

Hybrid-Power



User Manual

drive

DeVilbiss®
HEALTHCARE

1001290001

The Hybrid-Power

The Hybrid-Power system combines the pressure redistribution properties using high specification foams with advanced alternating cell technology. With these 2 key features, we can offer the patient a true 'step up, step down' alternating therapy to repair and maintain healthy skin cells as well as providing a comfortable and stable platform.

When the Hybrid-Power system is in use with the pump, it is suitable for patients weighing up to 254kg. When the system is not in use with a pump, the system is suitable for patients weighing up to 226.7kg.

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Fire Warning

In order to reduce the risk of fire:

DO NOT SMOKE - Smoking will contaminate the product and is NOT permitted around or on the mattress system. This is a common cause of fatal fires. This system uses room air for circulation through the mattress. A cigarette could burn a hole in the mattress surface and cause damage to the mattress system. Patient clothing, bed sheets and other items, may be combustible and could catch fire. Failure to observe this warning could result in a severe fire, property damage, physical injury or death.

DO NOT - use candles on or around the mattress system

DO NOT - use electric blankets with this mattress system

DO NOT – use in the presence of flammable anaesthetics, explosions could occur

DO - keep hot equipment off and away from the mattress surface, E.g. Hair dryer, curling tong, etc.

DO - keep matches and lighters away from children

DO - keep heaters away from the mattress system

Follow all manufacturers' instructions and warning.

It is advised that a full fire risk assessment is carried out prior to using this equipment

In case of fire, exit and call the emergency services.

Please refer to MDA/2013/093 for further guidance

IMPORTANT SAFEGUARDS

READ ALL INSTRUCTIONS BEFORE USE

DANGER - To reduce risk of electrocution:

1. Always unplug this product immediately after using.
2. Do not use while bathing.
3. Do not place or store product where it can fall or be pulled into a tub or sink.
4. Do not place in or drop into water or other liquid.
5. Do not reach for a product that has fallen into water. Unplug immediately.

WARNING – To reduce risk of burns, electrocution, fire or injury to person:

1. This product should never be left unattended when plugged in.
2. Close supervision is necessary when this product is used on or near children.
3. Use this product only for its intended use as described in this manual. Do not use attachments not recommended by the manufacturer.
4. 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 in water, return the product to a service centre for examination and repair.
5. Keep the cord away from heated surfaces.
6. Never block the air opening of this product or place it on a soft surface, such as a bed or couch, where their openings may be blocked. Keep the air opening free of lint, hair, and other similar particles.
7. Never drop or insert any object into any opening or hose.
8. Connect this product to a properly grounded outlet only. See grounding instructions.

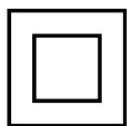
NOTE, CAUTION AND WARNING STATEMENTS

NOTE - Indicates some tips

CAUTION - Indicates correct operating or maintenance procedures in order to prevent damage to or destruction of the equipment or other property

WARNING - Calls attention to a potential danger that requires correct procedures or practices in order to prevent personal injury

SYMBOLS



Class II electrical device



“BF” symbol indicates this product is according to the degree or protecting against electric shock for type BF equipment.



Attention, instructions should be read



Authorised representative in the European community



Manufacturer



Disposal of Electrical & Electronic Equipment (WEEE)



Product conforms to all relevant standards (*See Declaration of Conformity*)



No smoking on or near the mattress

Intended Use

The Hybrid-Power system is intended to reduce the incidence of pressure ulcers while optimising patient comfort. It may also be appropriate for the following:

- Individual home care setting and long-term care facilities
- Pain management as prescribed by a healthcare professional

