

*Anti-Decubitus*

*Air Alternating Pressure Mattress*

*Replacement System*

# **Dual**

Operation Manual

**carilex**<sup>®</sup>

# carilex<sup>®</sup>

Congratulations and thank you for purchasing this Carilex anti-decubitus mattress system. **PLEASE READ THIS OPERATION MANUAL CAREFULLY BEFORE SETTING UP AND USING THE DEVICE.** Pay special attention to the warnings and other safety information. Use genuine Carilex components are essential for optimal performance. If you do not fully understand all the instructions, safety precautions, and warnings, do not use this device. In case you have questions, please contact your local Carilex distributor.

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## 1.0 Indications



Attention! Please read enclosed document thoroughly



Double insulated (Class II)



Declaration of Conformity to Medical Device Directive



International Electronics Approval

**IPX0**

Do not immerse power unit in liquid or spray liquids directly on power unit



Type B Equipment

### Indications

This air alternating mattress system is designed for patients who endure pressure ulcer and potential patients who wish to reduce the likelihood of pressure ulcer. This device is intended to treat and prevent pressure ulcers by facilitating blood circulation and decreasing pressure of each tissue's contact area. Always consult a physician or health professional before using this mattress system. This anti-decubitus mattress system is mainly for high risk patient group.

### Contraindications

Certain patient conditions are not suitable for using this type of device such as fracture of instable vertebrae and illness of instable vertebrae. Always consult a physician or health professional before using this device.

The use of this system does not replace the regular repositioning, monitoring, and nursing of the patient.

## 2.0 Safety Precautions

- (1) To ensure proper operation, please inspect and verify all parts are setup properly and anchor securely. Do not place anything on top of the power unit. Make sure power cord is underneath bed frame and free from hazard.
- (2) It is recommended to limit bed linens to a single layer in order to allow the moisture escape efficiently through the coverlet. Only "breathable" incontinent pads are recommended for use with this mattress system.
- (3) Avoid using this device near open flames, lighters, or cigarettes. Flammability hazard exists. This device draws air from the surrounding. Thus, cigarette smoking may damage internal component.
- (4) This system should disinfect thoroughly between patients to avoid cross contamination.
- (5) Verify patient weight does not exceed bed frame, bed rails, and this mattress system's weight capacity.

## 3.0 Warnings

- (1) *Use this mattress with proper side rails to ensure the gap between the side rail and top of the mattress is small enough to prevent patient from getting his or her head or neck into the gap. Fail to do so could result in serious patient injury.*
- (2) DO NOT disassemble the power unit if you are not a qualified technician. Please contact your local distributor for all service.
- (3) This product is NOT AP/ APG protected.
- (4) Re-position the patient once awhile is still necessary when using this mattress.
- (5) Operating, transportation, and storage conditions:
  - Temperature: 5°C - 45°C
  - Humidity: 15% - 60%

**CAUTION:** ENSURE THAT THERE ARE NO PROTRUDING OBJECTS, SHARP POINTS OR BED SPRINGS UNDER THE MATTRESS AS THESE COULD PUNCTURE THE AIR CELLS.

## 4.0 System Package

### Power Unit Package

- \* Power unit x 1
- \* Power cord x 1
- \* Operation manual x 1

### Mattress Package

- \* Mattress replacement unit with coverlet x 1

## 5.0 Features

### Control Panel Features

See *Figure 5a* on page 5.

#### power/ mute

Press **power/ mute** button to turn on the power unit and the green LED will light. The LED will change to orange if abnormal power outage occurs and audible alarm will sound to notify medical staff. You may press **power/ mute** button to turn off the audible alarm after notified or it will sound until power is restored or rechargeable battery is discharged. Memory re-call function recalls the previous setting after abnormal power outage or after the main power rocker switch is off and on. The mute function is only functional when audible alarm is in effect.

