

vikta KomfiTilt Ed 3

Continuous Lateral Tilting System

OPERATION MANUAL



Declaration of Conformity



The Supplier

i Vikta Ltd
Unit 2 Edison Gate,
West Portway,
Andover SP10 3SE

This company declares that the products listed below satisfy the requirements of the standards set out in the following:

The Directives

i Regulation (EU) 2017/745
Medical Devices Directive (93/42/EEC)
Directive 2001/95/EC general product safety

The Product

Description	Continuous Lateral Tilting System
Name/type	KOMFITILT
Device classification	Class 1 Reference: 2019070901172122
Serial number	Range

Harmonized standards applicable to the assessment for this declaration include:

i IEC 60601-1:2005+A1:2012 and EN 60601-1:2006+A11:2011+A1:2013+A12:2014 EN 60601-1-2:2015 (EN 55011:2009+A1:2010) EN 60601-1-2:2015
DIN EN 10993-5 (L929), DIN EN ISO 10993-10:2014
ISO 14971:2012 Medical devices IEC 62304:2006 Medical device software
EC 62366:2007 Usability engineering

Declaration

Place of declaration	Stafford
Year of attestation	2021
Date of issue	11 th January
Name of authorized person	2021 P H Godden
Certificate number	G2064.1.A UK

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i Medical Devices Regulations 2002 (SI 2002 No 618, as amended)
General Product Safety Regulations 2005 (SI 2005 No 1803)

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KomfiTilt Labelling



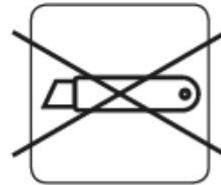
65°C for 10 minutes or
73°C for 3 minutes



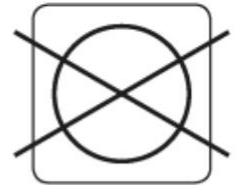
Bleaching agent
allowed



Max user weight



Do not pierce
or cut



Do not
tumble dry



Line dry



Do not iron



5 year warranty



Refer to user manual



CE marking
(European Union New
Annex Directives)



Class II electrical
equipment



Type BF applied part



Disposal: Do not dispose of this
product as unsorted domestic
waste. It must be sent to a separate
collection facility for recovery
and recycling.



Pump Labelling



Attention: See Instructions for use



CE Marking indicating conformance to EC Directive No. 2007/47/EC concerning medical devices



Type BF Applied Part (patient isolation from electrical shock)



Class II Product



Operation Instructions



Indicates separate collection for electrical and electronic equipment (WEEE)

IP21 Protection against finger and dripping water



Manufacturer



Date of manufacture

Note: Follow the requirements of your local authority regarding disposal of the unit.

IMPORTANT

Guidelines

Always use pressure care systems under the advice of a suitably qualified medical professional. The patient's pressure ulcer risk assessment scores, weight and the handling considerations for caregivers should be considered to ensure that the appropriate system is selected.

Specifications

Technical Specifications

Therapy modes	Continues
Compressor air flow	Approx. 10lpm
Cycle time	10 minutes
Anti-particle filter	Yes
Visual and audible alarms	Yes
Electrical power supply	220 – 240V / 50Hz
Power consumption	9W
Fuse rating	F2A 250VAC
Electrical isolation	Class I 2a
Ingress protection	IP21
IEC conformity	60601-1, 60601-1-2, 60601-11

Atmospheric Specifications

Storage temperature	-25 - 70°C
Transport temperature	-25 - 70°C
Operating temperature	5 - 40°C
Humidity	10 - 90%
Atmospheric pressure	700 - 1060hPa

Recycle Notice

This equipment contains many materials that can be recycled or reused if dissembled by a specialist company. If you are disposing of an old machine, please take it to a recycling centre. Please observe the local regulations regarding disposal of packaging material, exhausted batteries, and old equipment.

