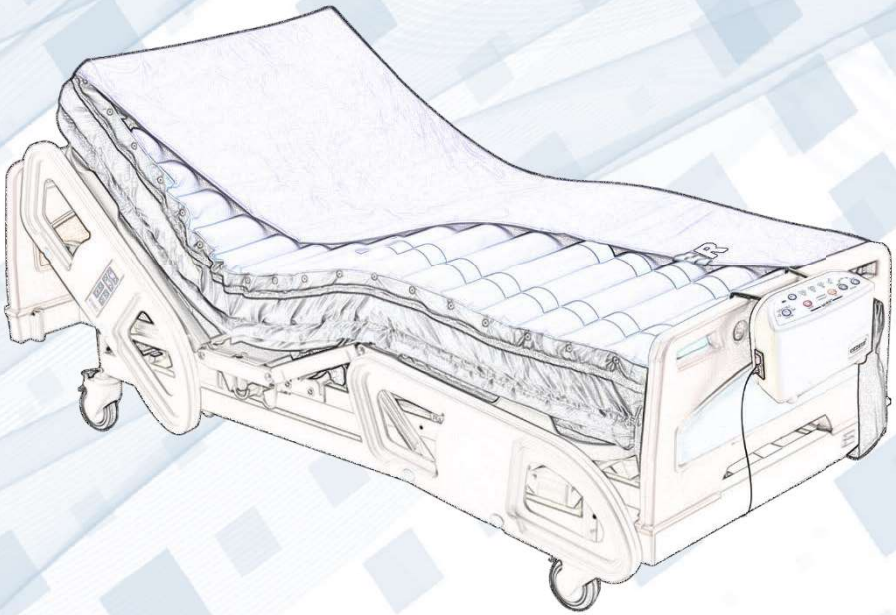
ENGLISH

OWNER'S MANUAL

HOVER

Dynamic Flotation System



Please read this manual carefully before operating your equipment and retain it for future reference.

www.hovermat.in

CONTENTS

Pay special attention to the warnings and other safety information.

Use genuine HOVER components. They are essential for optimal performance.

If you do not fully understand all the instructions, safety precautions, and warnings or if you have any other queries, please contact your Cadena Medical Systems distributor.

INTENDED USE

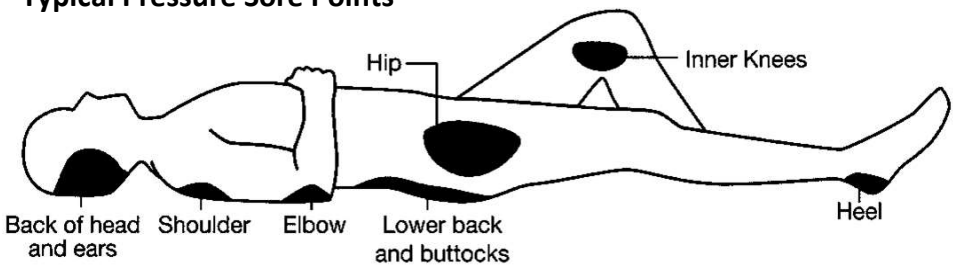
Indications

- **Hover** system is indicated for the prevention and/or management of all categories of pressure ulcer, when combined with an individualized, comprehensive pressure ulcer protocol: for example, repositioning, nutritional support, skin care. Selection should be based upon a holistic assessment of the patient's individual care needs.
- The systems represent one aspect of a pressure ulcer management protocol; all other aspects of care should be considered by the prescribing clinician.
- If existing wounds do not improve or the patient's condition changes the overall therapy regimen should be reviewed by the prescribing clinician.
- The above are guidelines only and should not replace clinical judgement.

Contraindications

- Do not use **Hover** system for patients with unstable spinal fractures.
- If patients have other unstable fractures, or conditions which may be complicated by a soft or moving surface, advice should be sought from an appropriate clinician before use.

Typical Pressure Sore Points



Pressure ulcers, also sometimes known as bedsores or pressure sores, are a type of injury that affects areas of the skin and underlying tissue. They are caused when the affected area of skin is placed under too much pressure.
The extra pressure disrupts the flow of blood through the skin. Without blood supply, the affected area of skin becomes starved of oxygen and nutrients. It begins to break down, leading to the formation of an ulcer.
Despite improvements in pressure injury prevention in healthcare facilities, pressure ulcers continue to affect patients in acute care environment.