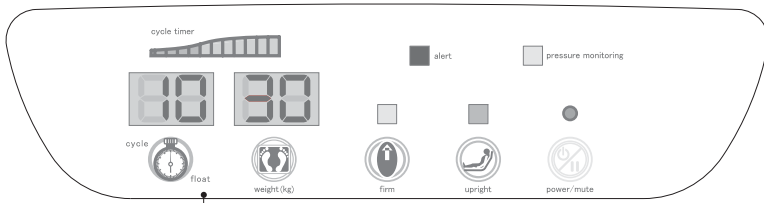
#### weight (kg)

Simply press **weight (kg)** button to adjust the patient weight from 30 kg to 200 kg according to each individual. The scale is only an approximation. Please adjust the weight setting if the mattress is too soft or firm to suit each patient.

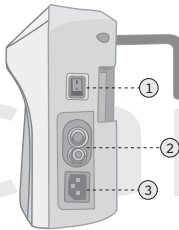
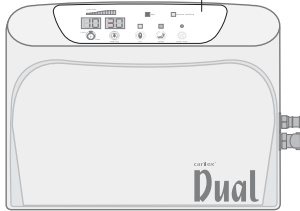
Caregivers should always perform a hand check by placing their hands underneath patient's pelvis area to check if there is sufficient air support to ensure the patient is not bottoming out.

#### upright

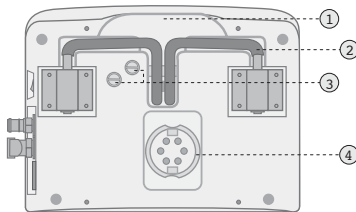
Upright mode is used to prevent patient from bottoming out in sit up position. Once **upright** button pressed, the green LED will light to indicate this mode is in operation. Make sure upright mode is switch off when the patient is laying down to avoid incorrect pressure setting.



Control Panel Features (Figure 5a)



Right Side Panel Features (Figure 5b)



Rear Panel Features (Figure 5c)

### firm

Press **firm** button to inflate the mattress rapidly to maximum pressure, the yellow LED will light to indicate this mode is in operation. Press the button again to restore the original setting or this mode will disable automatically after 20 minutes if unattended.

### cycle/ float

To set the alternation cycle time from 10 to 25 min to meet a variety of requirements; set to "0" for static mode.

### alert LED

This low pressure alert notifies medical staff the mattress has insufficient pressure. Audible alarm will sound for 15 seconds at each cycle and the indicator will stay on until the problem has been solved.

### pressure monitoring LED

Power unit features an integrated pressure sensor which can monitor the mattress' internal pressure 24 hour to achieve optimal internal pressure and to ensure maximum pressure relief. LED indicates the system is monitoring the mattress' internal pressure while the compressor is inflating.

### cycle timer LED

It shows the count down of cycle time; light will be off in static mode.

## **Right Side Panel Features**

### *See Figure 5b*

#### Rocker Switch (1)

Power unit's main power switch.

#### Couplers (2)

Quick release female couplers are used to

secure mattress air hoses to power unit.

#### Power Receptacle (3)

Insert power cord firmly into receptacle.

### **Rear Panel Features**

*See Figure 5c on page 5.*

#### Convenient Handle (1)

It provides additional gripping surface for user to carry the power unit.

#### Hanging Hooks (2)

Hanging hooks are designed to hang the power unit on almost any foot board.

#### Fuse (3)

Fuse holder can be opened for maintenance.

#### Air Filter and Filter Cap (4)

Carilex recommends that the filter to be clean or replace once a month to ensure optimal performance of the power unit.

## **6.0 Mattress and Power Unit Installations**

- (1) Remove existing mattress from bed frame.
- (2) Place Carilex mattress replacement on the bed frame with the logo at foot end. Secure the mattress at each side using anchor strap. Please verify all bed functions are working properly without interference before proceeding to the next step.
- (3) Secure the power unit onto the foot board using hanging hooks.
- (4) Check if the mattress' CPR latch is firmly inserted and the CPR tag is in place.
- (5) Firmly connect the air hose couplings to the quick release couplers on the power unit's air outlet.
- (6) Plug the power unit into a wall outlet and turn on the main power rocker switch on the right side panel.
- (7) Press **power/ mute** button to inflate the mattress system. Please wait for approx. 30 seconds until the power unit is ready before making any program adjustment.
- (8) Wait for approx. 30 minutes for the mattress to inflate fully.

