

# Instruction Guide & User Manual



**Pressure Relieving / Alternating Air Mattress & Pump**

**Mattress Model: CS-5F-121**



## CONTENTS

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### **INTRODUCTION.....4**

- Product Description
- Application
- Contra-Indications
- Working Principle

### **OPERATION.....5**

- Static Mode
- Alternating Mode
- Profiled Bed – Clinical Considerations
- Installation
- Safety Instructions
- Pump Operation
- Mattress & Pump Characteristics

### **MAINTENANCE.....9**

- Cleaning
- Maintenance & Repair
- Storage
- Transportation
- Other Considerations
- Parts & Accessories

### **WARNINGS & SYMBOLS.....11**

### **TROUBLE SHOOTING.....12**

### **COMPANY INFORMATION.....13**

## INTRODUCTION

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### Product Description

The dynamic high to very risk mattress has been designed to ensure ease of use, whilst high clinical delivery is achieved in a single mattress. Specifically designed for use in long term care environments or equally at home in a residential setting, this product provides high to very high risk solution (reference: clinical case study M. Hughes 2017), when used as part of a complete care package. The cyclical cells operate and deflate in a ten-minute alternating pattern, with a 1.5 minute equaling of cells in between the complete cycle, therefore providing direct pressure relief and patient stability throughout the whole dynamic process. The multi-stretch, vapor permeable cover, comprises of a high-level coating of polyurethane, which makes it easy to clean, whilst complying with strict infection control procedures. The rapid cell deflation system is unique in the sense that pressure relief happens much quicker than on a standard dynamic mattress system. This prompt deflation physically ventilates, thus allowing immediate relief between cycles, rather than awaiting deflation under patient weight as is often the case.

### Application

This product is to be used for those patients who have existing tissue damage or pressure ulcers. It can also be used as a high-risk preventative item.

### Contraindications

Patients with severe spinal injuries / fractures should not be using this product.

Do not attach the mattress to the fixed part of the bed frame. It should be secured to the moving / working parts to ensure the bed can be profiled as required.

This product forms part of a holistic care package and should only be used by trained personnel. For training or further advice contact Care Shop on +44 (0)845 266 8744.

### Working Principle

The dynamic mattress system consists of a dynamic air pump and an alternating air mattress. The air mattress has three distinct airway chambers:

1. Pillow Chambers – Air tubes 1,2 & 3. These remain static throughout as to avoid head movement, sickness to the user.
2. Group A Chambers – Air tubes 4,6,8,10,12,14,16 & 18.
3. Group B Chambers – Air tubes 5,7,9,11,13,15 & 17.

A and B chambers alternate inflating and deflating by using the pump connected. This air alternating, mattress system enhances the blood circulation to treat and prevent pressure ulcers, when part of a holistic care package. Initialisation can take up to 50 minutes to achieve & it is recommended that a Rapid Inflator is used, where possible, to reduce the inflation time.

## OPERATION

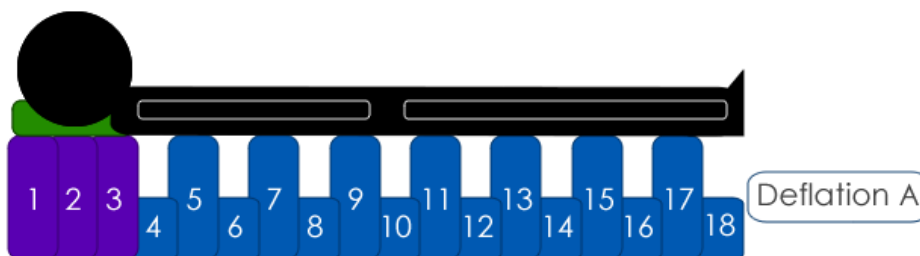
### Static Mode

When the pump is adjusted to the static mode, air chambers A & B are both fully inflated until 50mmHg / 180 Kg is achieved. This mode is used for seating or patient transfer.



### Alternating Mode

When started, both chambers A & B are initially inflated to 52mmHg / 180 Kg. Group A chambers deflate for 5 minutes followed by both A & B inflating for 1.5 minutes. This is followed by Group B chambers deflating for 5 minutes. This is one complete cycle.