Contradictions

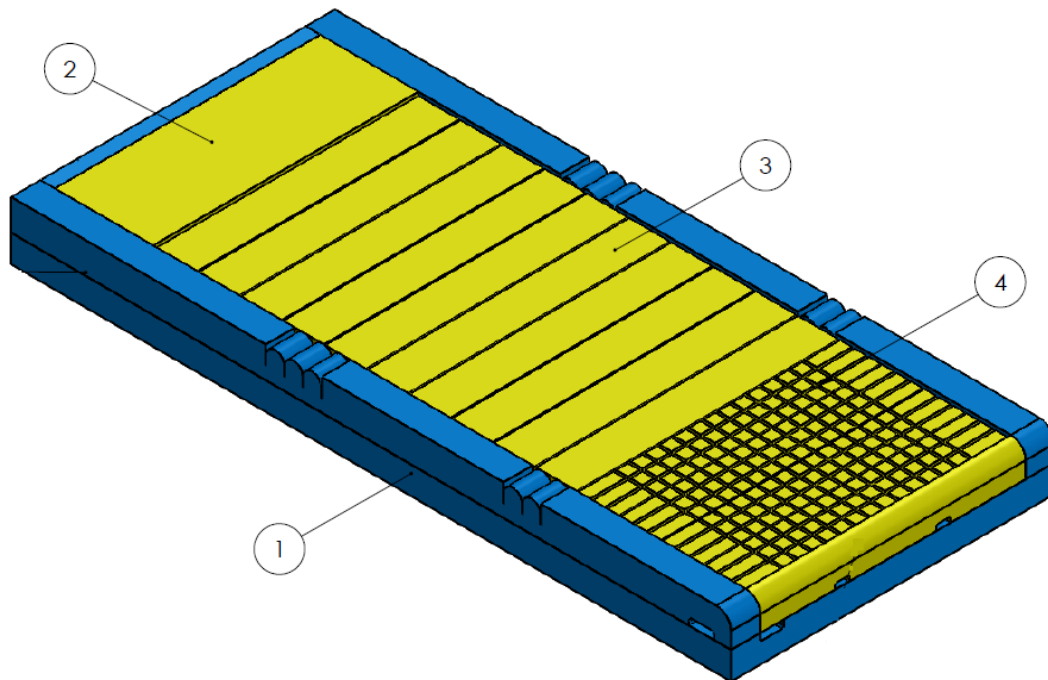
Users with the following condition could experience contradictions if they use this device:

- Cervical or skeletal traction
- Unstable spinal cord injuries
- During orthopaedic treatment

Introduction

Product description

The Hybrid-Power mattress is constructed from a number of carefully selected and purpose built components using clinical testing to optimise patients comfort and support. The mattress will support a patient weight of up to 254kg. Any patient weight under 30kg requires the carer to conduct a risk assessment. The mattress consists of:

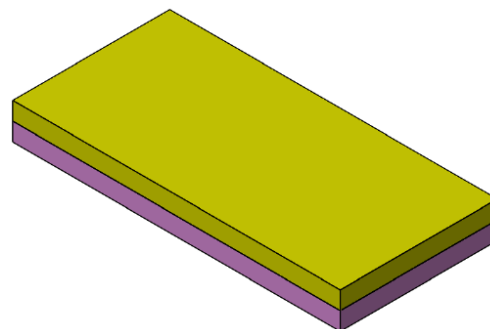


1. Support Foam

The base foam provides a stable foundation for mattress cells to be built on as well as providing a support structure during patient transfer. The support foam also contains specially engineered castellations in the side walls to allow the mattress to bend with precision.

2. Head Support

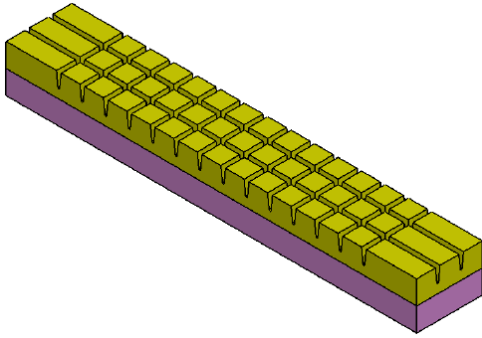
A specially designed head support section which can be turned 4 ways to suit the patients' requirements. This will also improve the longevity of the product which in turn will reduce on-going maintenance costs.



Cell structure

The 14 cell mattress is made up from two main cells groups:

3. Support cell: The foam in these cells provide support and stability to the patient when in use and are located along the torso area
4. - High pressure cell: These cells have been specially designed and profiled to allow an increased air flow to lower the overall peak pressures around the heels.



Cover

A waterproof vapour permeable cover with high frequency welds which can be cleaned with higher concentrations of sodium hypochlorite without compromising the covers protective properties. The cover also consists of a 360° zip to reduce on-going maintenance costs.

Pump unit

This pump has been specifically designed for the Hybrid application. This compact and light weight pump is easy to transport and can be easily cleaned down to aid infection control.



