



Operation Manual  
FOR  
Protekt® Aire 4000DX/4600DX/5000DX/4600DXAB

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## TABLE OF CONTENTS

IMPORTANT SAFEGUARDS.....	3
STATEMENTS.....	3
INTRODUCTION.....	4
PACKAGE CONTENTS.....	5
PRODUCT FUNCTION.....	6
Pump.....	6
Mattress.....	6
SYSTEM INSTALLATION.....	7
OPERATION.....	8-10
General.....	8
CPR function.....	10
Pressure set up.....	10
Low pressure warning.....	10
CLEANING.....	11
ENVIRONMENT REQUIREMENTS.....	12
HANDLING AND STORAGE.....	12
MAINTENANCE.....	12
General.....	12
Low pressure.....	12
SPECIFICATIONS.....	13

## **IMPORTANT SAFEGUARDS**

When using electrical products, especially when children are present, basic safety precautions should always be followed, including the following:

### ***Danger***

To reduce the risk of electrocution:

- ▶ Always unplug this product immediately after use.
- ▶ Do not use while bathing.
- ▶ Do not place or store product where it can fall or be pulled into a tub or sink.
- ▶ Do not place in or drop into water or other liquids.
- ▶ Do not reach for a product that has fallen into water. Unplug immediately.

### ***Warning***

To reduce the risk of electrocution or injury to persons:

- ▶ A product should never be left unattended when plugged in.
- ▶ Close supervision is necessary when this product is used by, on, or near children or invalids.
- ▶ Use this product only for its intended use as described in this manual.
- ▶ Do not use attachments not recommended by the manufacturer.
- ▶ Never operate this product if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or dropped into water. Return the product to a service center for examination and repair.
- ▶ Keep the cord away from heated surfaces.
- ▶ Never block the air openings of the product or place it on a soft surface, such as a bed or couch, where the air openings may be blocked. Keep the air openings free of lint, hair, and the like.
- ▶ Never drop or insert any object into any opening or hose.
- ▶ Do not use outdoors or operate where aerosol (spray) products are being used.
- ▶ Connect this product to a properly grounded outlet only.
- ▶ Do not disassemble, repair or rebuild the product without permission, otherwise it may have risk of fire and danger.

### ***Grounding***

Before any connection is made, make certain that this product shall be connected to a protective earth conductor via the three-wire power cord; the three-blade plug shall be inserted only into a socket outlet that provides a protective earth contact.

## **STATEMENTS**

### ***Note***

Indicates some tips or some information users should be aware of.

### ***Caution***

Indicates correct operating or maintenance procedure in order to prevent damage to or destruction of the equipment or other property.

## **INTRODUCTION**

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

### ***General***

The Protekt® Aire 4000DX/4600DX/5000DX system is designed for prevention, treatment and management of pressure ulcers. The Protekt® Aire 4000DX/4600DX/5000DX pump is a smart pump simple to operate and easy to use, constantly providing pressure redistribution and support to patients. Patients at medium risk of pressure ulcers are recommended to use the Protekt® Aire 4000DX/4600DX/5000DX system.

The Protekt® Aire 4000DX/4600DX/5000DX system has been tested and certified for the following standards:

- ❖ CE
- ❖ EN60601-1

The Protekt® Aire 4000DX/4600DX/5000DX system is intended to reduce the incidence of pressure ulcers while optimizing patient comfort. It also provides the following:

- ▶ Individual customized setting capability.
- ▶ Pain management as prescribed by a physician.

### ***Contraindication***

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

- ▶ Cervical or skeletal traction.
- ▶ Unstable spinal cord injuries.

## PACKAGE CONTENTS

Check inside the package. If any of the following items should be missing or damaged, please contact your local dealer or service center for replacement immediately.

### *Pump Unit*



### *Mattress*



### *Cover Sheet*

❖ Optional

The cover sheet makes cleaning an easy task.