### Profiled Bed & Mattress - Clinical & Carer Considerations

If the bed is in the profiled position & the patient is touching the foam base, ensure that the pump pressure is increased accordingly to appropriately accommodate (\*see below). Unless the clinical condition dictates, it is not advised to adjust the bed profile beyond 45°. The dynamic high to very high mattress will continue to operate beyond this but may cause increased pressure points on the patient. A fist or hand test to ensure patient clearance under the sacral area is a best practice guide (see image 1DA and diagram of profiled mattress 2DA on page 6). If you are dealing with heavier or more complex patients that require a deeper cell mattress, then please contact your provider or seek assistance via Care Shop Customer Services on UK number 0845 266 8744.

## OPERATION

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Image 1DA

(NB: use hand to check ensure appropriate clearance when profiled as below. Add more pressure on the pump if required in order to achieve this. NB: Weight setting is a guide only and cell pressure must also be taken into consideration for individual patients).

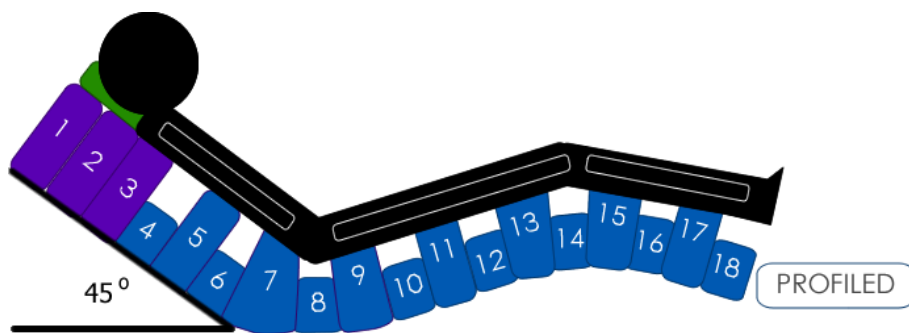


Image 2DA

## Installation

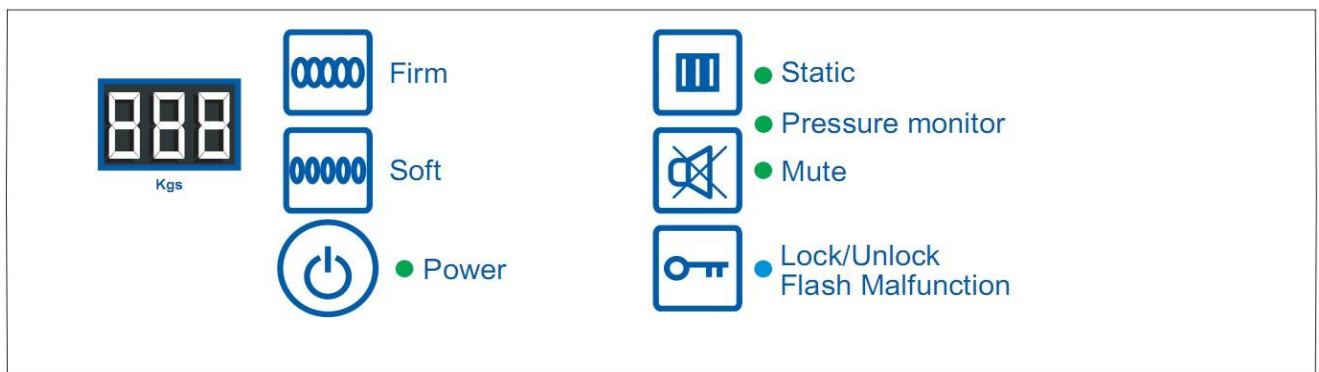
1. Remove all packaging & place the pump either at the end of the bed on its hooks or on a flat surface.
2. Ensure that there are no sharp or hard objects on the bed before unfolding the mattress & laying out flat. The air inlet should be located at the feet side of the bed.
3. Use the Rapid Inflator (if available) to inflate the mattress before connecting the air tubes to the pump. The tubes should be connected securely in place without any signs of leakage. If a Rapid Inflator is not available, the mattress will take approximately 50 minutes to inflate.
4. Connect the pump to the socket & switch on.
5. Adjust the mode & pressure by the users condition & weight to suit.

