Blake
Medical Distribution

- Salute DX -

3-1 Alternating Anti-Decubitus System

User Manual

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Content

Warning

- Connect the pump to a proper power source.
- Do not use the system in the presence of any flammable gases such as anesthetic agents
- Keep the pump away from flammable liquids.
- Keep sharp objects away from the mattress.
- The device is not AP/APG protected.
- Do not place the pump directly near the mattress due to the heat output created from it.

⚠ Caution

- Keep pump away from humidity and direct wetness.
- Take notice that tubes are not obstructed.
- Disconnect the pump‘s power plug before moving the bed.
- Turn off the pump before unplugging it from it’s power source.
- The pump should only be repaired by an authorized technician
- Do not drop the pump
- Do not store the system in direct sunlight or extreme cold conditions

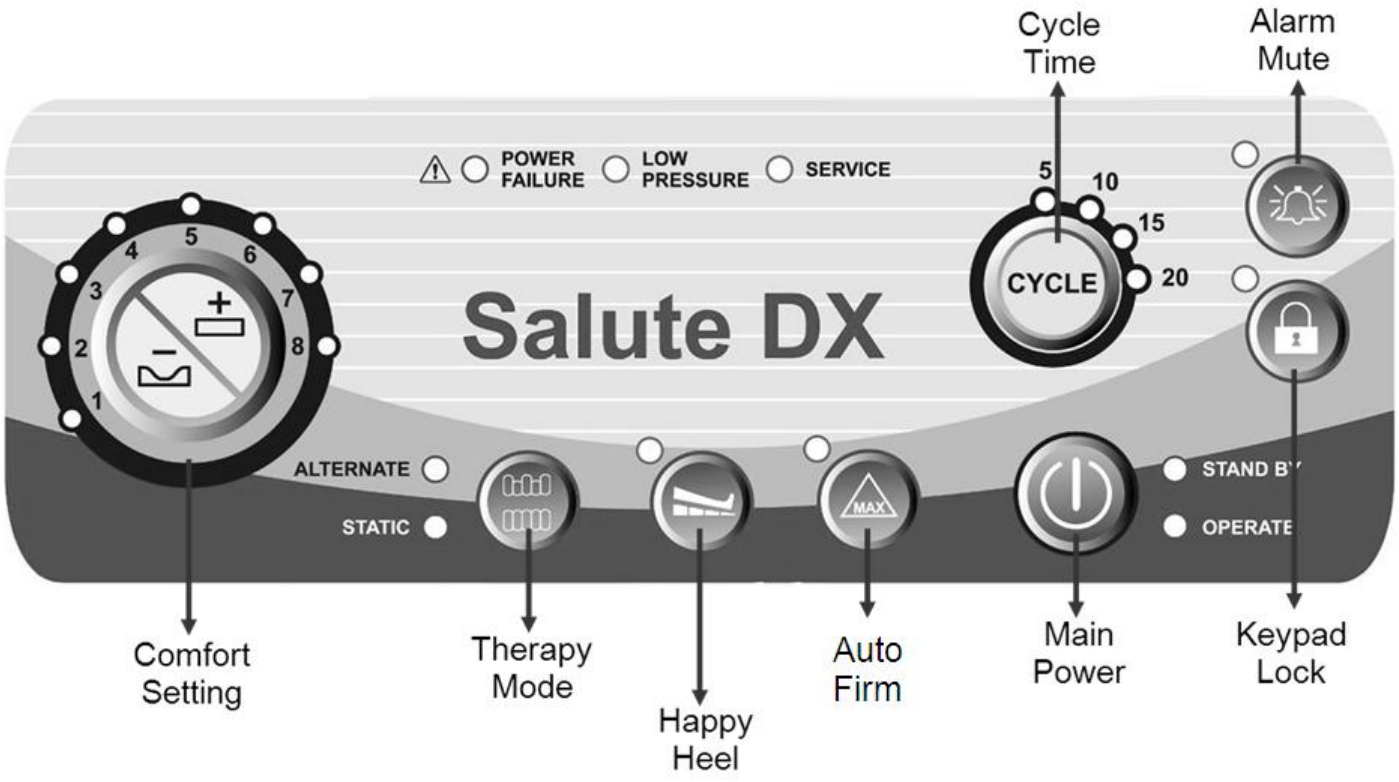
1. Product Description

Salute DX 3-1 Alternating Pressure Redistribution System is intended to help reduce the incidence of pressure ulcers while optimizing patient comfort. The system consists of an electronic control unit (pump) and a mattress replacement consisting of 18 air cells arranged in a transverse manner. The air cell is designed with Micro Low Air Loss to help the air circulation on mattress surface to keep patient's skin and wounded area dry from moisture.

Another unique feature is **Happy Heel ™** which provides an extra comfort adjustment on the heel section to individual's need.

Master Control Unit Features

- 3-1 alternation and static therapy
- Intuitive LED indicator for each function status
- 10 electrical adjustable comfort setting
- Visual and audio alarms for low pressure and power failure
- Happy Heel ™ provides extra softness setting for heels
- Keypad lock out function
- Maintenance service LED remainder



Main Feature	Description
	Therapy Mode allows for selection of Alternation or Stactic Therapy.
	Happy Heel is an extra comfort control over the heel section to give a more softer feel on heels.
	Auto Firm allows for a quick inflation in stactic mode.
