

***EVALO<sup>ü</sup> Bed***



**User Guide**

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## **Warnings, Cautions and Notes**

This user guide is designed to enable the reader to competently and responsibly operate the **EVALO<sup>®</sup> Bed**.

This manual **must** be read in its entirety prior to operating the **EVALO<sup>®</sup> Bed**.

This manual **must** be kept in an easily assessable area for future reference.

**All** warnings, cautions and notes **must** be strictly adhered to. Failure to comply with this guide may result in harm to either patient or caregiver.

ArjoHuntleigh product specialists can provide training in addition to this handbook if required. Please contact 1800 072 040 to arrange an appointment.

**Warnings** given in this manual identify possible hazards in procedures or conditions, which if not correctly followed, could result in death, injury or other serious adverse reactions.

**Cautions** given in this manual identify possible hazards in procedures or conditions, which if not correctly followed, could result in equipment damage or failure.

**Notes** given in this manual (indicated by  ) are used to explain or amplify a procedure or condition.

### **General Warnings**

#### **WARNING**

**Do not use accessories that have not been designed or approved for use with the bed.**

**Electrical equipment can be hazardous if misused.**

**Do not use electrically powered beds in the presence of flammable gases such as anaesthetic agents.**

**Do not use electrically powered beds in operating theatres.**

# 1. Introduction

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The **EVALO<sup>®</sup> Bed** is an ultra low height (Floorline) electric adjustable bed suitable mainly for aged care use where there is a risk of falling out of bed, however, owing to its versatile design, it is also suitable in acute care environments where the Trendelenburg/Reverse Trendelenburg position is required and can be used to simulate a recliner position as well.

Self-lubricating Nylon rollers ensure smooth and quiet operation.

Materials used are non-porous for ease of cleaning. It is ergonomically designed and addresses various OH&S issues by reducing the amount of manual handling required.

## STANDARD FEATURES

- ) Electric Hi-Lo.
- ) Electric Backrest with Splined Actuator for safety.
- ) Electric Knee break with Splined Actuator for safety.
- ) Electric Trendelenburg/Reverse Trendelenburg (Head/Foot tilt)
- ) Integrated Mattress Platform Extension.
- ) Toe Brake Total Lock Castors - 75mm.
- ) Head & Foot boards.
- ) Smooth and contoured surfaces powder coated for infection control
- ) Backlit Handset with Auto contour function.

## OPTIONAL FEATURES

- ) King Single width extension
- ) Emergency Release (CPR) Backrest
- ) Battery Backup
- ) Under-bed Light

## OPTIONAL ATTACHMENTS

- ) IV Pole Socket
- ) Assist Bar / Egress Handle / Half Side Rail
- ) Wall Buffer



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## 2. Clinical Applications

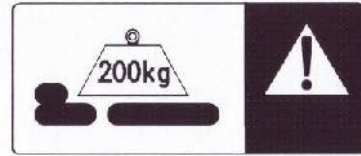
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**Area of use** Private, nursing and convalescent homes.

**Indications** The use of the bed is to assist in patient positioning whilst reducing lifting and handling stresses for the carer.

The four section deck allows the patient to be moved to an upright sitting position with the knees supported or legs elevated

**Contra-indications** The total safe working load of the bed is 200 kg.  
  
(Combined weight of patient, mattress and accessories)