## OPERATION

### Safety Instructions

1. Ensure that there are no sharp objects, fire or abrasive materials in the vicinity. If the mattress is damaged. Remove the patient & transfer to an alternative mode of pressure relief. A foam underlay is provided as standard at the base of the mattress to ensure pressure relief is maintained (to an extent) in the event of a power failure. **NB** This is not to be considered as a long-term pressure relief option.
2. If there is an issue with the pump, remove the patient & transfer to another mode of pressure relief.

### Pump Operation



**Power:** Power On / Off

**Soft / Firm:** Pressure adjustment. Each single push adjusts  $\pm 5\text{KG}$ . Longer push adjusts  $\pm 5\text{KG}$  rapidly.

**Static:** All tubes will inflate up to 52mmHg / 180 Kg. No alternating takes place & the digital display will show "- - -". The pump will revert back to the previous alternating cycle after 30 minutes.

**Pressure Monitor:** The light is illuminated when pressure is normal & extinguished when pressure is abnormal. The light will continuously flash during the alternating cycle change-over.

**Mute:** When pushed, the audible alarm is silenced.

**Lock/Unlock/Malfunction:**

- Push the key for 2-3 seconds to lock / unlock the panel.
- The light will continuously flash on the following occasions: when the mattress has not yet reached pressure during alternating cycles; the mattress has an air leak or the pressure has dropped lower than 6mmHg.
- When the panel is unlocked, it will automatically lock itself after a period of time.
- The lock / unlock facility will be unavailable if the system cannot reach pressure.

## OPERATION

### Air Leakage / Low Pressure Alarm

- After working for 50 minutes and the pressure is lower than 15mmHg, the pump will alarm indicating an initialisation failure.
- During normal operation, when the pressure is lower than 6mmHg for 6 minutes, the pump will alarm indicating possible air leakage from the mattress.
- Pushing the mute key will silence the pump alarm.
- If the alarm sounds consistently and all attempts to remedy have failed, seek engineer assistance to rectify.

### Power Off Alarm

The alarm will sound if power is lost to the pump.

### Pump Characteristics

<b>Power</b>	AC220V / AC110V
<b>Pressure Range</b>	10 – 52 mmHg
<b>Internal Fuse</b>	F0.5A 250V
<b>Plug Fuse</b>	3A
<b>Frequency</b>	50Hz / 60 Hz
<b>Power</b>	8W
<b>Noise</b>	≤45dB
<b>Alternating Time</b>	1 complete cycle is 11 ½ minutes which is 2 x 5 minute periods of alternative cell inflation with a change over time of 1 ½ minutes.

### Pump Pressures

Weight (Kg)	Pressure (mmHg)	Weight (Kg)	Pressure (mmHg)
30	10	110	26
40	12	120	28
50	14	130	30
60	16	140	32
70	18	150	34
80	20	160	40
90	22	170	46
100	24	180	52
This is subject to a tolerance of ± 20%			

### Mattress Characteristics

<b>Model</b>	CS-5F-121
<b>Layers</b>	2 including the foam base.
<b>CPR</b>	1
<b>Max Loading Weight</b>	180 Kg



## MAINTENANCE

### Cleaning

Regular cleaning of the mattress is required as per the below instructions. Failure to follow these instructions may result in a void warranty situation.

STANDARD CLEANING PROCEDURE

Wipe down cover with a soft, disposable cloth which has been moistened with warm water & detergent (advisory at 40°C).

SEVERE INFECTION CONTROL PROCEDURE


Use a diluted solution of Sodium Hypochlorite (or similar) & fresh water (up to 10,000 ppm) in the following circumstances:

- Blood or bodily fluids has soiled the mattress
- Between different patients


Directions for use:

- Apply a fresh water base to the cover with a soft cloth
- Apply the solution
- Thorough fresh water wash down
- Ensure the cover is dried thoroughly


Machine wash  
up to 85°C




Do not  
dry clean




Occasional tumble  
dry on low heat




Do not  
bleach



Do not  
iron



Do not  
use phenol based  
products such as  
'Stericol' or Clearsol'



### Maintenance & Repair

Maintenance & repair work should only be carried out by an appointed engineer who have been trained by Care Shop. and only original manufacturers parts should be used. Failure to do so could result in a void warranty situation.