Installation

Unpackaging

When unpacking the Hybrid-Power System, check for any damage which may have occurred during transit. If found to be damaged remove the system from use and contact Drive DeVilbiss Healthcare Ltd.

Setting up

1. Remove all existing mattress surfaces from the bed frame
2. Ensure the printed surface is placed facing upwards
3. Place the mattress on the bed frame with the image of the feet on the cover placed at the foot end of the bed
4. Place a loosely fitted sheet over the mattress
5. Hang the pump at the foot end of the bed; adjust the hangers to secure the pump against the foot board to reduce vibration. Avoid placing the pump on the floor
6. Join the connectors on the mattress feed pipes to the side of the pump

NOTE: Ensure the feed pipes on the mattress are not kinked or tucked under the mattress as this will restrict airflow

7. Plug the pump into the mains electrical outlet

NOTE: Any extra power cord should be neatly arranged and off the floor to avoid any trips and any damage to the cable

8. Turn on the pump using the main switch found on the side of the pump and press the standby button on the front of the pump
9. The pumps low pressure indicator will remain lit until the mattress is inflated to the desired pressure. The pumps initial set up can take up to 40 minutes
10. Adjust the pressure setting according to the patients weight

NOTE: If using the mattress without a pump, remove the pump and store in a safe location
The feed pipe can be fastened to the mattress using the retainer clip provided

Pump Functions

Keys

Function and Description



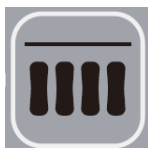
Patient Weight Settings

3 comfort levels are available for a variety of patient weights. Use the - / + to adjust the weight settings accordingly



On/Off Standby

Main power rocker switch can be located at the side of the pump. The standby button is located on the front panel



Static

All cells in the mattress will be inflated by pressing this button. The pump will automatically revert back to alternating mode after 20 minutes



Alternate

One in two cycle, this function will provide optimum pressure relief



Lock Out

After 5 minutes of inactivity, the pump will lock out its functions. To unlock, press and hold the lock out key for 3 seconds.



Mute

Press the mute button to silence the alarms



Power Failure Indicator

When a power cut is detected, the pump will alarm and the LED will illuminate



Low Pressure Indicator

When low pressure in the mattress is detected, the pump alarm and the LED will illuminate

CPR

CPR

In the event of a cardiopulmonary resuscitation (CPR) whilst the pump is in alternating mode or air induced static mode, release both mattress feed pipes from the pump by pressing and holding the connectors locking clips and pulling the feed pipes away from the pump unit. Air within the cells will exit through the feed pipes. Do not block or join feed pipes together during CPR.

Note- the low pressure alarm will sound when the feed pipes are disconnected from the pump.

Storage

For the ease of storage, mattresses can be stacked on top of each other. To prevent mattresses becoming contaminated and/or damaged during storage:

- Mattresses should be stored flat
- Mattresses should be stored within a polythene cover or bag
- Do not store other objects such as side rails or bed ends on top of mattresses
- Allow adequate space for the stored mattresses to be manoeuvred by two people

Damage Prevention

Take extra care not to puncture the cover as this will allow fluid ingress and ultimately contaminate the foam core. To prevent the cover from being punctured and/or damaged:

- Do not place sharp objects such as hypodermic needles, scalpels, etc., on the mattress
- Avoid wearing protruding jewellery i.e. rings with stones
- Take extra care when using medical equipment such as monitors, drip stands, side rails, transfer boards, etc.

Moving and Handling

Where possible, mattresses should be stacked flat and transported on a bed base or trolley. Mattresses should be handled by two people at either end of the mattress. Do not drag or pull a mattress by its cover or sides.

Cleaning

The following guidelines are suggested by Drive DeVilbiss Healthcare as being suitable infection control procedures. Further information is available upon request.

Pump Unit

General cleaning may be affected by using a cloth dampened with a mild detergent and water solution. This approach may be followed either by wiping with a sodium hypochlorite solution to a dilution of 1000 ppm or by using an alcoholic wipe.



WARNING: Do not use phenolic or biological based cleaning solutions
Do not use any abrasive compounds or cleaning pads
Do not submerge the pump in to water or any other liquids
Ensure that mains power supply to the pump has been disconnected prior to cleaning.