SAFETY INSTRUCTIONS

SAFETY WARNINGS

- It is the responsibility of the care giver to ensure that the user can use this product safely.
- Whilst the patient is unattended, safety sides should be used based on clinical assessment and in line with local policy.
- Alignment of the bed frame, safety sides and the mattress should leave no gap wide enough to entrap a patient's head or body, or to allow egress to occur in a hazardous manner where entanglement with the mains power cable and tube set or air hoses may result. Care should be exercised to prevent occurrence of gaps by compression or movement of the mattress. Death or serious injury may occur.
- Make sure that the mains power cable and tube set or air hoses are positioned to avoid causing a trip or other hazard, and are clear of moving bed mechanisms or other possible entrapment areas. Where cable management flaps are provided along the sides of the mattress, these should be used to cover the mains power cable.
- Electrical equipment may be hazardous if misused. There are no user-serviceable parts inside the pump. The pump's case must only be removed by authorized technical personnel. No modification of this equipment is allowed.
- The mains power socket/plug must be accessible at all times. To disconnect the pump completely from the electricity supply, remove the plug from the mains power socket.
- The CPR control and/or the CPR indicator tag must be visible and accessible at all times.
- Only the pump and mattress combination as indicated by Cadena should be used. The correct function of the product cannot be guaranteed if incorrect pump and mattress combinations are used.

PRECAUTIONS

For your own safety and the safety of the equipment, always take the following precautions:

- Placing extra layers between the patient and the mattress potentially reduces the benefits provided by the mattress and should be avoided or kept to a minimum. As part of sensible pressure area care, it is advisable to avoid wearing clothing which may cause areas of localized high pressure due to creases, seams, etc. Placing objects in pockets should be avoided for the same reason.
- Do not expose the system, especially the mattress, to naked flames, such as cigarettes, etc.
- Do not store the system in direct sunlight.
- Do not use phenol-based solutions to clean the system.
- Make sure the system is clean and dry prior to use or storage.
- Never use sharp objects or electrically heated under blankets on or under thesystem.

Electromagnetic Compatibility (EMC) This product complies with the requirements of applicable EMC Standards. Medical electrical equipment needs special precautions regarding EMC

Environmental Protection Incorrect disposal of this equipment and its component parts, particularly batteries or other electrical components, may produce substances that are hazardous to the environment.

Expected Service Life The products are intended to offer safe and reliable operation when used or installed according to the instructions provided. To maintain the condition of the system, have the system serviced regularly according to the schedule recommended by Cadena.

Do NOT use unapproved accessories or attempt to modify, disassemble or otherwise misuse the **Hover** system. Failure to observe this caution could result in injury, or in extreme cases, death.

GETTING STARTED

Remove the system from the packaging. If there are any damages, please immediately contact your supplier. You should have the following items:

- HOVER System Controller unit including electrical power cord
- HOVERMAT mattress with integral tube set and cover.

Installing the HoverMat Mattress:

- ❖ HoverMat mattress with height below 6" are overlay systems, so there must be a foam or another mattress underneath when using.
- ❖ HoverMat Mattress with height above 6" is a replacement system and can be placed directly on the bed frame**.**
  - Unroll the mattress onto the bed and ensure that the tube set is located near the foot end of the bed and the CPR at the head end.
  - Secure the mattress to the bed frame using the fastener straps
  - Zip the cover onto the mattress. Ensure that the logo is uppermost and at the foot end of the mattress.
  - Ensure that the CPR unit is secured in its closed position.

Installing the Hover System Controller:

- Make sure that the mains power cable is positioned to avoid causing a hazard and is clear of moving bed mechanisms or other possible entrapment areas.
- Position the pump, feet down, on any convenient horizontal surface or alternatively suspend from the bed foot rail by means of the integral hanging brackets.
- Ensure that the mattress tube set is not "kinked" or twisted and connect it to the controller until it clicks into place. Ensure that the tube set is securely connected to the controller.
- Insert the electrical cord to the socket in the controller and mains power plug into a suitable wall power socket.

The system is now ready for use!