Copyright Notice ©

This product incorporates copyright protection technology that is protected by Patents and other intellectual rights. Use of this copyright protection technology must be authorised. Reverse engineering or disassembly is prohibited

Safety Warnings

- It is the responsibility of the care giver to ensure that the user can use this product safely.
- Whilst the patient is unattended, safety sides should be used based on clinical assessment and in line with local policy.
- Alignment of the bed frame, safety sides and the mattress should leave no gap wide enough to entrap a patient's head or body, or to allow egress to occur in a hazardous manner where entanglement with the mains power cable and tube set or air hoses may result. Care should be exercised to prevent occurrence of gaps by compression or movement of the mattress. Death or serious injury may occur.
- Make sure that the mains power cable and tube set, or air hoses are positioned to avoid causing a trip or other hazard and are clear of moving bed mechanisms or other possible entrapment areas. Where cable management flaps are provided along the sides of the mattress, these should be used to cover the mains power cable.
- Electrical equipment may be hazardous if misused. There are no user-serviceable parts inside the pump. The pump's case must only be removed by authorised technical personnel. No modification of this equipment is allowed.
- The mains power socket/plug must be always accessible. To disconnect the pump completely from the electricity supply, remove the plug from the mains power socket.
- The CPR control and/or the CPR indicator tag must be always visible and accessible.
- Disconnect the pump from the mains power socket before cleaning and inspecting.
- Keep the pump away from sources of liquids and do not immerse in water.
- Do not use the pump in the presence of uncontained flammable liquids or gasses.
- The base sheet of this product is vapour permeable but not air permeable and may present a suffocation risk.
- If a serious incident occurs in relation to this medical device, affecting the user, or the patient then the user or patient should report the serious incident to the medical device manufacturer or the distributor. In the European Union, the user should also report the serious incident to the Competent Authority in the member state where they are located.

General Precautions

- Ensure this equipment is not setup or used near sources of high heat or excessive electromagnetic, electrostatic or radiation fields including UV radiation, such as direct sunlight.
- Do not use system in the presence of any flammable anaesthetic mixture with air, nitrous oxide, or oxygen or in the presence of smoking materials or open flame - risk of explosion.
- Do not use this equipment for anything other than what it is specifically designed for. The use of accessories or parts not recommended or specifically designed for this equipment is prohibited and be voided the warranty.
- Do not modify or connect this equipment to other parts or equipment not specifically designed for use with this system.
- Do not allow young children to operate, play with or remove any part of this medical system.
- Do not use this equipment near sources of excessive moisture such as nebulizers or steam kettles.
- Do not use corrosive cleaning products such as industrial degreasers or acetone solvents.
- The product can only be operated by personnel who are qualified to perform general nursing procedures and has received adequate training in knowledge of prevention and treatment of pressure ulcer.
- Close supervision is necessary when this product is used on or near children. The device is mains powered and contains small parts so presents electrical and choking hazards.

Control Unit Precautions

- Do not open the control unit, as there is risk of electric shock, and it will void your warranty.
- Do not block the air inlet at the rear of the control unit.
- Do not spill any liquids onto the control unit. If a spillage occurs:
 - Turn off power to the control unit at the wall and disconnect the power cable from the control unit.
 - Wipe dry any excess moisture on the external casing.
 - Check that the interior of the IEC socket, rocker switch and power plug are dry.
- Ensure that the power cable does not interfere with cleaning around the bed or the use of cleaning liquids especially on the floor.

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APPENDIX A: EMC INFORMATION

1. INTRODUCTION TO YOUR PRODUCT

This manual should be used for the initial set up of the system and for reference purposes.

1.1 General

The Vikta KomfiTilt is a high quality and affordable system suitable to help with pressure ulcer treatment. The KomfiTilt is supplementary device for the prevention of pressure ulcers and offers an affordable solution to 24-hour pressure area care.

1.2 Intended Use

The Vikta KomfiTilt system supplementary device for the prevention of pressure ulcers or injuries for patients:

- Identified as being at moderate to high risk of developing pressure damage.
- Weighing up to 320kg (705lbs).
- That are unable to change their position without assistance.
- Can be an alternative or compliment a manual turning schedule
- Individual home care setting and long-term care
- Professional healthcare facilities e.g. Hospitals, nursing homes



The KomfiTilt System is placed on the bed frame and the mattress placed on top of the KomfiTilt System.

