



EX4411

User's Manual



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INTRODUCTION

About this User Manual

This user manual contains instructions for the proper and safe use of the EX4411, and for patient & user safety and comfort, which has to be strictly followed.

This user manual has to be read and followed by every person using or handling this Bed. In case of any query, kindly contact Midmark India Pvt. Ltd.

ABOUT THIS PRODUCT

- EX4411 is a non-invasive medical device used for resting and treatment of patients by medical/paramedical / hospital personnel to help and support the patient in diagnosis, prevention, monitoring, treatment, or alleviation of the disease.
- This bed is for patient support and a patient rest facility which helps medical personnel in carrying out their medical procedures comfortably, minimizing the risks while moving and handling the patient.
- This bed is manufactured and supplied in non-sterile condition for use in a normal hospital environment.
- This EX4411 bed is electrically operated for certain profiling movements to provide clinical positions with the help of the patient.
 This Bed is supported with a Battery Backup.
- This EX4411 bed is not a diagnostic, measuring, monitoring, or therapeutic device or we say it can prevent or alleviate disease.
- This EX4411 bed is also useful for intensive care, and critical care in hospitals and nursing homes.

EX4411 Features

Please refer to the EX4411 flyer for the salient features of this product.

Technical Data

Please refer to the EX4411 flyer for the technical data of this product.

Add-On Accessories

Please refer to the EX4411 flyer for various accessories available and compatible with this product.



DEFINITIONS

Operator

The operator is the person appointed by the owner (i.e. clinic, hospital management. etc.) who will be responsible for the safe operation of this Bed.

User

A user is a person who is capable of assessing the clinical condition of the patient e.g. specialist medical personnel, doctors, nursing staff, attendants, etc. Based on their training experience or through the instructions, they are entitled to operate the Bed on their responsibility or to carry out work on it and can recognize and control possible risks to the patient as well as the Bed.

Patient

A patient is a person who is ill, infirm, disabled, or in need of care & occupying this Bed. Each time the Bed is allotted to a new patient it is recommended that the patient is instructed by the operator or the user about the functions important for his/her comfort and safety.

SAFETY

In this user manual, the following safety symbols are used



Danger: This symbol will appear wherever safety instructions are designed to protect people from physical harm. The symbol stands for imminent danger of death or serious injury.



Caution: This symbol will appear where situations are described, which might be dangerous, and which might inflict slight injuries.



Advice: This symbol will appear in front of additional helpful pieces of advice.

A dot in front of the text implies the action that is required to be taken.



Safety Instructions

- Always use Midmark India accessories that have been designed and approved for use with the Bed.
- Ensure that the bed is assembled and installed in accordance with the instructions given in this user manual.
- Restrict child visitors without proper attendants. Supervision is necessary to avoid any mishap due to unintended movement of the Bed.
- Persons with reduced physical or mental abilities & children must not be allowed to use & handle the Bed without proper supervision.
- Do not allow visitors to sit on the bed, as it may cause overloading. (Refer section Operation)
- Accessories or any devices used along with the bed should be as per their intended use specified and approved by Midmark India.
- The Bed should always be kept and used in a normal indoor hospital environment.
- The Bed is not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide. It may damage the electro-mechanical control system.
- Always use a mattress of the correct size and type. Before operating the Bed, make sure that the patient is safely positioned to avoid entrapment or imbalance.
- Do not keep any articles on the Base Frame Cover of the Bed. It can damage the linkages and electrical components.
- Keep the User Manual handy with the Operator/User for ready reference.



Keep some gap between walls and bed while in a stationary position and also while moving from one place to another

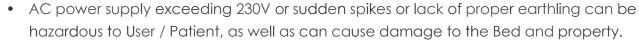


Use of water on mattress is prohibited.

Electrical Safety Points

When the Bed is connected to 230V / 15A (or as per country specific) main supply-

Connecting more than one plug to the three pin mains socket can cause electrical overload and damage the control system of the Bed.





- Ensure stabilized and properly earthed input power supply for the equipment. Also, ensure polarity of the mains socket is as per Standard and matches with the mains plug.
- Inspect all the wires and cables for any cuts, cracks, and damages at regular intervals.



ELECTRICAL SPECIFICATIONS

Mains power supply Nominal 240 VAC

Operating range with battery (150 VAC to 300VAC without battery)

(90 VAC to 300VAC with battery)

Frequency 50/60Hz, Max5A

Protection Voltage 300 V to 450 V for 230 VAC system

Mode of operation 10% (2min. in use /18 min. not in use)

Power consumption idle mode without battery 5W

Power consumption idle mode with battery 10W

Power consumption at maximum load 300 W max.