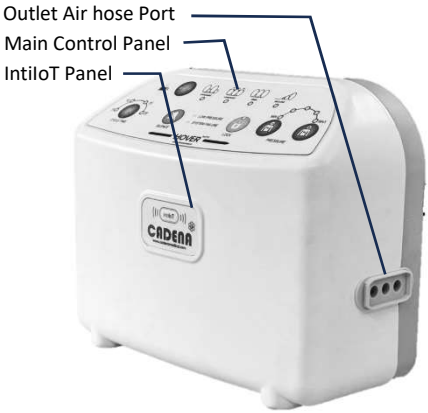
PRODUCT OVERVIEW

Hover is a micro-processor controlled high performance alternating pressure redistribution system that provide dynamic support for prevention of Stage 1 to Stage 4 pressure sores and also helps in providing therapy to existing bed sores/ pressure sores by creating the right conditions.

The **Hover** systems comprise of a **Hover System Controller** and a **HoverMat Overlay/ Replacement mattress**. This support system can be used on hospital and domestic beds.

Hover System Controller comprises of a molded case with non-topple feet on the base and integral hanging brackets (J Hooks). The System Controller monitors and adjusts real-time internal pressure between the mattress and body to ensure the effectiveness of pressure redistribution in offloading the pressure occurring in deep tissue. The same is monitored strictly by the advanced microprocessor so that unsafe adjustments are not made by the care-giver. It is also equipped with self-monitoring capabilities to detect leakages, system failures, low pressure alarms etc.

The controls are situated on the top of the pump and a sophisticated alarm system differentiates between normal operation and genuine system faults. If an alarm situation is detected an indicator will illuminate on the top of the control panel and an audible warning will sound.



HOVER® Controller Front View

HOVER® Controller Rear View

PRODUCT OVERVIEW

The **HoverMat** mattress comprises of the following components:

Detachable Top Cover: The standard cover comprises of a 4 way stretchable Nylon reinforced PU, zipped to a durable base. The zips are protected by flaps to prevent ingress of contaminants and allow easy removal of the cover for cleaning.

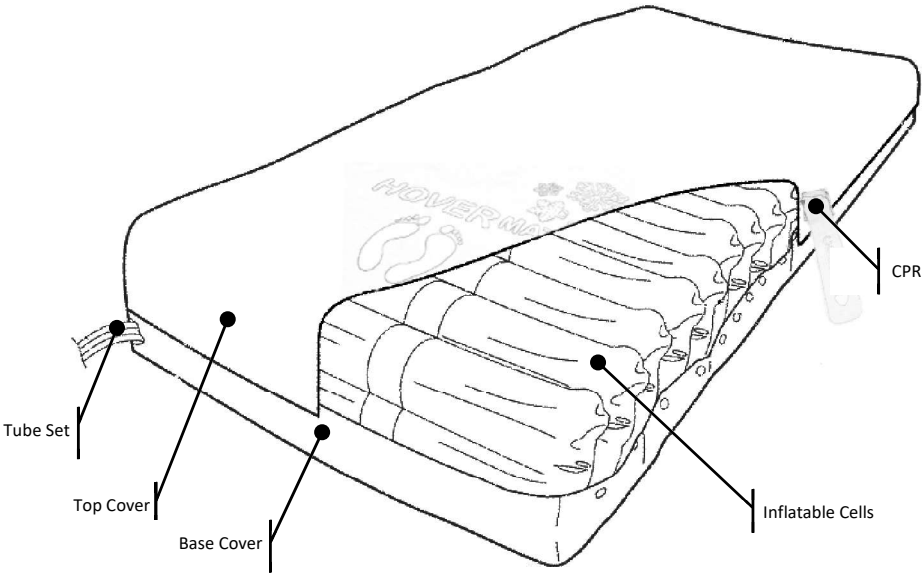
Inflatable Cells: The mattress comprises of individually replaceable cells, providing support to the user in either Alternating or Static mode and 3 Static head cells.

CPR function: A CPR (Cardio-Pulmonary Resuscitation) control is positioned at the head end of the mattress to allow rapid deflation of the mattress.

Tube set: The tube set has a 2-way pneumatic connection which incorporates a flexible, compact anti-kink tube that is resistant to crushing and any subsequent obstruction of air flow.