	Alarm Mute allows for muting alarms.

Salute DX Air Mattress Therapy System is recommended to be used for decubitus/pressure ulcers I – III (medium risk). For higher risk patients, please contact ***Blake Medical Distribution*** for the product enquiry.

⚠ Caution

Alternating pressure therapy is not recommended to patients who have serious pain or pain-sensitive symptom. In this case, we recommend the application of foam mattress which can be found in ***Blake Medical Distribution*** product range.

Mattress Features

- Therapeutic micro low air loss helps manage moisture and provides alternating therapy to prevent and pressure ulcers treatment
- Modularized design on each air cell for easy replacement
- Highly vapour permeable and oversized pliable quilted nylon top cover providing low shear, friction and moisture protection
- CPR quick release for rapid deflation
- Integrated power cable management for tidiness
- Cell in cell design provides addition protection for upper torso and sacrum during power outage
- 2” convoluted foam base provides additional safety
- Recommended maximum safe working load upto 500 lbs
- Rapid CPR deflation

3. Technical Data

Master Control Unit

Model No.	FC-PHR0008
Model Name	Salute DX
Size (inch) LxWxH	13.5“ x 7.3“ x 8.3“
Weight(lbs)	7.1
Cycle Time (min)	5, 10, 15, 20 min
Min Operating Pressure	12 +/- 5mmHg
Max Operating Pressure	47 +/- 5mmHg
Max Flow-rate	≧6 l/min
Rated Voltage	AC 110-120V
Max Current	0.2 Amp
Fuse Rating	1A 250V
Rated Frequency	60 Hz
Classification	Class I, Type BF Not AP/APG type 
Mode of Operation	Continuous
Environment (Temperature)	Operation: 15°C to 35°C (59°F to 95°F)
	Storage:5°C to 60°C (41°F to 140°F)
Environment (Humidity)	Operation: 30% to 75% non-condensing
	Storage: 30% to 90% non-condensing
Standard	IEC 60601-1, CAN/CSA C22.2 No. 601.1, IEC 60601-1-2

Mattress Replacement

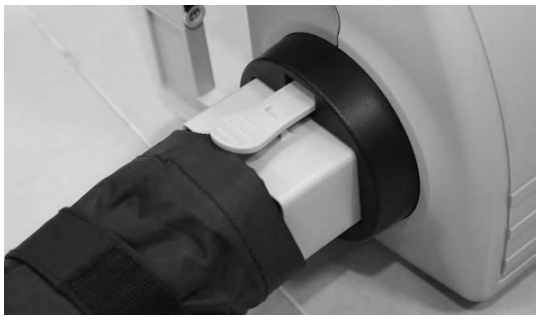
Model No	FM-PHR0006
Size (inch) LxWxH	80“ x 36“ x 8“
Weight (lbs)	25.3
Cells Number	18 cells
Cells Material	Nylon coated with PU
Cover Material	Nylon woven fabric w/ PU coating finish
Base Material	Woven Polyester fabric w/ PVC backing