## **7.0 Program Settings**

- (1) Center the patient on the mattress. Adjust the mattress' internal pressure according to the patient weight by using the **weight (kg)** button on the control panel of the power unit. If the patient feels the mattress is too soft or firm, increases or decreases the mattress' internal pressure one increment at a time and wait for the system to stabilize before making another change until a comfortable state is achieved.
- (2) Caregivers should always perform a hand check by placing their hands underneath patient's pelvis area to check if there is sufficient air support to ensure the patient is not bottoming out.
- (3) **IMPORTANT: TUCKING THE SHEET IN TIGHTLY REDUCES THE EFFECTIVENESS OF THE**

SYSTEM.

## 8.0 Patient Transfer and Transport

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### Transfer

It is recommended to have the mattress system in firm mode during transfer. Make sure the bed is secured before proceeding.

### Transport

If a transport occasion comes up, two options are available: (1) Detach the mattress' air hose couplings from the power unit's quick release couplers and connect the two air hose couplings together to retain air in the mattress and the mattress will stay inflated for approx. 2 hours. (2) Unplug the power unit's power cord from the wall outlet and the mattress should stay inflated for approx. 40 - 50 minutes. Carilex Dual system also has a safety foam base underneath the air cells to support the patient for a short period of time in case of deflation. To resume normal operation, please follow 7.0 Program Setting.

## 9.0 Emergency CPR Deflation

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In the case of emergency, pull hard to remove the mattress' CPR latch for emergency deflation and turn off the power unit by pressing the **power/ mute** button on the control panel at the same time. The air will discharge from the mattress with patient's own weight. To

resume normal operation, simply re-insert CPR latch securely, press the **power/ mute** button again and reset the patient weight.

## 10.0 Cleaning Instruction

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Air mattress and power unit must be cleaned thoroughly between patients to avoid cross contamination. The following is a suggested guideline, but local infection control policies should be followed as well.

Regular cleaning can be performed at bedside with disinfectant and water followed by drying with a clean dry cloth. Use only mild detergents and water to clean the coverlet and the mattress. Any appropriate NON-PHENOLIC cleaning agent may be used for heavy soiling with urine, blood or other body fluids. Please ensure air mattress and coverlet are completely dry before letting the patient laying on the surface again.

Machine wash warm water at maximum 71°C.

Do not use electric or tumble dryers.

Do not iron.

**WARNING!** Always unplug the power unit before cleaning. Routine cleaning of power unit can be done by wiping down with damp cloth using disinfectant and water or mild neutral detergent. Never spray liquids directly on the unit itself.



## 11.0 Routine Maintenance

Remove air filter from the real panel of the power unit by opening up the filter cap to clean or replace the air filter. Inspect the filter for dirt or dust and clean it with mild soap and water. Reinsert the dried air filter after cleaning and ensure the cap is secure. Replace with genuine air filter once a year is

recommended and compressor every two year is strongly suggested to prolong system lifetime.

Only disinfected and dry systems are to be stored. Disconnect the air hoses from the power unit. Roll up the mattress starting from head end and working down toward the foot end. Use the straps to fix it.

## 12.0 Troubleshooting

Problem	Inspection Procedure	Possible Solutions
1. Power unit does not function.	Check if power cord is firmly plugged into wall outlet.	Secure power cord into wall outlet.
	Check if power switch is in ON position.	Turn power switch to ON position.
	Check if power surge shuts down power unit.	A power surge may overload the circuitry temporarily. Turn the unit off and check the fuse for damage. Turn the unit ON again with normal procedure.
	Make sure there is no power failure.	
	Power unit does not respond to possible solutions.	Please contact your authorized local distributor for assistance.
2. Low pressure alert does not go out in 30 sec. after systems start.	Possible control failure.	Please contact your authorized local distributor for assistance.
3. alert LED is lit during operation.	Check if there is leakage in air tubes* or air cells.	Please contact your authorized local distributor for assistance.