Ensure the KomfiTilt System is placed under the mattress lying surface.

Foam & Air-cell mattresses can be used on top of the KomfiTilt System

Profiling (back support & knee break) and Trendelenburg features of a bed can be used, subject to appropriate patient risk assessment.

Loosely attach any mattress straps, to allow for the inflation of the air-cells.

1.3 Contraindication

Patient conditions for which the application of pressure relieving therapy on an alternation system is contraindicated as follows:

- Do not use without a suitable pressure redistribution surface and package

inal cord injuries or who are
disturbances.



ring items should be missing or
service centre for replacement



2.1 Pump Unit

Make sure the type of pump is identical to that which you purchased.

Functionalities vary from model to model.

2.2 Base sheet & air cells

The mattress base sheet has 2 x air cells attached with pop-stud fasteners and air supply tubes to attach to the pump box

2.3 Manual

Always read this manual before using this product.

No modification of this equipment is allowed.

2.4 Warnings and Precautions

- The use of bed sides or bed rails is recommended.
- When the KomfiTilt is deflated and in the flat position, the distances between the top of the uncompressed mattress and bed rail should be as follows.
- Top of the bed rail $>220\text{mm}$ (Diagram 1)
- Bottom of the bed rail $<120\text{mm}$ (Diagram 2)
- When inflated, assess the distance between the tilted side of the mattress and bed rail. This should be $<120\text{mm}$. (Diagram 3)
- Assess for risk of entrapment