### Storage

Good ventilation will be required when storing the product & it should always be kept dry & away from direct sunlight. Temperature should be maintained in the region of 22°C ± 3°C when in use. Avoid repeat exposure to extreme

## MAINTENANCE

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### Transportation

- Care should be taken when loading, unloading and during transportation & refrain from placing heavy objects on top of the mattresses.
- Do not expose to direct sunshine for any period of time when loading and unloading & ensure a cover is used to protect the mattress when raining or snowing.
- Do not open with a knife or sharp objects as this may damage the mattress cover.



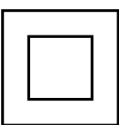





### Other Considerations

- Original internal fuse is F0.5A 250V. When replacing the fuse, ensure a similar type is used and that the fuse is disposed of in the appropriate manner.
- During normal working, when the emergency deflation is needed, switch off the pump and pull out the CPR toggle quickly.
- The mattress should be away from sharp objects to avoid any scratches or punctures.
- Put bed cover sheet or blanket over the mattress before use. No plastic or rubber sheets should be used.
- Ensure that all the tubes remain flat & any twists / kinks are avoided.
- If any air leakage is found, check all the tube connectors and air tubes carefully to see if any are loose or damaged.
- If any major problems or issues are found or the product is not working, stop using immediately and ask the engineer / manufacturer / provider for assistance.
- Any discarded mattress or covers should be treated in accordance with local rules and guidance in accordance with contaminated products.
- The pump is factory set to 80Kg and is a guide only. This can be adjusted depending on the needs of the patient.

### Parts and Accessories:

- Mattress (1PC) / Pump (1PC) / Air tube (1PC) / Mattress cover (1PC)

## WARNINGS & SYMBOLS

	Warning – Follow guidance at all times as per the instructions within the user manual.
	BF application symbol – Provides a higher degree of protection against electric shock.
	Class II electrical appliance – Double insulated.
	Dispose of electrical equipment correctly (WEEE).
	Do not use broken or damaged electrical plugs or cables as this may lead to electric shocks.
	Ensure hands are dry before handling all electrical items.
	No exposure to water / splashing or it may cause electric shocks or fire.
	Only authorised / qualified personnel should dis-assemble, repair or rebuild this product.

## TROUBLE SHOOTING

No.	Issue	Possible Cause	Possible Resolution
1	No power	<ul style="list-style-type: none"> <li>The plug is not properly connected.</li> <li>Power Cut.</li> <li>The fuse is broken.</li> <li>The machine / system is broken.</li> </ul>	<ul style="list-style-type: none"> <li>Make sure the power is correctly connected and the voltage is normal.</li> <li>Await re-connection of power / look at generator.</li> <li>Check the fuse, replace if broken.</li> <li>Call the local distributor for repair or replacement.</li> </ul>
2	Air mattress leakage / Alarm Sounding	<ul style="list-style-type: none"> <li>The mattress is not connected to the pump correctly.</li> <li>Air tube is disconnected or damaged.</li> <li>CPR not attached properly</li> </ul>	<ul style="list-style-type: none"> <li>Check the tube connectors.</li> <li>Repair the air tubes or call for replacement.</li> <li>Re-attach CPR plug</li> </ul>
3	Mattress is too hard or too soft	<ul style="list-style-type: none"> <li>The air pressure is not adjusting to required level.</li> </ul>	<ul style="list-style-type: none"> <li>Adjust the pump pressure according to the user weight until suitable and comfortable.</li> </ul>
4	No full inflation after long inflating	<ul style="list-style-type: none"> <li>Air hoses are loose or not connect properly.</li> <li>CPR is loose or not connected.</li> <li>Air pump has not enough air pressure.</li> </ul>	<ul style="list-style-type: none"> <li>Check all the air hoses and connectors.</li> <li>Connect the CPR tightly.</li> <li>Adjust the pressure on the pump. If it is showing maximum pressure full inflation has not been achieved, the pump has a problem. Ask for repair or replacement.</li> </ul>
5	Pump has strong vibration	<ul style="list-style-type: none"> <li>The pump is not located on a flat area or not hooked properly on the bedframe.</li> </ul>	<ul style="list-style-type: none"> <li>Put the pump on flat area or hook it in a suitable position on the bedframe.</li> </ul>

## COMPANY INFORMATION

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### Disclaimer

Please be aware that all products should be disposed of in an environmentally friendly & infection control manner in compliance with any local or national requirements.