Base Cover: The base cover for the mattress is PVC (Polyvinyl Chloride) coated nylon on the underside.

Transport Cap: During power failure beyond 30min or while transporting the patient, place the Transport caps over the end of the tube set. This will hold the mattress in inflated condition for upto 72 hrs.

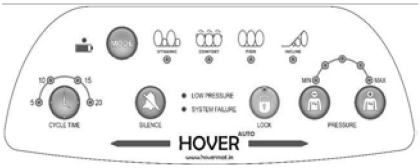


CONTROLS OVERVIEW

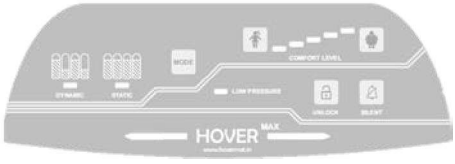
To start the system in **Auto** mode, the power switch on the Hover System Controller should be "ON". The mattress will start inflating in '**Comfort/Static'** mode. The controller will ensure optimal inflation of all bladders of the Hover mattress within 20 minutes and then switch to '**Dynamic'** mode automatically with a Cycle Time Setting of '**10 minutes** and '**Medium'** Pressure Settings.

While fully automatic modes ensure less care-giver intervention, manual overrides controls are available to fine tune the system to individual patient.

	AUTO / IntiloT	**MAX**
Mode	Comfort, Dynamic, Incline, Firm	Static, Dynamic
Cycle Time	5,10 (Default), 15, 20 mins.	10 min
Pressure	Minimum to Maximum (5 steps – 3rd Default)	



HOVER® AUTO / IntiloT



HOVER® MAX

The keypad can be locked using the '**Lock'** button. In case, the keypad is not used for more than 30 seconds, it will lock itself automatically. Long pressing the 'Lock' button will **unlock** the same. When the keypad is locked, only the 'Silence' button works. Rest all the buttons are locked.

In case of any alarm or fault detected, one would get a Visual and an accompanying audio alarm. The audio alarm can be silenced using '**Silence'** key.

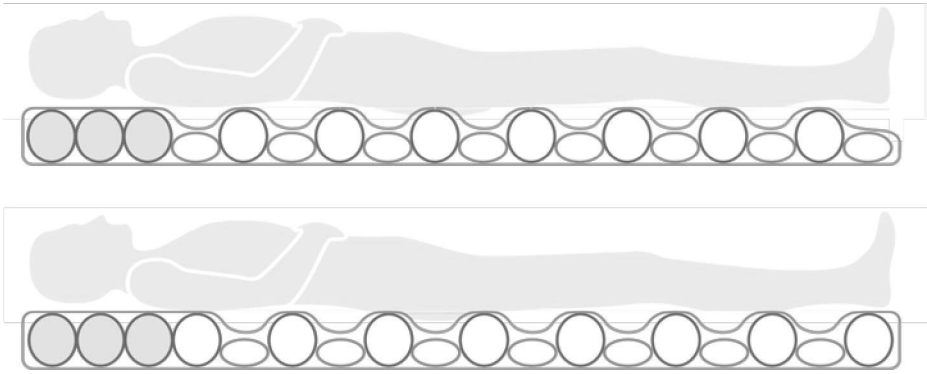
Low Pressure indicator will illuminate in case of a leakage in mattress OR if the patient is demonstrating extreme violent physical reactions, rapid movement changes etc.

System Failure indicator will illuminate and remain on if the controller has detected an internal fault. A Service Engineer should be called.

In HOVER AUTO and IntiloT Models, in the event of a **power failure**, it will preserve the state of the mattress for the next 30 minutes. If the power is restored within these 30 minutes, it will resume from where it left off. During the time when power is off, the system will display "**Battery**" indicator.

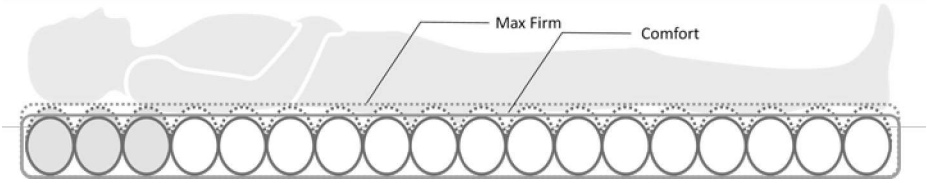
MODES OF OPERATIONS

Dynamic Mode: In this mode two sets of intertwined air columns alternately inflate and deflate, slowly shifting the pressure points between the patient and the bed.