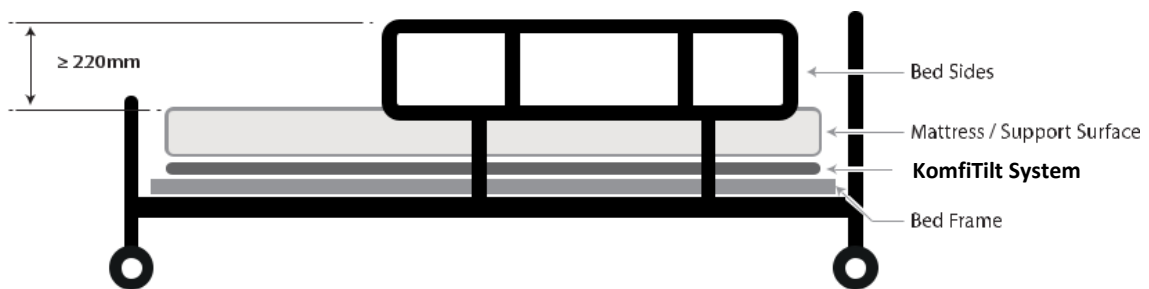


DIAGRAM 1. VIEW FROM SIDE



DIAGRAM 2. VIEW FROM SIDE

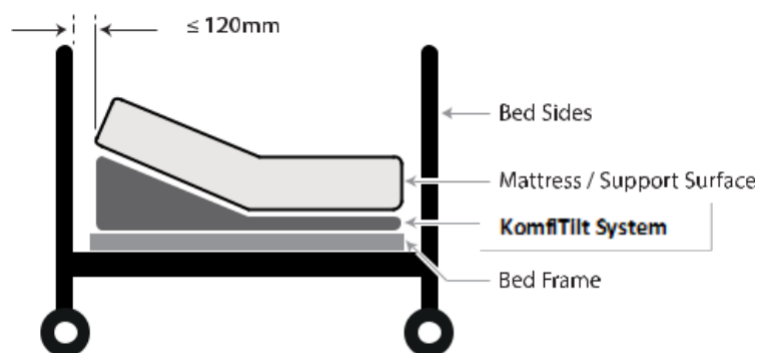
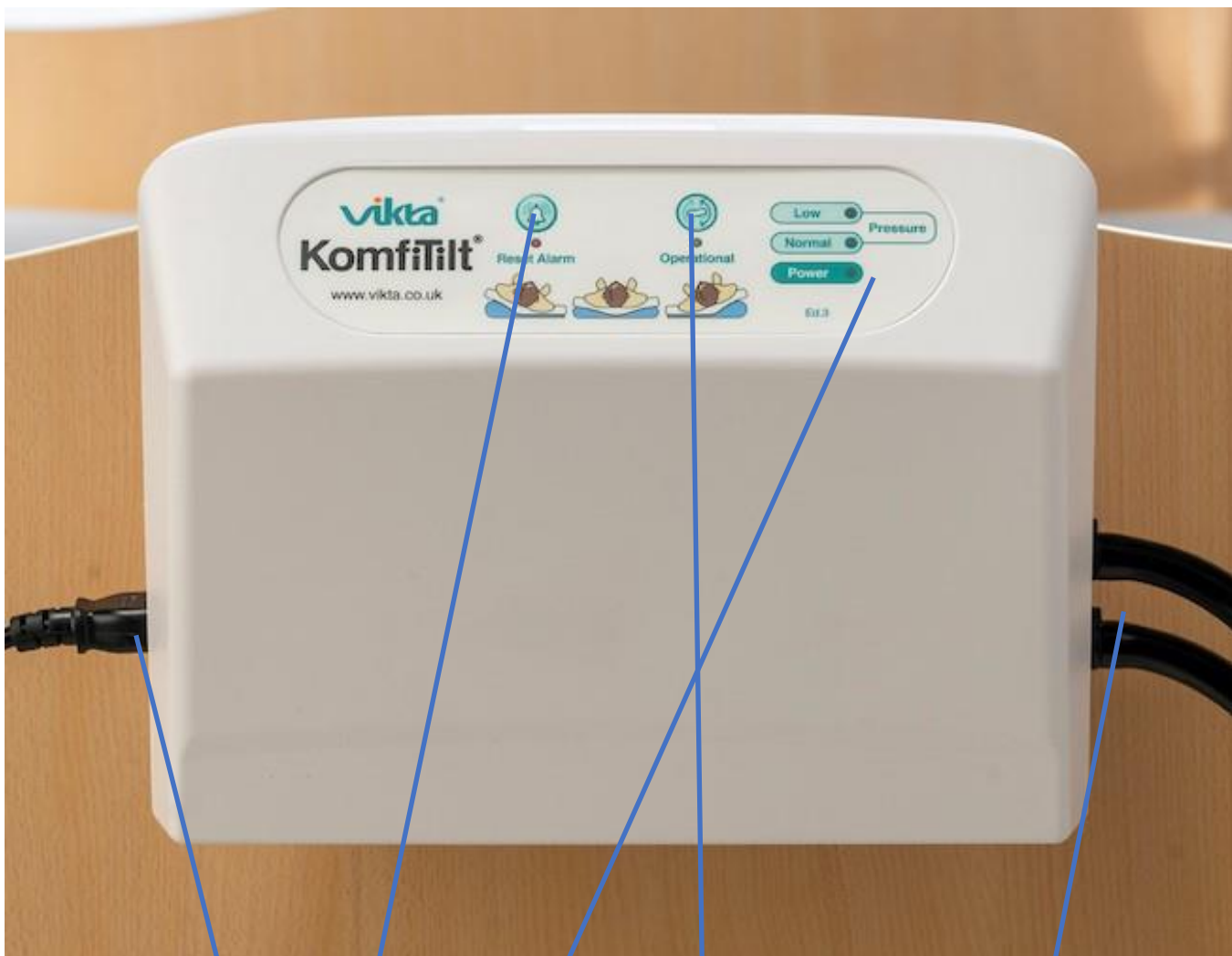


DIAGRAM 3. VIEW FROM HEAD

3. PRODUCT FUNCTIONS TO NEW PUMP UNIT



3

2



3.1 Pump Unit

1. POWER (with Power ON Green Light Indicator)

The switch is located at the lower left side of the pump unit.
TURN ON/OFF the power to operate the unit.

The pump noise level is 28 dB to provide low noise environment for patients.