### 3. General layout

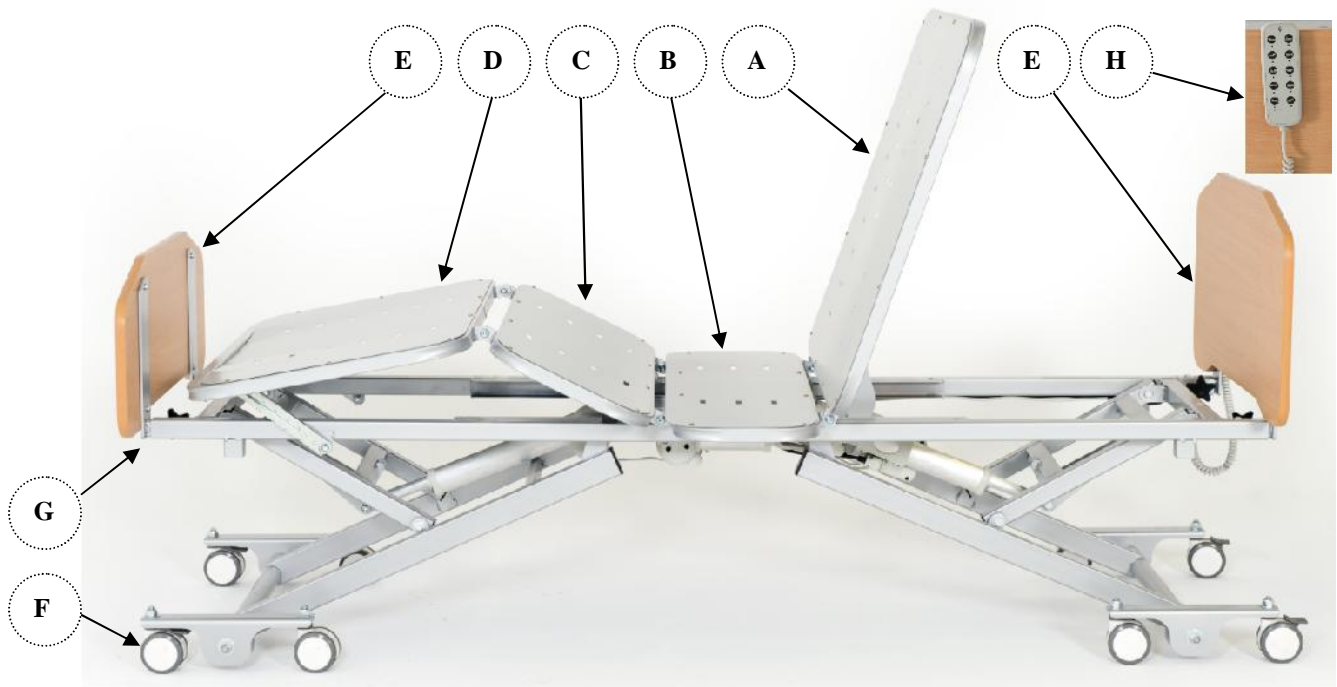


Fig. 1

A	Backrest Frame
B	Hip Frame
C	Thigh Frame
D	Calf Frame
E	Head / Foot Panels
F	Castors
G	Mattress Platform Extension
H	Control Handset

## 4. Operation

### Pre- Operation Check

Move the bed into the position where it is going to be in operation. Allow for a 50mm to 75mm gap between bed head end and the wall. Connect the mains plug to the 240V supply.

Take up the excessive length of the power supply cable and attach the excess cord to the head end bar with a cable tie if necessary.

### **WARNING**

**Ensure the cord has enough slack when connected so that it is not stretched when the bed is operated or moved to enable cleaning under it**

**Prevent the cord from getting under the bed or the wheels or entangling in the moving parts of the bed as damage to the mains cord may cause the bed to become live.**

### Safety

- ) Always use a mattress of the correct size and type. A range of suitable pressure reducing and pressure relieving mattresses is available from ArjoHuntleigh.
- ) When the bed is operated, make sure that obstacles such as bedside furniture do not restrict movement.
- ) Before operating the bed, make sure that the patient is safely positioned to avoid entrapment or imbalance.
- ) Before moving the bed, make sure that the bed is at a suitable height for the attendants to move the bed without stooping or straining.

### **WARNING**

**When the patient's condition could lead to patient entrapment, the mattress support platform should be left in the flat position whilst unattended.**

- ) Always apply the brakes when the bed is stationary. When operating the bed in tilt mode, apply the brakes at one end only.

### **WARNING**

**Lower the bed to minimum height when the patient is left unattended to reduce the risk of injury due to falls whilst getting into or out of the bed, or whilst lying on the bed**

### **WARNING**

**The clinically qualified person responsible should consider the age, size and condition of the patient before using the bed or accessories.**

## WARNING

Always ensure that all hospital lines and power cables are free from possible entanglement with mechanical parts of the bed.

Always ensure that attendant and patient limbs are free from potential entrapment areas before operating any functions.

- ) Do not expose the equipment, especially the mattress, to naked flames such as cigarettes etc.
- ) Use only ArjoHuntleigh accessories designed or approved for use with the bed.
- ) Keep these instructions handy for reference.

## Brakes

To operate braking, push down on the brake lever on each castor.

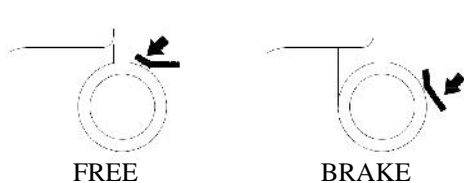


Fig. 2

## WARNING

Brakes should be activated at all times whilst bed is stationary.