Mains Fuse DC Bus Fuse 2A fast blow for mains (external) 10A fast

blow fuse (internal)

Liquid Ingress Protection IPX6

Electrical Shock Protection Class 1

Degree of Shock Protection Type B

Rechargeable Batteries 2 x 12 Volt Sealed Lead Acid

Duty Cycle 10% (Two Minutes for every eighteen

minutes)

Inbuilt Battery Charger

Battery Charger Suitable to charge 1.3AhX 2batteries

Reverse polarity protection

Spark free connection

Short circuit protected output.

Very minimal battery consumption at

ideal

State, to enhance stand-by time

Battery overcharging protection.

Battery low or dip discharge protection



ENVIRONMENTAL SPECIFICATIONS

Usage, Storage and Transport

Temperature -10° C to 50°C

Relative Humidity 0% to 95% non-condensing

Atmospheric Pressure 800 to 1060 hPa

Altitude < 200Qm

INSTALLATION



- 1. Unpack all the components carefully.
- 2. If the packing is drenched by rain, water, or other liquids, inform the matter the operator.
- 3. Each bed is supplied with the following components as per the packing list:Rubber buffer with bush4 Nos.

Polymer moulded head and footboard

- 1 Pair

Miscellaneous items

- 1 Packet

Polypropylene panel for the backrest, knee rest, fixed and leg rest

-1 Set

Miscellaneous items

-1 Packet

- 4. Before connecting the bed to the mains, get the input voltage & earthing tested through a qualified electrician. It is necessary to ensure that all electrical connections are properly tightened.
- 5. It is advisable to charge the battery for 24 hours to get the best performance when plugged in for the first time.
- 6. Demonstrate the functions of the bed to the user/operator.
- 7. Notify if any damage has occurred during transportation either to the authorized agent or directly to Midmark India Pvt. Ltd.
- 8. Installation of the Bed should be done only by Midmark trained technicians.





Installation of the bed should be done only by Midmark India-trained technicians

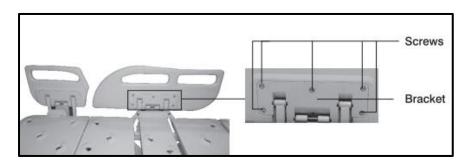
Buffers



• Fix the rubber buffer in the buffer holder with bush and bolt at all 4 corners

Safety Side Railings

1. 0360 – Polymer Molded Split Safety Side Railings



- Place and align the safety side railings with the brackets provided on the top frame
 of the bed. Tighten the safety side railings in position with screws provided separately
 in a packet.
- Fit the caps provided over the screw heads to cover the screws.
- Check the correctness of fitting by operating the safety side railings for a few cycles. Read just the screw if hampering the smooth operation of the safety side railings.



2. 0380 – Split Type Polymer Moulded Safety Side Railing (2 Sets)



- Place and align the safety side railings with the brackets provided on the top frame
 of the bed. Tighten the safety side railings in position with screws provided separately
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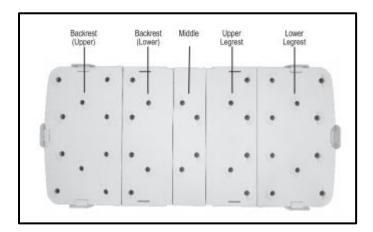
Head & Foot Board



Fix the head and footboard by extending equal forces with both hands in the bracket.



Five Section Polypropylene (PP) Top:



Place the individual polypropylene sections of the backrest (upper), backrest (lower), middle, upper leg rest, and lower leg rest on their respective positions on the bed top frame as shown in the figure above



Dispose the packing material waste in accordance with the local waste disposal regulations prevailing.



ADD ON ACCESSORIES:

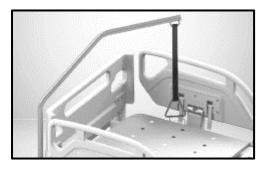


IV Pole

Used to hang IV bags for infusion of liquid substances directly into the vein.



Do not overload the I.V. Pole with more than 20 kgs. Equally distributed on all hooks.