When turning off, the pump auto-exhausts to deflate the air cells

2 Operational

Green operational Indicator Lights Up when the pressure has reached the normal pressure level and then will start its cycle



3 ALARM & Pressure Indicators

Red Indicator will light Up and an alarm will sound if the pressure drops below the operational level, this can be reset by press the alarm button. The pressure levels are shown as low(red) normal(green) indicator lights on the right of the panel



Pressure lights
Low/normal

Alarm indicator
and reset

3.2 Mattress System

The Vikta KomfiTilt mattress base sheet has 2 x air cells attached with pop-stud fasteners and air supply tubes to attach to the pump box.

4. INSTALLATION

Unpack the box to check for any damage. If damaged, please contact your dealer immediately.

Step 1

Place the mattress base sheet flat on the bed frame. The inflation tube should be towards the foot end. See figure below.





Attach the fastening straps to the bed frame and pull tight.

ENSURE you attach to the moving parts of the bed e.g. head section and profiling leg section

Cell adjustment for different width beds



Standard setting shown above for beds of width: 80 / 90 / 100cm W



For beds of width: 120 / 140cm W, move the cells to the wider setting stud fasteners

Step 2

Hang the pump unit on the foot end of the bed frame and make sure it is stable. Adjust the hanger angle for the proper fit to the foot end of the bed frame.



Step 3

Connect the Two tube hoses to the pumps inflating nozzles, make sure they are properly attached.



NOTE:

MAKE SURE THE AIR HOSES ARE NOT KINKED OR TUCKED UNDER THE MATTRESS

Step 4

Plug the power cord into an electrical outlet. The Pump unit is class 2 (electrical safety) double insulated device, it is supplied with a functional protective earth lead. This three-wire plug must be plugged properly into an outlet. If the power cord plug is inconsistent to the electrical outlet, please contact the local agent.

NOTE:

Before inserting the plug into the outlet, make sure the voltage is compatible. Also make sure this product is well grounded.

Step 5

Turn on the power by pressing the power switch on the left-hand side of the pump unit. Proceed to the Operation Section.

4.1 New Ed 3 Features

MANUAL LOCK-OFF OF LEFT OR RIGHT CELL

To Lock-Off either the Right or Left cell, so that it doesn't inflate during the operational cycle:

On Start-Up, switch the power ON and the faceplate lights will light up.

Cell A only

Press the 'Reset Alarm' button and hold down

The 'Normal' green light will flash and the audible alarm will sound

Release the 'Reset Alarm' button and the KomfiTilt will function inflating cell A only

Cell B only

Press the 'Reset Alarm' button again and hold down

The 'Low' red light will flash and the audible alarm will sound

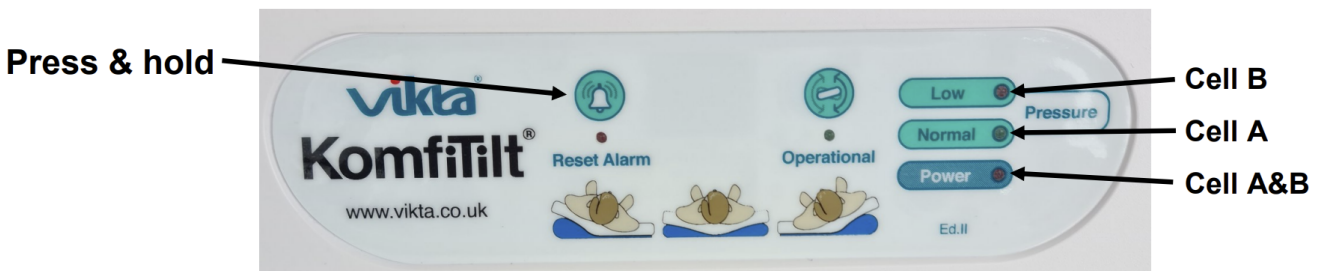
Release the 'Reset Alarm' button and the KomfiTilt will function inflating cell B only