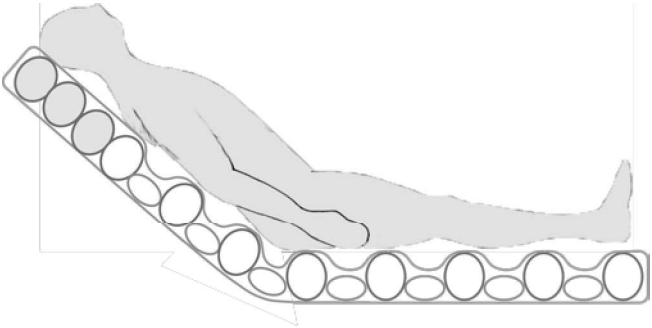


Comfort/Static Mode: In this mode all cells inflated at optimal pressure to provide a zero-gravity effect. This mode provides a continuous low-pressure surface to the patient

Firm Mode: In this mode all cells are inflated at maximum firm pressure to aid minor procedure or during transport.



Incline Mode: In this mode the pressure is redistributed to provide superior back & thigh support when the patient is rested in an incline posture.



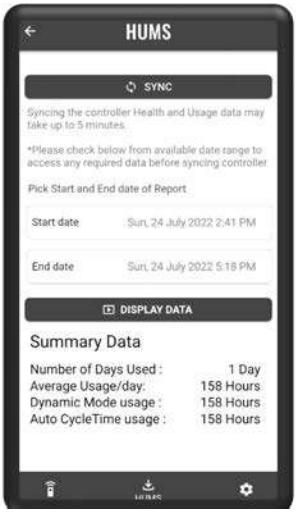
Availability of certain modes is specific to a particular model

REMOTE OPERATION

HOVER® IntiloT is equipped with remote operation and system health monitoring capability. To use this function, user has to download "Hover IntiloT" application, published by *Cadena Medical Systems*, from Google Playstore onto a mobile device like Smartphone or Tablet, which is running Android OS.

- To connect the app to a System Controller, press the "IntiloT" button on a front face of the controller. A blue LED will switch on. Ensure Bluetooth of the smartphone is switched on. Open the app and allow it to scan all systems within a range of 20 ft.

- Controller Serial numbers of all units within range would be visible in the landing page of the app. Long press the selected controller to connect.



- On successful connection, the app will open the "CONTROL" page. You can modify any parameters and "Apply changes" to the controller
- To check the system usage data, move to HUMS page and "Sync" the data. Data is stored onboard for 120 days and can take upto 5 min to sync completely. During data syncing, the blue LED will keep blinking.
  Select the date range and "Display Data" to get usage data.
- To rename the controller move to "Setting" page, and rename.
- To disconnect, press the back arrow.

PRODUCT SPECIFICATION

System Controller Specifications

Specifications	IntiloT	AUTO	MAX
Dimension	30 cm x 30 cm x 20 cm		
Wight (Kg)	3.5	3.2	2.8
Operating Modes	Dynamic, Comfort, Firm, Incline		Static, Dynamic
Alternating Cycle Time (min)	5, 10 (AUTO), 15, 20		10
Free Flow Rate	16 - 20 lpm		
Input Power	100-240V AC, 50 Hz, Fuse rating 1A SB		
Power Cord	24/0.2 ABC, 5m Length		
Noise Level	~ 30 – 35 dB		
Battery Backup	30 min Li-Ion		N/A
Remote Connectivity	BT 5.0	N/A	

Pressure Mattress Specifications for AUTO and IntiloT Models

Specifications	HOVER MAT 6”	HOVER MAT 9”
Dimension (cm)	200 x 85 x 16	200 x 90 x 23
Weight (Kg)	4.2 Kg	8.5 Kg
Pressure Offload Cells	1-in-2 (A-B)	1-in-2 (A-B-S)
No of Cells / Technology	20 RAC	22 RAC + CoC
Patient Load Range (Kg)	20 – 240 Kg	20 – 250 Kg

Pressure Mattress Specifications for MAX Models

Specifications	HOVER MAT 5”	HOVER MAT 8”
Dimension (cm)	200 x 85 x 13	200 x 90 x 20
Weight (Kg)	4.5 Kg	7.5 Kg
Pressure Offload Cells	1-in-2 (A-B)	1-in-2 (A-B-S)
No of Cells / Technology	16	20 CoC
Patient Load Range (Kg)	20 – 200 Kg	20 – 240 Kg

As part of our continuous improvement drive, the manufacturer reserves the right to modify design and product specification without prior notice, to deliver the best value to the customers.