Symbol Definition

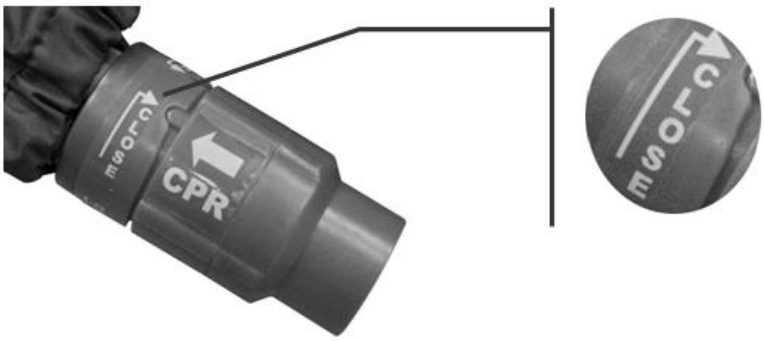
	Refer to Accompanying Documents
	Waste Disposal
	Type BF Applied Part
	Alternating Current
	Caution

4. Instruction for Proper Use 

1. Remove the control unit from the box and affix the pump at the foot end of the bed by hooks.
2. Connect the power plug into an appropriate voltage outlet.
3. Remove the mattress replacement from the box and place it directly on the bed.
4. Make sure that the connecting hose is positioned at the foot of the bed and avoid any sharp bends.
5. Affix the mattress with the help of the straps attached to the bed to prevent it from sliding.
6. Now connect the mattress connector to control unit. Ensure a firm connection is established.



7. Check the CPR to ensure it is set to “Close” position.



8. Turn on the control unit's main power from side panel and set the dial to the highest setting for quick inflation.

9. The mattress is now inflating. During the inflation process, the low pressure LED will be displayed. It will go out when mattress is fully inflated. The inflation time can take up to 40 to 45 minutes.

10. When the mattress is fully inflated, set the dial according to patient's comfort.
    - Run the system check.
    - The system is ready for use.
    - Now the patient can be transferred onto the mattress.

Note :

The Salute alternating mattress is designed to contour with various bed positions. If the bed is raised or erected to sitting position, increase the mattress pressure by 1 to 2 scales to provide more support on patient's sacrum area.

Alarm Function

The ***Salute DX 3-1 Alternating Anti-Decubitus System*** is equipped with a visual and an audio alarm for low pressure. During initial inflation, the system is in low pressure mode and the low pressure alarm LED will light up. The audio alarm is set with a delay function, which takes into consideration of the inflation time. The alarm will re-activate automatically after 45 minutes.

The mattress pressure will drop from set pressure during patient re-positioning; the audio alarm will switch to a 3 minute delay to avoid undesired alarm activation.

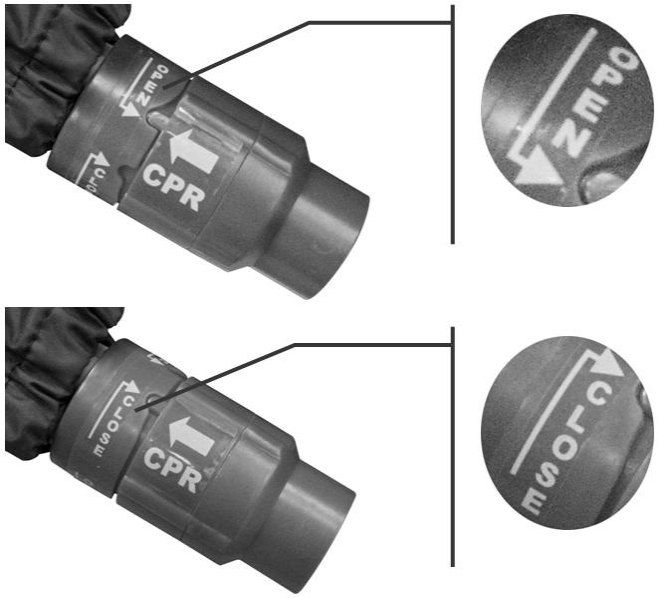
Alarm Indication	Description
⚠ ○ POWER FAILURE	Indication of loss main power.
○ LOW PRESSURE	Indication of low pressure.
○ SERVICE	Indication of maintenance service is required after 6000 hours of usage.