Cell A & B in normal rotation

Press the 'Reset Alarm' button again and hold down

The 'Power' green light will flash and the audible alarm will sound

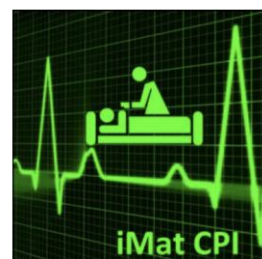
Release the 'Reset Alarm' button and the KomfiTilt will function inflating cell A & B in the normal rotation



KomfiTilt APP now available for iOS and Android



iMat IPC



Download and connect to your KomfiTilt via Bluetooth

Input Model No: (e.g. SQ-BT1955) this model number can be found on the pump box

When connected a tracking record will shown on the graph (the two colours represent the different cells)

Cycle Time adjustment

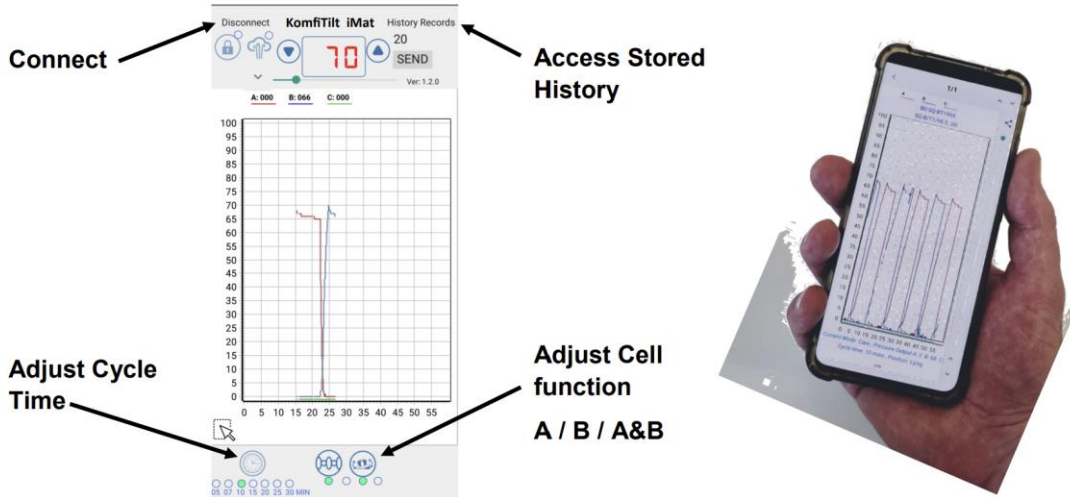
Press the 'Clock' icon and an audible alarm will sound and the green light will move to the next setting (cycle time can be adjusted between 10 / 15 / 20 / 25 minutes)

Cell Lock-Off

Press the 'Cell Tilt' icon and an audible alarm will sound and the green light will move to the next setting (B / A & B / A)

History Records

Press the 'History Records' and select from the list to show the stored record



4.2 USE OF BED RAILS

If using bed side rails, ensure the rails comply with you local regulations regarding rail height and entrapment risk.

For UK visit: www.gov.uk/guidance/bed-rails-management-and-safe-use

5. GROUNDING INSTRUCTIONS

The Pump unit is class 2 (electrical safety) double insulated device, it is supplied with a functional protective earth lead.

If it is necessary to use an extension cord, use only a 3-wire extension cord that has a three-blade/ pole grounding plug, and a 3-slot receptacle that will accept the plug of the product.

Replace or repair a damaged cord.

6. FIRE HAZARD

Please be aware that the mattress unit on this product is flammable.

Please keep the mattress away from naked flame or heat.

Manufactured using fire retardant materials

DANGER: Smoking on the mattress can result in fire.

7. OPERATION

NOTE:

Always read the operation instructions before using the product.

7.1 GENERAL

This product is designed to provide maximum comfort to home care patients. Make sure that you operate this product in a proper way to optimise its value. Here, we provide some general information you should be aware of.

7.2 For Products:

DO NOT use another pump with different specifications. DO NOT change any component by yourself. If there is need for replacement or repair, always contact your local dealer or service centre.