## Power Operation

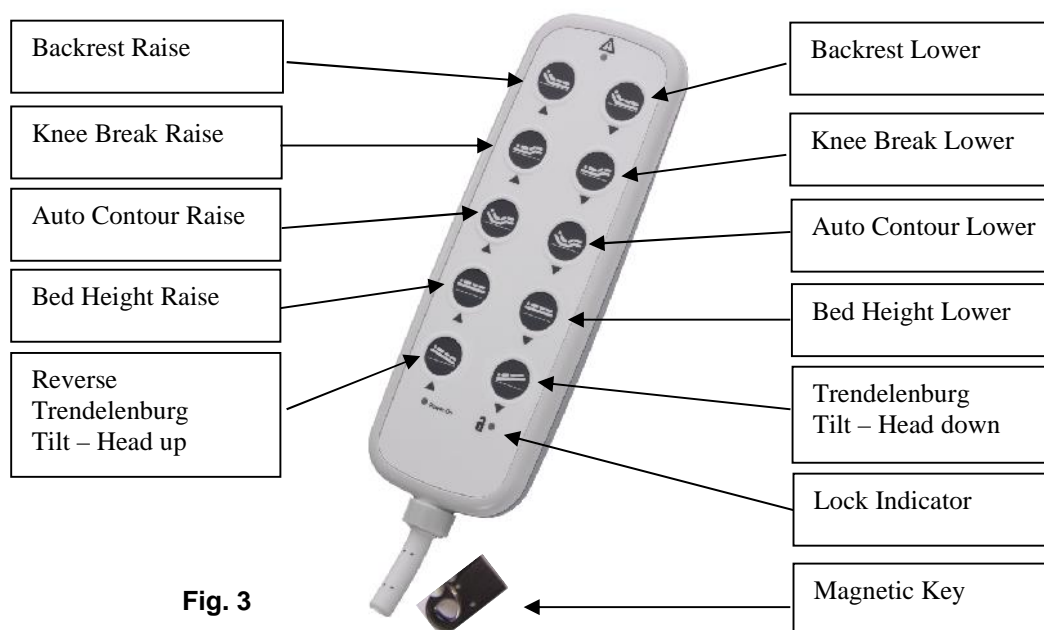


Fig. 3



The bed height, backrest angle, Trendelenberg tilt angle and leg elevation functions are all electrically operated using control handset. To operate a function, press and hold the appropriate pushbutton until the desired position is achieved. To stop at the required position release the button. The Auto-contour button operates both backrest and leg elevation simultaneously.

### **WARNING**

**Some functions may cause injury to the patient if unintentional movement occurs. ArjoHuntleigh strongly recommends that handset is locked out when no movement of bed functions is required by activating Magnetic handset lockout feature.**

### **WARNING**

**If the Handset sustains any damage or suspected damage in any way, immediately stop using the Handset, apply magnetic lockout function and perform the full Handset Checks as detailed in Section 7 - Maintenance.**

To operate the bed press and hold the desired function button. Adjustment will stop when the button is released, or the movement selection reaches the end of its range of adjustment.



#### **Backrest Angle Adjustment**

Pressing the button with the arrow pointing up, raises the backrest. Pressing the arrow down button lowers the backrest back to a flat position.



#### **Knee Break Adjustment**

Pressing the arrow up button raises the thigh section. When the thigh section is first raised from the flat position, the calf section will be in the Fowler position (angled downwards). To change the calf section to the vascular (horizontal) position, refer to **Calf Adjustment** section on page 8. Pressing the down button returns the thigh section back to a flat position.



#### **Auto Contour Adjustment**

Pressing the Auto Contour arrow up button raises the backrest and thigh sections simultaneously to provide upright patient profiling. The raised thigh section prevents the patient from sliding down the bed. Pressing the arrow down button returns the platform back to a flat position.



#### **Mattress Platform Height Adjustment**

Press the button with the arrow pointing up to raise the mattress platform height. Press the arrow down button to lower the mattress platform.



#### **Mattress Platform Tilt Adjustment**

Pressing the arrow down button lowers the head end of the mattress platform (Trendelenburg position). Pressing the arrow up button lowers the foot end of the mattress platform (reverse Trendelenburg position).



### **UNDER BED LIGHT (night light) if fitted**

To turn ON simultaneously press the top two buttons.  
To turn OFF repeat the above.

Each time the electricity supply is disconnected the Function Lock engages by default rendering all functions inactive. To re-enable the functions, swipe the magnetic key past the lock icon on the handset (Fig 3) and the indicator light will reflect the status.

If it becomes necessary to deactivate bed functions, swipe the magnetic key past the lock icon again.

The Magnetic key should remain in the possession of the carer or supervising staff if the occupant of the bed is not in control of all their faculties.

## **WARNING**

**Depending on the clinical condition of the patient, it is strongly recommended that the Trendelenburg function is locked out via magnetic handset lockout feature**

### **Calf Adjustment**

When the thigh section is raised via the handset, the calf section can be manually changed to the vascular (horizontal) position.