Mattress

General Cleaning

During general use, the mattress and tube set may be cleaned using a neutral detergent solution. Using a single use wipe, clean the mattress cover and/or tube set with a solution of neutral detergent and hot water. Rinse thoroughly with clean water and a damp single use wipe.

NOTE: The top, bottom and all four sides of the cover and tube set, including under the zip flaps **MUST** be cleaned.

The foam used in this product cannot be decontaminated, therefore, it is recommended that any contamination must result in the foam being replaced



WARNING: Do not use phenolic or biological based cleaning solutions
Do not use any abrasive compounds or cleaning pads

Ensure the cover and tube set are completely dried before refitting the cover.

Disinfecting the mattress

If the cover is heavily soiled or has been exposed to bodily fluids such as blood, it will require a thorough cleaning procedure:

Wipe the cover using a single use wipe with Chlorine Solution (of up to 10,000ppm) and cold water. Rinse thoroughly with clean water and a damp single use wipe. Make sure the cover is completely dried before refitting or storing.

Wipe the cells using a single use wipe with Chlorine Solution (1,000ppm) and cold water. Rinse thoroughly with clean water and a damp single use wipe. Make sure the cells are completely dried before refitting or storing.

Frequent or prolonged exposure to higher concentration disinfectant solutions may affect the longevity of the mattress and affect its functionality.

NOTE: Some surface wrinkling may also occur

The cells in the system cannot be fully laundered due to the internal properties being affected.

Personal Protective Equipment should be worn during the entire cleaning process

This system must not steam cleaned or used in a autoclave

Laundering

Before laundering the mattress, covers should be completely removed. Where required, mattress covers can be laundered as follows:

- Pre wash: 95°C + 15 minutes
- Main wash: 95°C + 15 minutes

This should be followed by a cold rinse and extraction.

Drying

Mattress inners and tube sets should be wiped with a clean and dry cloth before reinserting. Mattress covers can be tumble dried on a low heat setting for 90 minutes. Drying temperature must not exceed 40°C. **Exceeding this temperature can cause significant damage to the mattress cover.**

NOTE: Covers must be completely dried before refitting to the mattress inners.

Biocides

This product contains a biocide anti-fungal agent to control microbial deterioration. The active ingredient is silver phosphate glass CAS number 308069-39-8 which contains 1.5% – 2.6% silver (CAS number 7440-22-4), glass, oxides, chemicals (CAS number 65997-17-3). The product does not contain any nanomaterials.

The active ingredient is fully encapsulated within the polymer coating so there are no special handling requirements.

This product is latex free.

Maintenance

Pump

The following chart is a guide on how often the pump's filters should be serviced:

	Every 12 months	Every 6 months	Every 3 months
Low particle density	✓		
Medium particle density		✓	
High particle density			✓

- Ensure that all hoses inside and outside the pump and mattress are kink and split free. If any splits are found, replace the pipe
- Ensure the filter in the rear of the pump is clean and clear from any debris
- Ensure all indicators are working. If faulty, these should be replaced by a Drive DeVilbiss Healthcare approved technician
- Ensure the main power cord and plug is free from abrasions and/or excessive wear. Replace if damaged
- Check the mattress cover for signs of wear and damage. Replace if there are any signs of fluid ingress

Replacement parts can be purchased from Drive DeVilbiss Healthcare Ltd.

Assessing the condition of the mattress

Mattresses should be checked regularly to ensure they remain 'fit for purpose', clinically effective and pose no risk of infection to either the patient or the carer. Drive DeVilbiss Healthcare Ltd. recommend that a thorough inspection of both the interior (foam core and cells) and exterior (cover) of the mattress is carried out on a weekly basis or, each time a new patient is placed on the mattress. Visual checks should be carried out daily to identify any significant signs of damage or infection risk.