If the ALARM/ LOW PRESSURE LED does not go Off, please contact your local dealer or service centre for examination.

NOTE:

If the pressure is consistently low, check for any leakage (tubes or connection hoses). If necessary, contact your local dealer to replace any damaged tubes or hoses.

7.3 CPR Function

When there is an emergency, to perform CPR on the patient, remove the tubes from the pump box with the 'quick release' connections.



Alternatively **switch off** the KomfiTilt, which automatically exhausts the air from the air cells and deflates.



8. CLEANING

In this section, we describe the procedures to clean and decontaminate the unit. It is important to follow these procedures before using the system on patients.

8.1 Pump Unit

DO NOT immerse or soak the pump unit.

CHECK for external damage and move the pump to the cleaning area.

PLACE the pump on a work surface and spray or wipe the outside of the case with quaternary ammonium solution.

DO NOT spray any cleaning solution directly onto the surface of the pump.

Spray cloth with cleaning solution and clean faceplate. DO NOT allow excess cleaning solution on faceplate or control panel. (If solution gets inside, damage will occur.) Allow surface to thoroughly dry after cleaning.

DO NOT use Hypo carbonate or Phenolic based cleaning solution as this may cause damage to the case. Allow the solution to incubate for 10 minutes or accordingly as stated by the cleaning product use.

Wipe case with a clean cloth. Make sure all areas are clean (top and bottom, both sides).

After the pump is thoroughly cleaned and dried, proceed to plug in the pump and test to see if it runs normally.

8.2 Mattress System

Brush off or wipe down all surfaces of the base sheet with soap and water before wetting with any liquid disinfectant. Any obvious blood spots should be wet thoroughly with 1:9 Hypochlorite solutions (1 part bleach to 9 parts water) and allow to dry for at least 10 minutes. Then blot with a clean, damp cloth.

Brush or wipe down all surfaces with soap and water.

The air cells are unsnapped from one side and are sprayed on all sides with disinfectant. Let it sit for the required incubation time and wipe down with a clean cloth. (Make sure to disconnect all air cells, one by one, and spray the disinfectant on all sides, including all the connecting tubes and hoses. Let it sit for at least 10 minutes).

The base has to be sprayed down with disinfectant, inside and outside. Let it sit for the required incubation time and wipe down with a cloth.

Repeat the process with the tubing set: Spray, incubate, and then wipe clean.

Dry the KomfiTilt in a SUNLESS area after cleaning.

9. HANDLING AND STORAGE

Lay the Mattress out flat.

Roll from the head end towards the foot end; the air hose from the foot end can then be stretched around the mattress to prevent unrolling.

Unplug the pump and store with proper identification tag.

Follow the national requirement to dispose of the pump unit.

10. MAINTENANCE

10.1 General

Check the power cord and plug to see if there are abrasions or excessive wear.

Plug in the pump unit and check the airflow from the hose connection port. The airflow should alternate between ports every half-cycle time.

Check the air hoses to see if there are kinks or breaks. For replacement, please contact your local agent or dealer.

Make sure the mattress tube is well connected.

Check the pump unit and make sure both power and power indicator are off when the switch is turned off.



10.3 Quick service guide

Cleaning the air filter

1. Switch off the power supply to the control unit.
2. Disconnect the power lead and air hoses.
3. Place the control unit on a flat surface with its back panel uppermost (place a soft cloth under the unit to prevent scratches).
4. Carefully remove the air filter cover located on the back panel of the control unit (Fig 1)
5. Remove and clean the filter with clean water and allow to dry thoroughly. (Fig 2,3,4)
6. Replace the cleaned filter and refit the air filter cover on the control unit. (Fig 1)
7. The control unit is now ready for use.



10.3 Low Pressure

Examine if there is air leakage between the pump and the mattress connections or from the air mattress tubes.

Check connectors between the air mattress and pump. If there is any disconnection, please reconnect it.

Check the air-connecting tubes, ensure each single cell is not broken.

Check if there is any air leakage from cells. Ensure no leakage occurs. If any leakage occurs, please contact your local agent or dealer.