### *Manual*

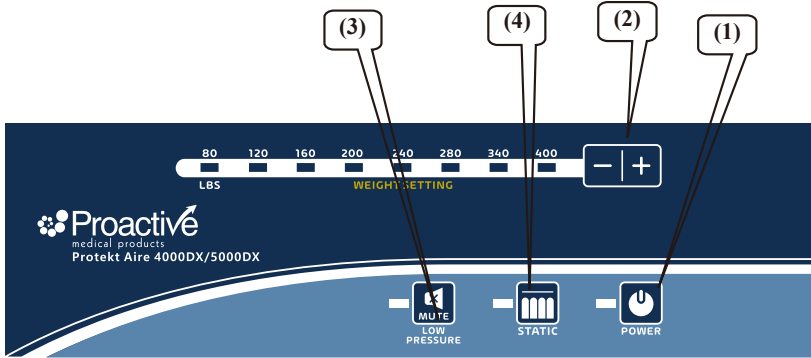
Always read this manual before using this product.

# PRODUCT FUNCTION

## Pump Unit

The functions of the pump for Protekt® Aire 4000DX/4600DX/5000DX system are described below.

- ❖  **Power Key(1)**
  - Press Power key on the panel, the pump will start/stop operation.
- ❖  **Press Weight Range(2)**
  - Press minus or plus buttons to select the correct patient weight.
- ❖  **Alarm Mute(3)**
  - The audible alarm turns on when the mattress pressure is low.
  - Press the button to mute alarm.
- ❖  **Static Mode(4)**
  - Press to set the air mattress in static therapy mode. The function will revert back to alternating mode after 20 mins.



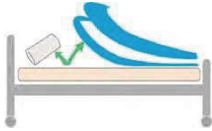
## Mattress

The Protekt® Aire 4000DX/4600DX/5000DX pump comes with a cell type mattress of different materials (Nylon PVC, Nylon TPU or TPU), provided optionally with the pump. Please refer to the specifications section for details.

## SYSTEM INSTALLATION

The following describes the procedures for setting up the system for the first time.

- a) Remove all covers, sheets and mattress from the bed.

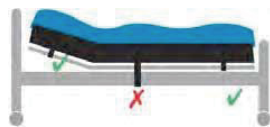


- b) On a standard bed, position Mattress Replacement on top of bed, printed top cover facing upwards and air hoses towards the base of the bed. Attach to the bed by securing the adjustable straps under each end of your bed. Ensure buckles are securely fastened and straps are pulled tight. On a profiling bed, secure the side straps around the moveable sections of the bed base.



- c) On a profiling bed, secure the side straps around the moveable sections of the bed base. **DO NOT SECURE TO THE SIDE RAILS - STRAPS WILL TEAR OFF.**

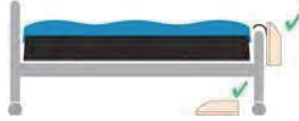
- d) Confirm there are no sharp objects in the immediate area which may risk damage to the Mattress Replacement.



**Important:** Check that the attachment of the Mattress Replacement does not interfere with the movement or operation of the bed.

## Pump Unit Activation

- a) Position Control Unit by hanging hooks over foot board of the bed or place unit on the floor under the bed.



- b) Attach the air hoses through the use of the quick connector to the Control Unit. Ensure air hoses do not kink between mattress, bed frame and Pump Unit.



- c) Plug the power cord into an electrical outlet with grounded AC power.

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



- d) Switch the power button on. Allow up to 50 minutes for full inflation.



- e) Once ready, the indicator of the power key will remain on - lay the patient on the bed and select the appropriate comfort level.

Perform a "bottom out" test to ensure that patient is properly suspended. Slide your hand under the top cover along a deflated cell in the sacral (bottom) area. Secure sheets loosely enough to ensure they do not interfere with cell alternation.



## **OPERATION**

**NOTE:** Always read the operating instructions before use.

### ***General***

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

#### **For products:**

- DO NOT use another pump with different specifications unless instructed to do so by your local dealer. It is dangerous to use a pump with pressure capacity greater than 120 mmHg. This may result in cell damage.
- DO NOT change any component by yourself. If there is need for replacement or repair, always contact your local dealer.