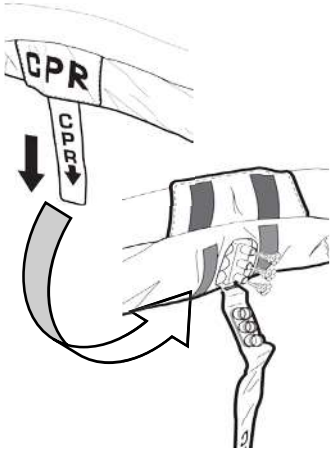
EMERGENCY & CLEANING

IN THE EVENT OF CARDIAC ARREST

In the event of a patient suffering cardiac arrest and CPR needing to be administered:

Located at the head end of the mattress is a red/yellow strap labelled CPR. In the event of a cardiac arrest pull this from the mattress to deflate. Turn off the power unit by pressing the **power/ mute** button on the control panel at the same time.

To re-inflate the mattress, simply replace the stopper securely into the manifold press the power/ mute button again and reset the patient



Decontamination

The system should be routinely decontaminated between patients and at regular intervals while in use. Remove the electrical supply to the pump by disconnecting the mains power cord from the mains power supply before cleaning. Protective clothing should always be worn when carrying out decontamination procedures.

Do not use Phenol-based solutions or abrasive compounds or pads during the decontamination process as these will damage the surface coating. Do not wring/mangle, boil or autoclave the cover. Avoid immersing electrical parts in water during the cleaning process. Do not spray cleaning solutions directly onto the pump.

To protect the integrity of the cover we recommend a chlorine-releasing agent, such as sodium hypochlorite, at a strength of 1,000ppm available chlorine. Alcohol based disinfectants (strength 70%) may be used as an alternative.

Cleaning: Wipe the mattress with a damp cloth pre-soaked with warm water containing mild detergent. Top cover can be machine washed in cold water and must be air dried.

DO NOT IRON | DO NOT BLEACH | LOW HEAT AIR DRY | DO NOT USE PHENOL SOLVENT | MAX WASH TEMP 40°C

TROUBLESHOOTING

Problem	Inspection Procedure	Possible Solutions
System Controller does not turn on	➢ Make sure there is no power failure at the mains. ➢ Check if Power Cord is firmly fixed in the socket. ➢ Check if Power switch is in ON position. ➢ Check if a power surge has overloaded the circuitry temporarily. ➢ Power unit does not respond to possible solutions.	✓ Secure Power cord into socket ✓ Turn Power switch to ON position ✓ Turn the unit OFF and check the fuse for damage. ✓ Contact authorized dealer of Cadena.
Continuous Low-Pressure alarm during operation. **Mattress not inflating &/or Bottoming out**	➢ Verify if CPR latch is properly connected. ➢ Lift air mattress coverlet to check if air cells are connected accordingly ➢ Check if there is leakage in air tubes or air cells.	➢ Connect the CPR latch securely. ➢ Make sure all air cells are properly linked to air supply ➢ Contact with your local authorized dealer.
System Failure Alarm	➢ Controller has detected an internal failure	✓ Switch off the unit and contact authorized dealer of Cadena.

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.

Warranty Terms and Conditions

Cadena Medical Systems LLP (hereafter called "Cadena") warrants to the purchaser that its products are free from manufacturer defects in material and workmanship, and that each piece of equipment will be in good working order and will conform to Cadena's published specifications.