11. TROUBLE SHOOTING

Problems

Solutions

The Pump does not work.

1. Check if the plug is inserted firmly into the outlet.

2. Turn on the Power switch located at the lower left side of the pump unit.

. If Power Switch and Indicator Lights are ON and the pump still doesn't work, please contact your local dealer or agent immediately.

. If the Power Indicators are OFF when the power switches are ON, there may be a faulty outlet. Please try to connect the power cord to another outlet. If the Power indicator is still OFF, please contact your local dealer.

Incomplete inflation

Check to see if the tubes connected to the pump are twisted or if there is any leakage occurring.

. Always keep the tubes straight

. Change tubes if there is any leakage

. Ensure every cell is not punctured or disconnected



APPENDIX A: EMC INFORMATION

Guidance and Manufacturer's Declaration- Electromagnetic Emissions:

This device is intended for use in the electromagnetic environment specified below. The user of this device should make sure it is used in such an environment.

Emissions Test	Compliance	Electromagnetic Environment-Guidance
RF emissions CISPR 11	Group1	The device 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 emissions CISPR 11	Class B	
Harmonic emissions IEC61000-3-2	Class A	The device is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network.
Voltage fluctuations / Flicker emissions IEC61000-3-3	Complies	

Guidance and Manufacturer's Declaration- Electromagnetic Immunity:


This device is intended for use in the electromagnetic environment specified below. The user of this device should make sure it is used in such an environment.

Immunity Test	IEC60601 test level	Compliance	Electromagnetic Environment-Guidance
Electrostatic Discharge (ESD) IEC61000-4-2	±6kV contact ±8kV air	±6kV contact ±8kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC61000-4-4	±2kV for power supply line ±1kV for input/out line	±2kV for power supply line ±1kV for input/out line	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s)	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 IEC61000-4-11	<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 this device requires continued operation during power mains interruptions, it is recommended that the device be powered from an uninterruptible power supply or a battery.
Power frequency (50/60Hz) magnetic field IEC61000-4-8	3 A/m	3 A/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 the application of the test level

Guidance and Manufacturer's Declaration - Electromagnetic Immunity:

This device is intended for use in the electromagnetic environment specified below. The user of this device should make sure it is used in such an environment.

Immunity Test	IEC60601 test level	Compliance	Electromagnetic Environment-Guidance
Conducted RF IEC 61000-4-6	3Vrms 150 kHz to 80 MHz outside ISM bands ^a	3 Vrms	<p>Portable and mobile RF communications equipment should be used no closer to any part of this device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance</p> $d = 1.2\sqrt{P} \quad 150\text{kHz to } 80\text{MHz}$ $d = 1.2\sqrt{P} \quad 150\text{kHz to } 80\text{MHz}$ $d = 2.3\sqrt{P} \quad 80 \text{ MHz to } 2.5\text{ GHz}$ <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 meters (m).^b</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey^c, should be less than the compliance level in each frequency range^d.</p>
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	<p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> <div style="text-align: center;">  </div>

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.

a) The ISM (industrial, scientific and medical) bands between 150 kHz and 80 MHz are 6,765 MHz to 6,795 MHz; 13,553 MHz to 13,567 MHz; 26,957 MHz to 27,283 MHz; and 40,66 MHz to 40,70 MHz.

b) The compliance levels in the ISM frequency bands between 150 kHz and 80 MHz and in the frequency range 80 MHz to 2.5 GHz are intended to decrease the likelihood that mobile/portable communications equipment could

cause interference if it is inadvertently brought into patient areas. For this reason, an additional factor of 10/3 is used in calculating the recommended separation distance for transmitters in these frequency ranges.

c) 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 device is used exceeds the applicable RF compliance level above, the device should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the device.

d) 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 this device:

This device is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of this device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and this device 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 $d = 1.2\sqrt{P}$	80 MHz to 800 MHz $d = 1.2\sqrt{P}$	800 MHz to 2,5 GHz $d = 2.3\sqrt{P}$
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

or transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (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.

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