<p>4. Power unit is working, but mattress replacement is not inflating.</p> <p>Or/and</p> <p>Bottoming out is occurring.</p> <p>Or/and</p> <p>Patient leaves a deep dent at the contact area which does not return back to its original shape (worn down by the patient)</p>	Verify if CPR latch is properly inserted.	Insert CPR latch securely.
	Check if mattress' air hose couplings are properly connected to power unit's quick release couplers.	Secure air hose couplings firmly into place.
	Verify if patient weight setting is correct.	Increase or decrease weight setting until appropriate pressure is reached.
	Inspect air filter for dust.	Clean or replace air filter.
	Lift mattress coverlet up to check if air cells are connected correctly.	Make sure all air cells are properly linked to air supply.
	Lift mattress coverlet up to check if air tubes are kinked or obstructed.	Check and adjust air tubes' positions.
	Check if air cells are cut or cracked.	Replace with genuine spare parts or contact your local distributor.
5. Alternating or static setting is not available.	Possible control failure.	Please contact your authorized local distributor for assistance.
6. Patient is not getting pressure relief due to system failure (reddening of skin).		Contact your physician and/or nursing service immediately.

\* Air tube is referring to the mean of directing air flow from the power unit to each individual air cell.

## 13.0 Returns for Service

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This device is not self-serviceable. Service and repair must be performed by an authorized technician or representative. All returned device must be cleaned and disinfected prior to shipping. Unsanitary or soiled systems will be returned without servicing.

## 14.0 Warranty

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Carilex Medical GmbH warrants the product to be free from defects from the date of purchase. Please inspect all accessories when you purchase our product. If there is any damage or missing accessories when you receive the product, please ask for a replacement from your local distributor within three days of purchase.

The warranty periods for Carilex products are according to the regulations in your country, the minimum period is 1 year from date of purchase for the power unit and 1 year for the mattress and the coverlet. The warranty coverage of any Carilex product is contingent up on its purchase from an authorized dealer. Warranty for any product in the Carilex product line will be honored by the official distributor in your country.

Warranty coverage will not be extended to any product on which the production lot number has been removed or defaced, on which repair has been

attempted by any person or agency not authorized by Carilex or if in the sole opinion of Carilex that the system shows evidence of tampering, abnormal or unreasonable abuse, negligence, accident or operation without regard for the restrictions specified in the instructions which accompany the system. This warranty does not cover normal maintenance such as cleaning, adjustment, lubrication, and updating of equipment or parts. If the damage is result from improper operation, a reasonable service fee and part cost will be charged.

The warranty stated above is the only warranty made and is in lieu of all other warranties whether expressed or implied, including any warranty of merchantability or fitness for a particular reason. Carilex Medical GmbH will not be liable for consequential or incidental damages or any kind.

## 15.0 Product Specifications

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### Mattress Dimension (MSR208)

Standard: 200 x 90 x 23 cm

Narrow: 200 x 82 x 23 cm

### Number of Air Cells

20 air cells

### Power Control Unit Dimension (SR361)

29.5 x 22.5 x 12.0 cm

**Integrated Foam**

5 cm

**Material**

Power Unit - ABS fire retardant UL  
 Mattress Cell - 100% nylon with TPU  
 lamination  
 Coverlet - 100% nylon with PU backing

**Power Input**

AC100 - 120V/ 50 & 60 Hz  
 AC220 - 240V/ 50 Hz

**Power Consumption**

Normal Operation: Max 20W

**Power Control Unit Weight**

2.5 kg

**Power Cord**

H05VV-F3x0.75mm<sup>2</sup>

**Fuse Rating**

T1A/ 250V

**Operating & Transportation &****Storage Conditions**

Temperature: 5°C - 45°C  
 Humidity: 15% - 60%

**Electrical Classification**

Class II Type B, double insulated with or  
 without functional ground wire.  
 IPX0, do not immerse power unit in any  
 liquid or spray any liquids directly on  
 the power unit.  
 This system is not AP/ APG protected.  
 Continuous operation.

**Agency Approval**

EN60601-1, EN60601-1-2,  
 EN61000-3-2, EN61000-3-3, UL-2601-1

**Electromagnetic Compatibility**

EN60601-1-2:1993

**Maximum Weight Capacity**

200 kg

**Carilex reserves the right to change  
 prices or design parameters and  
 specifications without incurring any  
 liability in connection with such  
 modifications.**

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