Deactivation of audible alarm:

Switch the pump ON/OFF to deactivate the audio alarm.

CPR Valve

The ***Salute DX 3-1 AlternatingAnti-Decubitus System*** is equipped with a CPR emergency valve which facilitates a rapid deflation by setting the CPR valve to “OPEN” position.



5. Cleaning

The Mattress

The mattress should be cleaned on the bed weekly using a damp soft cloth and mild detergent. If top cover or base cover becomes overly soiled, put on clean gloves, plastic gown and eye protection before removing top and base covers and disposing according to standard hospital procedures for contaminated waste and replace with clean covers.
Covers can be washed and thermally disinfected in a washing machine by following below procedure: **(Never use phenol based cleaning solutions)**.

Industrial	Break washes	Cold	10 minutes
	Main washes	60°C(140°F)	6 minutes
	Main washes	70°C(158°F)	10 minutes
	Extraction		2 minutes
	Cold Rinses		
	Extraction		5 minutes
Domestic	Pre-wash	Cold	
	Main Wash	70°C(158°F)	10 minutes
	Extraction		2 minutes
	Cold Rinses		
	Extraction		5 minutes

Tumble Drying or Tunnel Drying is not recommended.
Mattress Cells can be wiped over with a solution of sodium hypochlorite 1000ppm or any other non-phenolic germicidal solution.

The Master Control Unit

⚠ Caution

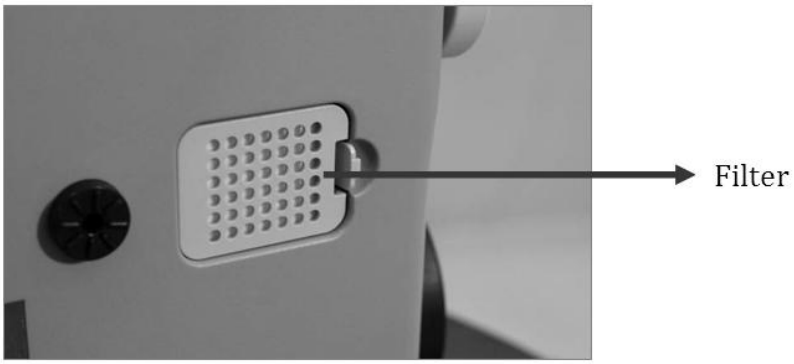
SWITCH OFF THE ELECTRICAL SUPPLY TO THE PUMP AND DISCONNECT THE POWER CORD FROM THE MAIN SUPPLY BEFORE CLEANING AND INSPECTION

The pump unit should also be cleaned weekly using a damp soft cloth and mild detergent. The pump casing is manufactured from ABS plastic and if the case is soiled the pump can be wiped down with a sodium hypochlorite solution to dilution of 1000ppm or any EPA-approved hospital grade disinfectant. **(Do not use phenol based cleaning solution)**.

The air filter should also be cleaned and checked as often as possible at a minimum of every six months. The air filter can be removed by pinching center of the filter and pulling outward from the back of the control unit.

Replace Air Filter

1. Remove air filter and replace with a new one.
2. Use a soft bristle to remove dust and difficult dried-on soil.



NOTE:

1. Do not use phenol based cleaning solutions.
2. Switch off the electrical supply to the pump and disconnect the power cord from the main supply before cleaning and inspection)

Waste Disposal

This Product has been supplied from an environmentally aware manufacturer that complies with the WEEE (Waste Electrical and Electronic Equipment Directive).
This product may contain substances that could be harmful to the environment if disposed of in places (landfills) that are not appropriate according the legislation. Please be environmentally responsible and recycle this product through your recycling facility at its end of life.