- The warranty start date will be the date of installation or date of invoice, whichever is earlier.
- Cadena equipment is warranted for a period as mentioned in the invoice. All defective parts and coincidental labor are provided for under warranty. Warranty service will be delivered during normal working hours, Monday through Saturday from 9:00 a.m. to 6:00 p.m., excluding national and notified holidays.
- Parts replaced under the initial Equipment warranty period will be warranted for the remainder of the original equipment warranty period. The exchange component may be new, remanufactured, reconditioned, repaired or rebuilt, but will be equivalent to new in performance. Components replaced under warranty will become the property of Cadena, and upon request will be delivered to Cadena or its authorized representative.
- All replacement parts, (except expendable or consumable parts) purchased after the initial warranty period will be warranted for 3 months from the date of invoice.
- Warranty coverage does not include failure due to improper installation by anybody other than Cadena authorized personnel. Electrical/electronic parts (i.e. PC boards, electronic displays, microprocessors, pump, motors, switches, load cells, wiring harnesses, etc.) installed by other than Cadena authorized personnel have no warranty.
- Parts such as batteries, fuses, lamps, air filters, filter inserts, etc. are warranted to be free from defects and workmanship for a period of 30 days from date of shipment.
- **SERVICES NOT COVERED DURING WARRANTY PERIOD**: The following services are not covered under this warranty:
  - Repair of Equipment damage, replacement of parts or increase in service time caused by purchaser's failure to provide continually a suitable environment as prescribed by Cadena or by improper storage of the Equipment.
  - Purchaser's failure to perform routine or preventive maintenance, as outlined in the Cadena Equipment Preventative Maintenance Manual.
  - Neglect, misuse or abuse of the Equipment, including use of the Equipment for purposes other than those for which it was designed.
  - Any damage to any equipment caused by the use of liquids other than Cadena's approved brands that are not compatible with Cadena's equipment.
  - Accident or disaster, including but not limited to, fire, water, wind and lightning; vandalism or burglary.
  - Alterations or modifications made to Cadena 's Equipment design.
  - Attachments, including any interconnection to the Equipment of non- Cadena products or devices not provided under Cadena maintenance agreement.
  - Installation, maintenance, or repair of the Equipment performed by other than Cadena or a service provider authorized by Cadena.
  - Nicks, dents, scrapes, scratches, or other cosmetic defects, however caused.
- **EXCLUSIONS**: The warranties under this agreement are in lieu of any conflicting statement of limited warranty included with an equipment shipment. THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
- **LIMITATION OF REMEDIES**: The extent of the liability of Cadena for breach of warranty is limited to the repair or correction of defects, the replacement (with a similar item free from the defect in question) of any equipment which is defective, or the issuance of a credit not to exceed the amount of the original purchase price of the specified product or service which gives rise to the claim, at the option of Cadena. Such repair, replacement or credit shall be the purchaser's exclusive remedy for breach of warranty.
- **LIMITATION OF LIABILITY:** Cadena's liability for damages to the purchaser for any cause whatsoever, and regardless of the form of action, whether in contract or in tort including negligence, shall be limited to the purchase price stated in the applicable contract for the specific equipment that caused the damages or that are the subject matter of, or are directly related to, the cause of action. The foregoing limitation of liability will not apply to claims of personal injury caused by Cadena's negligence. In no event, whether as a result of breach of contract, warranty, tort (including negligence) or otherwise, shall Cadena or its suppliers be liable for any consequential or incidental damages including, but not limited to, loss of profits or revenues, loss of use of any products or any associated equipment, damage to products or equipment, cost of capital, cost of substitute products, facilities, service or replacement service, downtime costs, or claims of the purchaser's own customers for such damages.
- **GENERAL:** The warranty provided herein and the obligations of Cadena there under shall not be extended, altered or varied except by a written instrument signed by Cadena and the purchaser.

WARRANTY CERTIFICATE

Congratulation on becoming a proud owner of

HOVER Dynamic Flotation System.

This product comes with limited warranty as mentioned in the invoice, from the date of purchase, subject to terms and conditions, provided claims are accompanied with original invoice.

Invoice Number:
Date of Purchase:
Dealer Seal and Sign

Cadena MEDICAL SYSTEMS

www.cadenamedical.com

Designed and manufactured by Cadena Medical Systems LLP

Registered Office: Malleshwaram, Bengaluru 560003
Manufacturing: Okhla Industrial Area, Delhi 110020
Marketing HQ: Panchasayar, Kolkata 700094

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