2. Product Overview

2.1 Product contents


The *AirTec* system consists of the air mattress, pump, power cord and air tube which connects the mattress to the pump.



The *AirTec 5* is an alternating air overlay that is designed to be used with a foam mattress or underlay underneath it. **The *AirTec 5* should not be placed directly onto the bed frame.** Ensure the *AirTec 5* overlay is secured to the mattress using the integral elastic straps at both the head and foot end of the overlay.

The *AirTec 8* mattress replacement system is designed to be placed directly onto the bed frame, do not use a foam mattress or underlay underneath it. The *AirTec 8* includes an additional row of air cells below the alternating air cells, that remain inflated. These will ordinarily continue to provide an inflated sleeping surface for up to 24 hours if there is a loss of power. Ensure the *AirTec 8* is secured on to the bed frame using the integral elastic straps at both the head and foot end of the system.

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

Guidance and manufacture's declaration – electromagnetic immunity			
The Alternating Pressure Mattress is intended for use in the electromagnetic environment specified below. The customer or the user of Alternating Pressure Mattress should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-6	3 V/m 150 kHz to 80 MHz	3 V/m	<p>Portable and mobile RF communications equipment should be used no closer to any part of the Alternating Pressure Mattress including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Portable and mobile RF communications equipment should be used no closer to any part of the including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance</p> $d = 1.167 \sqrt{P}$ $d = 1.167 \sqrt{P} \quad 80 \text{ MHz to } 800 \text{ MHz}$ $d = 2.333 \sqrt{P} \quad 800 \text{ MHz to } 2.5 \text{ GHz}$ <p>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).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, a should be less than the compliance level in each frequency range.</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 
Radiated RF IEC 61000-4-3	3V/m 80 MHz To 2.5 GHz	3 V/m	

NOTE 1

At 80 MHz and 800 MHz, the higher frequency range applies.

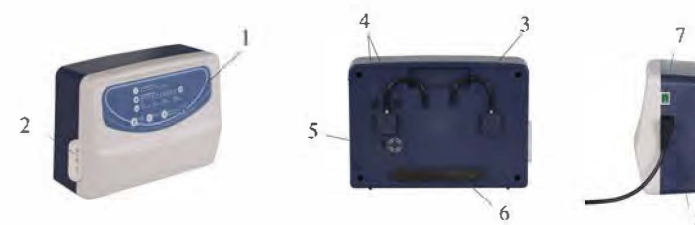
NOTE 2

These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Guidance and manufacturers declaration – electromagnetic immunity –for all ME EQUIPMENT and ME SYSTEMS

Guidance and manufacture's declaration – electromagnetic emissions			
The Alternating Pressure Mattress is intended for use in the electromagnetic environment specified below. The customer or the user of Alternating Pressure Mattress 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 is 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	±2kV for power supply lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	±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	<5% U_T (>95% dip in U_T) for 0.5 cycle	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Alternating Pressure Mattress requires continued operation during power mains interruptions, it is recommended that the Alternating Pressure Mattress be powered from an uninterruptible power supply or a battery.
	40% U_T (60% dip in U_T) for 5 cycles	40% U_T (60% dip in U_T) for 5 cycles	
	70% U_T (30% dip in U_T) for 25 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 5 sec	
Power frequency (50Hz) magnetic field IEC 61000-4-8	3A/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.			

2.2 Pump



- 1 Control panel 2 Quick Connector to mattress 3 Hooks 4 Fuses
5 Air filter 6 Sponge 7 Power switch 8 Power cord connection

2.3 Product specifications

Environmental conditions	Temperature Range	-20°C to 70°C	
	Humidity	30% to 80%	
	Atmospheric Pressure	500hPa~1060hPa	
Power input	≤0.1A	Electrical	AC220V 50Hz
Air output	≥300L/h	Operation	Continuous operation
Pressure output	≥12Kpa	Ingress protection	IPX0
Noise	<60dB	Caution! Consult User manual	
Class	I	Applied Part Type (EN60601-1)	BF

2.3 Model Dimensions




MATTRESSES	DIMENSIONS: L x W x H
<i>AirTec 5 Single</i>	198 x 88 x 13 cm
<i>AirTec 5 King Single</i>	198 x 105 x 13 cm
<i>AirTec 8 Single</i>	198 x 88 x 20 cm
<i>AirTec 8 King Single</i>	198 x 105 x 20 cm
PUMP	DIMENSIONS
<i>AirTec Pump</i>	30 x 20 x 11 cm

Slight variance in mattress dimensions may occur of ± 2 cm

3. Operating Instructions

3.1 Set Up

When unpacking the mattress, check that none of the parts are damaged. In the event of damage, contact the dealer or manufacturer before using.