6. Storage and Care

Master Control Unit:

- Check the power cord and plug for abrasions or excessive wear.
- Plug in the unit and verify air flows from the units hose connection ports.
- Place in plastic bag for storage.

Overlay Mattress:

- Check the air manifold for kinks or breaks. Replace if necessary.
- Twist the CPR plug at the head of the mattress and disconnect the air feed tubes. All the air will now be expelled. Starting at the head end, the mattress can now be rolled. Use the base mounted straps for containment.
- Place in plastic bag of storage.

It is recommended the following guidelines are used whenever this system is being stored or transported another location:

Temperature limitations:	5°C (41°F)~ 60°C (140°F)
Relative Humidity:	30% to 90%

7. Maintenance & Troubleshooting

No daily maintenance is required. It is intended this equipment should only be serviced by a qualified and authorized technical personnel. Below table provides some simple troubleshooting solution for minor problems.

Symptom	Inspection Procedures	Possible Solution
The pump is not functioning.	1. Check for correct power voltage connected. 2. Check for blown fuse.	1. Connect to correct main power source. 2. Replace new fuse. 3. Refer to service if problem persist.
Low pressure LED is constantly illuminated or mattress is not inflating while pump is in operation.	1. Check for any loose connections. 2. Check for CPR valve. 3. Check for air leakage on air cells.	1. Ensure all connectors are properly attached. 2. Ensure CPR valve is set to “CLOSE” position. 3. Replace faulty air cell if necessary. 4. Refer to service if problem persist.
Pump is noisy.	1. Ensure pump is resting against solid surface.	1. Repositioning the pump. 2. Refer to service if problem persist.

8. EMC Related Notifications

Guidance and manufacturer's declaration – electromagnetic emissions		
The air pump is intended for use in the electromagnetic environment specified below. The customer or the user of the air pump should assure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment – guidance**
RF emissions CISPR 11	Group 1	The air pump 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	The air pump is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Recommended separation distances between portable and mobile RF communications equipment and the air pump			
The air pump is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the air pump can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the air pump 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
For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in metres (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.			

Guidance and manufacturer's declaration – electromagnetic immunity			
The air pump is intended for use in the electromagnetic environment specified below. The customer or the user of the air pump should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment – guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV 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 IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	±1 kV line(s) to line(s) ±2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
interruptions and voltage variations on power supply input lines IEC 61000-4-11	<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 the air pump] requires continued operation during power mains interruptions, it is recommended that the air pump be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	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 application of the test level.			

Guidance and manufacturer's declaration – electromagnetic immunity

The air pump is intended for use in the electromagnetic environment specified below. The customer or the user of the air pump should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2,5 GHz	3 Vrms 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the air pump, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** $d = 1,2 \sqrt{P}$ $d = 1,2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2,3 \sqrt{P}$ 800 MHz to 2,5 GHz 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 metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,a should be less than the compliance level in each frequency range.b Interference may occur in the vicinity of equipment marked with the following symbol: 

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

b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

9. Warranty

- Blake Medical Distribution guarantees that this equipment is free from defects in material and workmanship. Our obligation under this warranty is limited to the repair of equipment returned to the service address given below, transportation charges prepaid, within 12 months after delivery to the original purchaser for all equipment.
- We agree to service and/or adjust any equipment returned for that purpose and to replace or repair any part, which is proven to be defective at no charge.
- This warranty excludes equipment damage through shipping, tampering, improper maintenance, careless, accident, negligence or misuse, or products which have been altered, repaired or dismantled other than with the manufacture's written authorization and by its approved procedures and by properly qualified technicians.
- In no event shall Blake Medical Distribution be liable for any direct, indirect of consequential damages or losses resulting from the use of equipment