S.S Lifting Pole (0553)

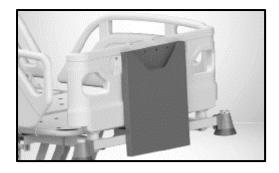
Helps the patient lying on the bed to lift themselves on their own, by hold the hand grip.



Orthopedic Traction Pulley (0187)

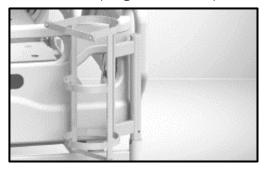
Used in orthopedic treatment for physical therapy.





Moulded Chart Holder (0158A)

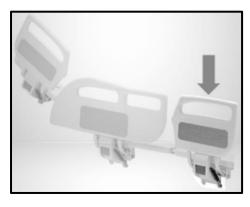
Used for keeping medical reports and charts.



Oxygen Cylinder Cage

Used to hold the oxygen cylinder.

(0360A)- Small Size Polymer Moulded Safety Side Railing-3rd Set (Single Set)



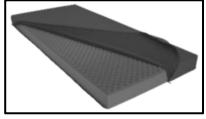
3rd Set of Safety Side Railing (0360A)



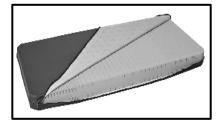
Mattress (0321H)



Mattress (0321A)



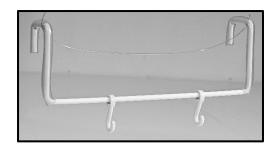
Mattress (0321W)



Mattress (0321R)

Used for patient comfort.





Urine Bag Holder (0156)

Used to hold the urine bag.



Ensure that the accessories are properly secured and not overloaded to avoid any personal injury or equipment damage.



Use of Bed accessories in accordance with the manufacturer's instructions for patient safety and comfort. Use recommended spares and accessories of suitable design and manufactured by "Midmark India Pvt. Ltd." to eliminate hazards.

Available For EX4411 Variants

X-Ray Permeable Backrest with Cassette Holder

- The backrest support top in this option is made of high pressure laminated sheet which is X-Ray permeable.
- This facility is provided especially for patients who are seriously ill or too weak to stand unsupported and need the X-ray imaging without being moved out of the bed.
- Beds having X-Ray permeable backrests come factory-fitted to the bed and do not need any special installation.



Fig. 1



Fig. 2



Fig. 3



Fig. 4

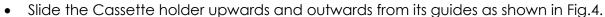


Fig. 5



Procedure to use X-Ray Backrest

- Raise the backrest to a convenient position as shown in Fig. 1&2.
- Unscrew both the knobs provided at the sides of the Cassette holder as shown in Fig.3.



- Place the X-Ray late on the Cassette holder to its desired position for X-Ray imaging.
- Lock the plate in position by adjusting the levers shown in Fig. 5.
- Insert back the cassette holder with the plate in its guides.
- Tighten both knobs provided at the sides.
- Adjust the Backrest to facilitate X-ray imaging.



Only authorized and qualified persons designated by the operator and having proper training should be allowed to prepare the bed with the patient for X-ray imaging.

ELECTRICAL CONTROL SYSTEM

The electrical control system of this Bed consists of:

- Four actuators to facilitate the movement of the back section, upper leg section, height, and trendelenburg / reverse trendelenburg tilt.
- User-friendly handset is provided for achieving various clinical positions.
- A control unit is located below the main frame of the bed to which hall the other
 electrical components are connected through a junction box. A battery box
 containing two batteries (for power backup in an emergency and during power
 failures) is provided below the main frame of the Bed. Night lamps are provided
 below the main frame of the Bed which works on mains supply only.

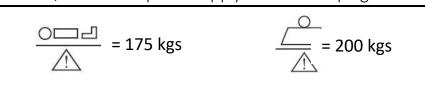


OPERATION

- Before putting the bed Into use for the first time ensure that all the transport securing devices and packing film are removed.
- Clean and disinfect the bed before the first time use.
- The bed should be used on a flat floor.
- The force required to move the bed from one place to another with/without patient, may vary depending on the flooring conditions.
- Check it all the operations are functioning properly.
- This Bed should be operated only by an authorized and trained person who knows its operation.



Do not stretch/ extend the power supply cord from its plug.





Do not load the bed more than the Safe Working Load as mentioned above.