#### **For patients:**

When the pressure has been adjusted to a desired level of firmness, the patient can then lie on the mattress.

A firm surface will make it easier for the patient to transfer or reposition. Make use of the static mode function for this feature.

#### **Hand check:**

Check if the pressure is properly adjusted by sliding one hand between the air mattress and bed frame to feel the patient's buttock.

Users should be able to feel the space in between, and the acceptable range is approximately 25 to 40 mm (1" to 1.5").

**NOTE:** Please follow instructions below for detailed operating procedure of each type.

- Step 1 Turn on the power. The indicator of the power key will flash.
- Step 2 The pump will enter into static mode when the power is initially turned on. First it will inflate the mattress to 15mmHg, and then enter alternate mode and indicator of the power key remains on.

**NOTE:**

If 15mmHg still cannot be reached within 40 minutes, the alarm will beep and its LED will come on. Press the Alarm Mute button to mute the alarm. The alarm LED will continue flashing.

- Step 3 The alternating cycle time is fixed at 10 minutes. Weight range /pressure level is set at 80kg/30mmHg initially. Press the up/down buttons on panel to adjust the weight/ pressure level to the patient's specific requirements.

**NOTE:**

**Press the static mode button from the touch panel to provide a firm surface that makes it easier for the patient to transfer or reposition. The static mode can support the patient by keeping the mattress from bottoming out when the patient is in a sitting position. The static mode will revert back to alternating mode after 20 mins. Press the Static button again to switch back to alternating mode.**

- Step 4 During normal operation, the unit will monitor pressure. If the mattress pressure is lower than the set pressure, the pump will automatically inflate the mattress to the set level and then stop.

**NOTE:**

In case there is a bad connection of tubing or any air leakage from the mattress, this will result in a low-pressure condition, and it will activate the alarm within 1 min.

Press the Alarm Mute button to mute the alarm. The alarm LED will continue flashing.  
Press the Alarm Mute button again to re-enable the audible alarm.

### ***CPR function***

When there is an emergency requirement to perform CPR on the patient, pull the CPR strap at the head section of the mattress to release the air quickly from the mattress.

The CPR straps are located at the front right-hand side of the mattress.

### ***Weight/Pressure set up***

Users can adjust air mattress to a desired firmness according to patient's weight or the suggestion from a health care professional.

### ***Low pressure warning***

When abnormal pressure occurs, the Low Pressure indicator will come on. For some types of pumps, the alarm will be activated to alert of a low pressure condition. Check if the connections are secure and correctly installed according to the relevant instructions.

### **NOTE:**

If the pressure is consistently low, open the zipper and confirm that all of the hoses are properly connected. Then check for any noticeable leakage in any of the tubes. If necessary, contact your local dealer to replace any damaged tubes or hoses.

## CLEANING

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

The cleaning task is required at least once a week to maintain personal hygiene.

### ***Pump Unit***

- ▶ DO NOT immerse or soak the pump in any water or fluids.
- ▶ 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 on the surface of the pump.
- ▶ DO NOT use a Hypocarbonate 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 instructions.
- ▶ Wipe case with a clean cloth. Make sure all areas are clean (top and bottom, both sides).
- ▶ 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.
- ▶ After the pump is thoroughly cleaned and dried, proceed to plug in the pump and test to see if it runs normally.
- ▶ Unplug the pump and store with proper identification tag.
- ▶ Avoid long exposure to sunlight.