- Place the mattress on the bed, the correct side up NB: the feet graphic should be at foot-end of the bed, facing up 
- Fit the elastic straps to the foam mattress for the Overlay or to the bed base for the Mattress Replacement System
- Hang the pump at the foot-end of the bed or place it on a steady surface
- Connect the air tube to the side of the pump, ensuring it clicks and locks into place 
- Make sure that the power switch at the side of the pump is set to "O" (off).
- Connect the plug to the approved electrical socket (AC 220V to 240V) 

8. EMC Declaration - electromagnetic emissions

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

Guidance and manufacture's declaration – electromagnetic emissions		
The Alternating Pressure Mattress is intended for use in the electromagnetic environment specified below. The customer of the user of the Alternating Pressure Mattress should assure that it is used in such an environment.		
Emission test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 15	Comply	The Alternating Pressure Mattress is not suitable for interconnection with other equipment.
Harmonic emissions IEC 1000-3-2	Class C	Class C with IEC61000-3-2 Complies with IEC61000-3-3 The Alternating Pressure Mattress is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Comply	

	Check that the CPR valve is closed.
	Change the sponge in air filter
System moves around	Check that the system is secured to the underlying mattress or bed with the integral elastic straps at both head & foot end.
Pump is noisy	Check how the pump is hung on the bed. Resonance can occur and vibrations can be felt or heard. Ensure the Rubber buffer on the rear of the pump is in contact with the surface, not the plastic pump housing, or place a towel between the pump and bed.

 **Note:** If your problem is not answered by the above troubleshooting guide, please contact your retailer, dealer or the manufacturer.

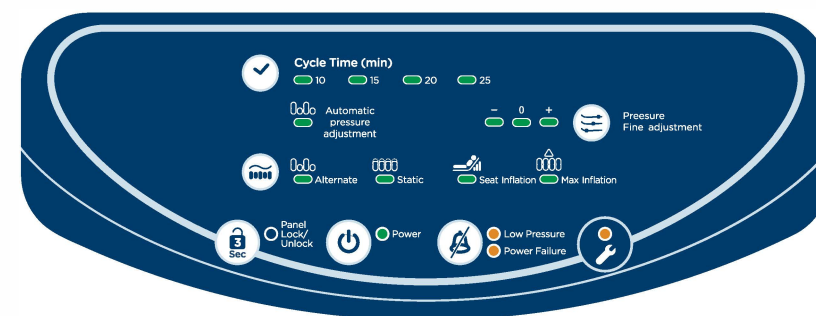
7. Warranty

1. The alternating pressure mattress is covered by a 2-year warranty.
2. The warranty does not apply to normal wear and tear, or product impairment or accidental damage stemming from negligence or improper handling/care.
3. Service and maintenance must be performed by an authorised technician.

3.2 Start-up

1. Turn the power switch on the side of the pump to on and press the Power Button on the Control Panel to start the pump.
2. The pump will start in Auto Firm mode. It will take approximately 20 minutes to inflate the mattress.
3. When the mattress is inflated completely, the pump will change automatically to Alternate Mode. The mattress is ready for use.

3.3 Control panel overview



3.3.1 Cycle time

There are four cycle times: 10 minutes, 15 minutes, 20 minutes, 25 minutes. Press the tick button to select the desired cycle length

3.3.1 Pressure

Automatic Pressure Adjustment & Pressure Fine Adjustment
When the pump recognizes the patient's weight or position have had a significant change, the air pressure indicator light will start blinking indicating the system is re-adjusting the air pressure in the mattress to accommodate these changes.

Use the Pressure Fine Adjustment Button to make the mattress more comfortable (slightly softer or harder) if the Automatic Pressure Adjustment setting is not suitable.

3.3.3 Mode

Press the Mode button to cycle between the modes.

A. Alternate Mode

In this mode, the pressure alternates between the A & B cells and there are four different cycle lengths to choose from. The Pump should always be in Alternate mode, unless the patient is sitting upright or is receiving care. Please see Static Mode and Seat Inflation Modes for more information.

B. Static Mode

In this mode, the alternating process is terminated and the pressure between the cells evens out. This mode is used in association with patient care and repositioning/transferring in and out of bed. The pump will automatically revert to Alternate Mode in 20 minutes.

C. Seat Inflation

This mode gives extra support when patient is sitting upright on the mattress. Users can choose alternate or static mode. When “Seat Inflation + Static” mode is chosen, it will last for 20 minutes, then the pump will automatically revert to “Seat Inflation + Alternate” mode. When the patient is no longer in a sitting position select the Alternate mode.