MECHANICAL ADJUSTMENTS

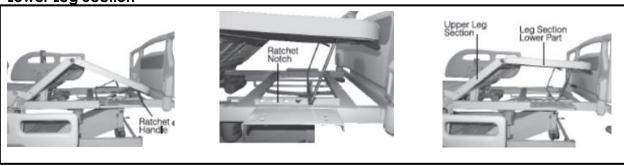
Castors and Breaking Mechanism



The EX4411 Bed is equipped with four 125 mm high-grade synthetic castors, and two diagonally opposite castors with brakes. To lock the castors press the latch and to unlock release the latch.



Lower Leg Section



Lower Leg Section

Lower leg section gets raised simultaneously when raising the upper leg section through electrical control. To attain the calf elevation position, the lower leg section can be adjusted manually.



To Raise Leg Section (Lower part) manually –

- Firmly hold and rat the leg section (Lower part) with one hand.
- With the other hand hold the ratchet handle to the required inclination.
- Place the ratchet handle in the desired ratchet notch to lock the position.
- Make the patient comfortable by readjusting his position on the Bed.



To Lower Leg Section (Lower part) manually –

- Firmly hold the leg section (lower part) with one hand.
- Pull out the ratchet handle from the ratchet notch to unlock the position.
- Carefully place the Leg Section (lower part) on the mainframe.





Always observe the correct adjustment sequence.

Care should be taken to avoid fingers and hand getting entrapped between the ratchet and the top frame.



CPR Release Handle

Emergency lowering of the Back Section using CPR Release Handle

The CPR release handle is to be used to bring the back rest to its flat position in case of emergency or power failure.

Procedure for Operating CPR lever manually:

- Hold the back section with one hand while operating CPR Release Handle.
- With one hand pull the operating lever (CPR Release Handle) so that the Back Section can be lowered. The Back Section Actuator is locked in this process.
- The Back Section does not stay in its flat position until the CPR Handle is released.
- Once the flat position is achieved. Release the CPR Release Handle.
- The Back Section can be operated with the help of control elements.

Since the Back Section is designed for motorized adjustment, manual CPR should be used only in case of emergency. Continuous manual adjustment may damage the Actuator. As the Backrest can fall quickly, keep hands clear to avoid trapping.





The Head and Foot Board are located at the head and foot end of the Bed frame.





- The Head and Foot Board can be removed or attached in a single step by extending equal force with both the hands in the bracket by ensuring the proper matching of the brackets with board holder fitted in the main frame.
- The Head and Foot Boards can be removed for ease of access to the patient from head and foot side.



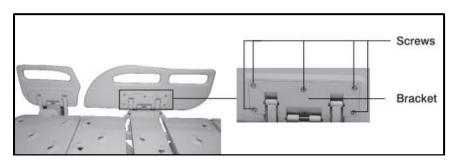
Do not hang any heavy items on the Head and Foot Boards.



While taking the bed from one place to other, ensure that all the knobs of the bed extension are tightened.

To use the Safety Side Railings —

0360 – Polymer Molded Split Safety Side Railings



380 – Split Type Polymer Moulded Safety Side Railing (2 Sets)



- Immobilize the Bed.
- To raise the railing, pull it to the top position until it gets locked.
- To release/lower the safety side railing, ensure that there are no obstacles in the path of the railing.
- Lift the lever and push the safety side railing down to its end position.
- Always keep the safety side railing in raised condition when moving the patient with the Bed. Do not use the safety side railing to lift or move the Bed.



- Safety side railings must only be used with a mattress of the correct size and which is approved for use with the Bed.
- To prevent the patient from falling, ensure that the safety side railings are in the raised position.
- The clinically qualified person responsible should consider the age, size and condition of the patient before allowing the use of the Safety Side Railings.
- Other manufacturer's Safety Side Railings are not compatible with these Beds.
- Please take care of fingers and hands while operating the Safety Side Railings.



Although the Safety Side Railings have been designed to reduce the risk of patient injury, the potential exists for patient entrapment. Particularly in agitated or disoriented patients, patients who have cognitive disability or have uncontrolled body movement as well as patients who lack the physical strength to extract themselves, if they get entrapped.



Users should carefully evaluate the need for Safety Side Railings and periodically check patients in accordance with facility protocols for safe positioning.



The Safety Side Railings should always be in raised position when attaining lowest height position or when attaining Trendelenburg/Reverse Trendelenburg Tilt positions.

If these safety measures are not observed, injuries can be caused to hands, knees, and fingers feet legs or other body parts of patient due to unintended and unintentional entrapment. In children or weak patients who are less than 146 cm tall, non-observance of these guidelines may even lead to death.