### ***Mattress***

- ▶ Brush off or wipe down all surfaces of the cover sheet with soap and water before wetting with any liquid disinfectant.
- ▶ Any obvious blood spots should be wet thoroughly with 1:9 Hypochlorite solution (1 part bleach to 9 parts water) and allow drying for at least 10 minutes. Then blot with a clean, damp cloth.
- ▶ Unzip the top cover from the mattress.
- ▶ Brush or wipe down all surfaces with soap and water before applying any liquid.
- ▶ Covers are immersed and soaked in disinfectant for the required incubation time.
- ▶ After pre-soaking, the cover is rinsed through a regular cycle in a washer with no soap then laundered with mild detergent (wash temperature 93°F/34°C, rinse temperature 78°F/26°C or on the coldest setting).
- ▶ Covers are aerated until they are fully dry. (Drying temperature range 90-120°F/32-49°C or on the coldest setting.)
- ▶ The air cells are unsnapped from one side and are sprayed on all sides with a disinfectant. Let it sit for the required incubation time and wipe down with a clean cloth. (Make sure to disconnect all the air cells, one by one, and spray the disinfectant on all sides, including all the connecting tubes and hoses. Let it sit for least 10 minutes. )
- ▶ If there is a base after you remove all the air cells, the base has to be sprayed down with the 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.
- ▶ The carrying bag should be turned inside out and completely wiped down using the disinfectant solution. Allow it to thoroughly air dry. Once the inside is dry, turn it back: wipe down the outside of the bag with disinfectant.
- ▶ Dry the mattress on a flat surface area after cleaning, away from exposure to the sun.
- ▶ Avoid long exposure to sunlight.

## ENVIRONMENT REQUIREMENTS

### *Operating Conditions*

- ▶ Ambient Temperature: 41°F~104°F
- ▶ Relative Humidity: 15%~90%, non-condensing
- ▶ Atmospheric pressure: 700hPa to 1060hPa

### *Storage and shipping conditions*

- ▶ Ambient temperature: -13°F~158°F
- ▶ Relative Humidity: 10%~90%, non-condensing
- ▶ Atmospheric pressure: 700hPa to 1060hPa

## HANDLING AND STORAGE

- ▶ Lay the mattress out flat and upside down.
- ▶ Roll from the foot end towards the head end; the foot-end strap can then be stretched around the rolled mattress to prevent unrolling.
- ▶ Do not fold, crease or stack the mattress.

## MAINTENANCE

### *General*

- ▶ Check the power cord and plug to see if there are abrasions or excessive wear.
- ▶ Check the mattress cover for signs of wear or damage. Ensure the mattress cover and tubes are connected together correctly.
- ▶ 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 any 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 indicators are off when the switch is turned off.

### *Low pressure*

Examine if there is any 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 CPR Valves. Ensure their outlets are sealed.
- ▶ Check the air-connecting tubes. Ensure each single cell is not broken.
- ▶ Set the pressure at Max firm. Keep the tubes fully inflated and inspect for air leakage.
- ▶ Check if there is any air leakage from cells. Ensure no leakage occurs. If any leakage occurs, please contact your local agent or dealer.

## SPECIFICATIONS

### *Technical Specifications*

Pump	Mattress
Item: Protekt® Aire 4000DX/5000DX	Item: Protekt® Aire 4000DX/4600DX/5000DX
Power supply: 120V/50Hz, 1A	Protekt Aire 4000DX: 80"(L) x 36"(W) x 8"(H)- 8" Cells Protekt Aire 4600DX: 80"(L) x 36"(W) x 8"(H)- 8" Cells Protekt Aire 5000DX: 80"(L) x 36"(W) x 8"(H)- 5" Cells, 3" foam base
Air output: 9 liter/min.	Top cover: Quilted Nylon/PU
Pressure range: 20 mmHg - 50 mmHg	Air cells: Nylon / PVC
Cycle time: 10 min.	Base: Nylon / PVC
Case Material: Flame Retardant ABS	Protekt Aire 4000DX: 20 air cells Protekt Aire 4600DX: 20 air cells Protekt Aire 5000DX: 17 air cells
Static Mode	CPR valve for emergency procedures
Alarm Mute	Pillow function
Size: 10.6"(L) x 6"(W) x 4"(H)	Quick connectors
Weight: 3.5lbs	Maximum Weight Capacity: 400 lbs

### *Note:*

The above specifications are also applicable to those areas operating with the same power supply range.

**Warranty:** 2-year for pump and mattress