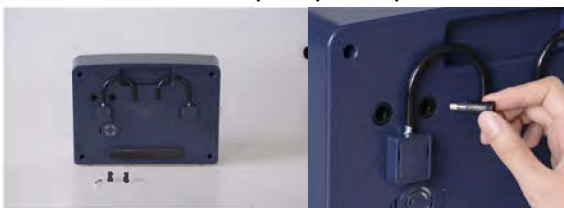
2. Sheets or thin blankets can be used on mattress. Plastic or rubber should not be placed on the mattress as these will affect the air flow.
3. Do not use an Electric Blanket.
4. Do not knot or kink the air tube that connects the pump to the mattress.
5. Route the power cord along the side of mattress through the plastic loops. This will minimise any trip hazard, or the cord being damaged by bed wheels or other objects.
6. Do not open the Pump housing.
7. Keep the pump away from liquids.

6. Troubleshooting

Problem	Solution
Power Failure Alarm & Light	Check that the power cord is connected to the power socket and plugged into the side of pump securely.
	Check the fuses.
Alarm Sounds	Review Power Failure or Low-Pressure problems. Press ‘mute’ to silence the alarm.
No air in head cells at top of mattress	Check that the CPR valve is closed.
Low Pressure Alarm & Light	The Body weight may be set incorrectly. Increase the pressure and wait a few minutes. Do a Hand check.
	Open the mattress and check for air leaks from air cells, tubes or CPR valve.
	Check that all tube connectors are properly fitted and connected.
	Check that the quick connectors to air tubes on the side of the pump have clicked in and are properly connected.

4.3 Changing fuses

1. Turn off the pump and remove the power cord from the power point on the wall. Mute the alarm.
2. Disconnect the air hose and power cord from the pump and place the pump face down on a nearby surface.
3. Remove the fuse holder with a screwdriver (anticlockwise).
4. Fit a new fuse and screw the protective cover back in place (clockwise).
5. Reconnect the pump and power cord and turn on.



4.3 Changing the air filter

- Turn off the pump and remove the power cord from the power point on the wall. Mute the alarm.
- Place the pump face down on a nearby surface.
- Remove the filter cover at the back of the pump and take the old filter out.
- Insert a new filter and replace the cover.



5. Warnings

1. To prevent any damage or punctures, keep all sharp items away from the mattress.

D. Max Inflation

The pump will inflate the mattress to the Maximum Pressure and the pump will change automatically to Alternate Mode when maximum pressure has been achieved, usually around 20-25mins

3.3.4 Panel Lock/Unlock

Press the Panel Lock/Unlock button to unlock the Control Panel. When locked, the light is illuminated, and users cannot operate any functions on the Control Panel. The Lock Mode will engage after 5 minutes of inactivity and to unlock, press this button for about 3 seconds.

3.3.5 Power

Press this button to turn the power on/off. Note there is a secondary physical green switch on the side of the pump, that also needs to be switched off to remove power to the pump.

3.3.6 Mute

Press this button to silence the alarm. The alarm will sound, and an indicator will light up if the following occurs:

A. Power failure lamp

When the pump is shut down or is disconnected from power, the Power Failure indicator lights up together with an audible alarm. The alarm is deactivated by pressing the Mute button.

B. Low Pressure lamp

If the pressure in the mattress is below normal, both the Low-Pressure indicator light and audible alarm will activate. The alarm is deactivated by pressing the Mute button. If the problem persists, see Chapter 8 for troubleshooting.

3.3.7 Service

This light indicates the pump requires Service. Please contact your retailer or the manufacturer.

3.4 Physical Inspection

- A physical inspection, or hand check is used to ensure that the mattress is properly inflated. This should be done when changing the position of the mattress or the bed or adjusting the air pressure.
- Open the cover, insert your hand between the air cells directly underneath the user's pelvic region. There should be a clearance of 1 to 2 fingers between mattress base and the patient.
- If the distance is not sufficient, adjust the Pressure Fine Adjustment, wait for 10 minutes and check using your hand again.



3.5 CPR

The CPR function rapidly deflates the top layer of the mattress to provide an even surface for CPR.

- Pull the CPR tab to deflate the mattress.
- After use, ensure that the CPR connector is properly reconnected to avoid air leakage.
- To increase the speed of deflation, remove the tube connections to the side of the pump.



4. Maintenance

4.1 Cleaning Instructions

Mattress

- Clean the mattress regularly with a neutral detergent or alcohol.
- Heating or steam sterilization is not recommended.

Pump

- Clean the pump regularly with neutral detergent wipes.
- Do not open the pump housing – there is a risk of electric shock.
- Do not get the pump wet or submerge it in any liquid.

4.2 Changing air cells

1. Turn off the pump and remove the power cord from the power point on the wall. Mute the alarm. Unzip the top cover and fold back exposing the air cells.
2. Then take off the ring on the air connector and disconnect the tube.
3. Remove the damaged cell and install the new cell.