Angle Indicator



Displays the approximate degree of angular indications of Back Section, Upper Leg Section and Trendelenburg/Reverse Trendelenburg positions.

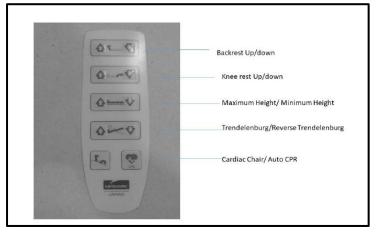
This allows the Care Giver to place the patient in a recommended position for maximum comfort as advised by the Doctor.



Electrical Adjustments

Using the Handset

EX4411



- The handset is used for activating the above clinical positions by the user or the operator.
- Press any key to operate the handset.
- Press the desired function button and simultaneously press the Up or down control key to get the required position.
- Hang the handset on the safety side railings.



Battery

The Bed is equipped with battery to allow emergency operation of the electric drive system. This ensures that all the power requirements can still be supplied in the event of power failure. The battery also has inbuilt fuse protection for the safety of battery as well as users.



Instructions to use battery –

- It is necessary to fully charge the battery at least once a month, especially when the Bed has not been in use for a long time. Otherwise the battery could get permanently discharged and/or damaged.
- Always keep the Bed in charging condition for any emergency use.
- Always keep the Bed connected to the main supply to get a fully charged battery.
- Operations of the Bed on battery should be only as per its duty cycle (refer Electrical Specifications given above)

Batteries in the Bed may emit hydrogen gas. So do not bring fire or a heated object close to the Product.

With due consideration to environmental limitations, materials used to make the device are not affected A by contact with any biochemicals or biowaste. When used as per its intended purpose, all materials used in the product and accessories do not facilitate any breeding or growth of bio-contaminants on their own.



MAINTENANCE & CLEANING

Maintenance

Each time before putting the Bed into service the user must check that –

- All the functions are in satisfactory working condition before the bed is allotted to the next patient.
- Unplug the main supply before carrying out any maintenance activity.
- Lubrication of all the mechanical joints/pins / moving parts/tightening of the bolts should be carried out at least once in three months, to avoid unnecessary sound and wear & tear of the Bed.
- At regular intervals carry out a visual inspection and check for any mechanical damage (e.g. loose /missing rivets, Screws, etc.)
- If any damage or malfunction is observed, immediately report this matter to the operator.
- If the Bed is not in use, it should be stored in a dry and flat indoor environment which is rodent free with gradient not more than 5 degrees.
- If the Bed is not in use for long term, it is necessary to conduct a test to check for functioning and any electrical or mechanical damage that may have been caused.
- Depending on the usage, certain moving parts may require replacement due to wear & tear. We recommend timely replacement with genuine Midmark spares for safety and trouble free operation.
- Lubricating the moving parts and tightening of the bolts should be carried out periodically.

Cleaning & Disinfecting –

- The bed is not suitable for machine wash or steam cleaning.
- Do not use a water jet for cleaning.
- Always disconnect the mains power cord from the electrical power supply before cleaning.
- Wipe the electrical components with a dry cloth only. No traces of water or disinfectant should be present on any electrical component.
- The bed cannot tolerate the influence of strong solvents, basic or alkaline liquids & caustic agents. Also, do not use concentrated insecticides on electrical parts.
- The cleaning agents must not contain any substances which bring about any change in the structure or adhesive property of the plastic.
- The bed should be properly cleaned and disinfected to avoid infection and stains before allotment to a new patient.
- Immobilize the bed & remove all the detachable accessories and components before cleaning. Any prolonged contact of urine or acid on mild steel can corrode the surface. Keep the surface dry at all times.



- Wearing suitable protective clothing, clean the surface with a disposable cloth soaked in a neutral detergent and hot water. We recommend the use of approved disinfectant and cleaning agents to clean the bed. E.g. Bacillocid or other similar agents.
- Start by cleaning the upper sections of the Bed & work along all horizontal surfaces.
 Work methodically towards the lower sections of the Bed. Take extra care to clean
 areas that may trap dust or dirt. All detachable accessories and its component can
 be cleaned separately.



Do not expose the Bed to excessive moisture as corrosion may cause personal injury or equipment damage.



Disposal:

Product and its defective parts especially elements made of plastic, steel, rubber, and electrical /A electronics (including battery) material should be disposed of by the statutory rules and regulations prevailing for such disposal. The user is advised to contact 'Midmark India' for further assistance.