Weekly checks:

- Check for any signs of staining on the inner substrate
- Check for any signs of tearing and/or punctures marks
- Check all the seams for any signs of splitting
- Check the zip for any signs of damage, also ensure this is fully closed at all times
- Check the foam core for any signs of fluid ingress/staining
- Check the cells for any signs of damage or fluid ingress

Troubleshooting

Problem	Solution
No power to the unit	<ul style="list-style-type: none"> • Ensure the pump is switched on at the side of the pump and not on standby • Ensure the mains lead is connected to the mains and also the pump • Ensure there are no blown fuses in the pump or mains lead. Replace accordingly
Low pressure indicator is lit	<ul style="list-style-type: none"> • Ensure the correct comfort setting has been selected • Ensure the connections between the feed pipe and the pump unit are secured • Ensure all tubing connections along the cells are secure • Assess the cells for any punctures which maybe causing a leak
Patient is bottoming out	<ul style="list-style-type: none"> • Pressure setting may be inadequate, adjust comfort range
No air is being produced from some of the air outlets of the tube connectors	<ul style="list-style-type: none"> • This is normal in alternating mode. Air outlets take turns to produce air during their cycle time • If fault still continues, a Drive DeVilbiss Healthcare approved engineer will be required to repair the fault
Pump is noisy	<ul style="list-style-type: none"> • Tightly secure the bed hooks to the bed frame as this will reduce vibration and limit noise • Ensure pipe work is not kinked • If fault still continues, a Drive DeVilbiss Healthcare approved engineer will be required to repair the fault.

Technical Description

Pump		Specification	
Power Supply		220-240V 50-60Hz 0.25A 16W	
Fuse Rating		T1A / 250v	
Cycle Time		10 minutes	
Dimensions		310 x 210 x 125 (mm)	
Weight		2.5kg	
Modes		Alternating & Static	
Air Output		8 litres per minute	
Pressure Range		15mmHg – 40mmHg±10%	
Environment	Temperature	Operation	10°C to 35°C (50°F to 95°F)
		Storage	-15°C to 50°C (5°F to 122°F)
		Shipping	-15°C to 70°C (5°F to 122°F)
	Humidity	Operation	20% to 80% (non-condensing)
		Storage:	10% to 90% (non-condensing)
		Shipping:	10% to 90% (non-condensing)
Not suitable for use in the presence of a flammable anaesthetic mixture (No AP or APG protection)			
Noise Level		30 dB	
Classification		<ul style="list-style-type: none"> ○ Class IIa medical device (in accordance with the Medical Device Directive 93/42/EEC) ○ Type BF 	
Electrical classification		Class II	
Ingress Protection		IP21 (Protection against fingers or other object not greater than 80mm in length and 12mm in diameter) & (Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle of 15° from its normal position)	
Applied Part		Hybrid-Power Mattress & Cushion	
Usage		Continuous operation	
Mattress		Specification	
Dimensions		1980 x 880 x160mm	
Weight		16Kg	
Max Patient Weight		254kg with a pump	
Top Cover Material		Xtreme fabric (PU coated fabric substrate)	
Cell Material		PU / Silicon	
Cell Configuration		14 foam filled single cell formation	
Fire Classification		BS5852 composite – (Risk assessment to be carried out)	

Electromagnetic Interference

- This device has been tested to withstand electromagnetic interference (EMI) from commonly found electrical equipment.
- EMI can affect some types of electronic medical devices (such as pacemakers, defibrillators, ECG monitors and infusion pumps). If in any doubt before use, a risk assessment should be carried out before using this or any other electrical device around sensitive devices.
- Electrical equipment may be susceptible to EMI from sources such as mobile phones, walkie-talkies, TV broadcast and emergency services' radio. A risk assessment should also be carried out before using electronic medical devices in areas close to these sources.
- The addition of components or accessories may affect the EMI susceptibility of the device. Do not fit accessories other than Drive DeVilbiss Healthcare authorised accessories.

Warranty

Your Drive DeVilbiss Healthcare product is warranted to be free of defects in materials and workmanship for 5 years on mattresses and 2 year on pumps from date of purchase.

This device was built to exacting standards and carefully inspected prior to shipment. This warranty is an expression of our confidence in the materials and workmanship of our products and our assurance to the customer.

In the event of a defect covered by this warranty, we will at our option supply parts or replace the device.

This warranty does not cover device failure due to owner misuse or negligence, or normal wear and tear. The warranty does not extend to non-durable components, such as rubber accessories, castors and grips, which are subject to normal wear and need periodic replacement.

If you have any queries or require full warranty conditions, please contact Drive DeVilbiss Healthcare Ltd.

This does not affect your statutory rights.



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Due to its policy of continued development and
Improvement, Drive DeVilbiss Healthcare Ltd.
Reserves the right to amend any details

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