Routine Inspection Check List: Inspection By The User (Recommended Frequency: Every new allotment but not later than one month)

`Checks	Observations	OK	Not OK	Description of faults
Visual check of the electrical compo	nents			
Handset cable	Damage, loose, hanging			
Mains cable	Damage, loose, hanging			
Visual check of the mechanical comp	ponents			
Main frame	Damage deformation			
Patient lifting pole, locating sleeves	Damage, Bend			
Mattress	Damage			
РР Тор	Damage deformation			
Side Railing	Damage Position			
Indicator Present				
Screws And Rivet	Missing, Loose			
Performance check of the electrical of	components			
Handset	Function test			
Control unit	Function test			
Motors	Function test			
Performance check of all mechanica	I components		- 1	
Detachable head and foot boards	Secure retention			
Castors	Engagement, Release, Secure Fastening			
Emergency lowering of the backrest (CPR handle)	Function test			
Side railing	Engagement, release, secure fastening			
Locking & release	Function test			
Accessories	Fastening, damage, missing			
Sign	Result of inspection		Date	



Troubleshooting Guide

PROBLEM	POSSIBLE CAUSES	REMEDY
The handset system not functioning	 Main cables not plugged in No main voltage at main supply/no current supply The handset cable is not fixed properly to the control unit Error in handset unit 	 Plug in the main cable Checking in the Supply Current Fix the handset Replace the handset unit
Certain functions not working	 Actuators not functioning Control unit not functioning Handset not working Cables of the actuators are loosened 	 Replace the actuators Replace or repair the control unit Replace or repair the handset Fix the cables firmly
Emergency operation not possible	 Battery rundown Battery fuse blown off Battery wire loosened 	 Recharge the battery as recommended Replace the fuse Fix the battery wire firmly
Recharge the battery as recommended Replace the fuse Fix the battery wire firmly	 Overload on the bed Internal or external fuse blown off Battery run down 	 Reduce the load on the battery Replace the fuse Recharge the battery
No functions are operating	Main cable loosenedError in control unit	 Tighten the main cable firmly Replace or repair the control unit
No function via the handset	The handset is defective	Replace or repair the handset
Manual emergency operation not functioning	 Bowden cables are set with too much slack or have become unhooked Breaking in the Bowden cable Squeaking in Bowden cable 	 Readjust on release lever or adjust the wire by loosening the wire Replace the Bowden cable Lubricate the Bowden cable by oiling



WARRANTY & SERVICE

Midmark India Pvt. Ltd. warrants solely to the end-users of this EX4411 bed that for a period specified in the warranty certificate, such EX4411 bed shall perform as per its intended use. The foregoing warranties shall not apply if the product has been subjected to (a) physical abuse, misuse, abnormal use, or use not consistent with Midmark India Pvt. Ltd.'s published directions, (b) any modification by anyone other than Midmark India Pvt. Ltd., or third parties designated by Midmark India Pvt. Ltd., or (c) fraud, tampering, negligence or accidents, depending upon the nature of the products.

Limitation Of Liability: In no event shall Midmark India Pvt. Ltd., be liable or obligated to the end-user in any manner for any special, non-compensatory, consequential, indirect, incidental, statutory, or punitive damages of any kind. Including, without limitation. For injury or loss of life, lost profits lost sales. Lost revenue, loss of any software or data. or loss of use of any hardware, software, or data, regardless of the form of action, whether in contract, tort, negligence, strict product liability, or otherwise, even if Midmark India Pvt. Ltd., has been informed of or is aware of the possibility of any such damages in advance. Midmark India Pvt. Ltd.'s total aggregate liability under this agreement and in relation to anything which Midmark India Pvt. Ltd., has done or not done in connection with this agreement shall be limited to the price of the products purchased and paid for by the end-user during the period in which such liability arises. The limitations set forth above shall be deemed to apply to the maximum extent permitted by applicable law and notwithstanding the failure of the essential purpose of any limited remedies.

In order to maintain functional safety and right to claim under the warranty only original 'Midmark' replacements parts may be used for ordering replacement parts, customer service request and further question, please contact our technical support department.



Disclaimer

Every effort has been made to ensure that the information in this user manual is valid. Midmark India Pvt. Ltd., reserves the right to change the information in this document without prior notice."

MANUFACTURER'S ADDRESS

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