Holding the Calf frame by both foot-end corners, lift the panel upwards and allow it to lock at the various intervals the catch allows it to.

To return the Calf section back to the Fowler position, lift the panel to its full extension and then lower slowly.

**NOTE:** Always return Calf section back to Fowler position prior to lowering Knee Break adjustment.

### **Mattress Platform Extension**

If the bed is tilted use the bed hand control to level the mattress platform, prior to carrying out this operation. Refer to Power Operation section on page 6.

Adjustment is possible by means of two knobs located behind the foot panel on the upper side of the Extension slide tubes.



#### ***To extend the mattress platform:***

Applying finger pressure, simultaneously press down on both red coloured knobs and slowly pull the foot panel towards you. Once the frame begins to slide out, release both knobs and extension frame will click lock in position at 180mm fully extended.

#### ***To retract the mattress platform:***

Repeat the above procedure, however push the extension in rather than pulling it out.

**Always check that lock has engaged correctly once adjustment is made.**

## **WARNING**

**Platform Extension Safe Working Load is 20kg.  
Adjusting the bed to a Reverse Tilt (foot-down tilt) position with the mattress platform extended can potentially create a foot trap.  
Always install a suitable mattress extension (bolster) when bed is extended**

## **Acute Care Bed model**

### **Emergency Release Backrest. (CPR Function)**

This bed is fitted with an emergency release lever so that the backrest may be quickly lowered to the horizontal position in the event of a requirement to perform CPR. The bed is fitted with a gas strut to cushion the descent.

To operate the emergency release when the backrest is in the upright position, grasp the backrest panel and gently but firmly pull the red Emergency Release lever (positioned below the backrest) outwards which will disengage the actuator. The backrest will descend to its resting position.



The quick release lever is located on both sides of the bed so as to enable it to be operated from either side of the bed.

Once in the lowered position, the back rest may be operated normally using the hand control.

## **Patient Transfer**

If the patient is to be transferred by means of a patient hoist, the bed will need to be raised enough to allow hoist access underneath the bed.

### **WARNING**

**Bed functions, particularly Hi-Lo are NOT to be used during patient transfer.**

## 5. Cleaning

### WARNING

**Disconnect the bed from the mains power supply before cleaning.  
Gloves and protective clothing should always be worn when carrying out  
cleaning procedures.**



*These instructions also apply to accessories but not to mattresses.*

Wipe all surfaces with a soft cloth moistened with hot water and mild detergent (or the hospital's recommended cleaning solution). Take extra care with areas that may harbour dirt or dust.

Rinse with clean water and dry with paper towels.

To remove potentially infectious material such as body fluids, or when the bed has been used by someone with a known infection, clean afterwards with NaDCC (e.g. Presept, Actichlor) at 10,000 ppm of available chlorine. Rinse and dry.

Allow the cleaned parts to dry before replacing the mattress.

### Caution

**Do not use abrasive compounds or pads.  
Do not use hypocarbonate or phenolic cleaning solutions.**

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## 6. Maintenance / Troubleshooting

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The following preventive maintenance procedures should be carried out at intervals of 6 and 12 months.

All service or repair activities must only be performed by properly qualified and trained persons who are approved by ArjoHuntleigh.

Disposal of product and components should be compliant with local regulations.

### **WARNING**

**Disconnect the bed from the mains power supply before starting any maintenance activity.**

**Avoid skin contact with lubricants.**

#### ***General 6 month Routine Maintenance***

- Examine flexible cables for cuts, abrasions, kinking or other deterioration. Make sure that the electrical supply cable plug is not damaged.
- Check that wiring is secure and not interfering with bed movement.
- Wipe external actuator shafts to remove dust and lint. (Do not wash)
- Check that all bed functions are operating correctly.

#### ***General 12 Routine Maintenance***

- Examine the bed for obvious signs of damage. All aspects of the equipment should operate as intended.
- Make sure all nuts, bolts and other fastenings are tight and are not missing. Check all pivot points for significant wear or any damage.

#### ***Castors and Brakes***

- Apply the brakes and push the bed forwards. If any of the castors braking is inefficient then they should be replaced.
- Check that castors swivel and rotate freely.
- Remove any fluff or threads picked up by the castors.

## HANDSET Checks

Between each patient, ArjoHuntleigh strongly advises that the Handset is visually inspected for obvious damage before each use if practicable and that Preventative Maintenance checks are conducted on the handset. When using a specific function staff should be aware of, and checking for, any of the symptoms listed in point 3 below.

### Preventative Maintenance Checks

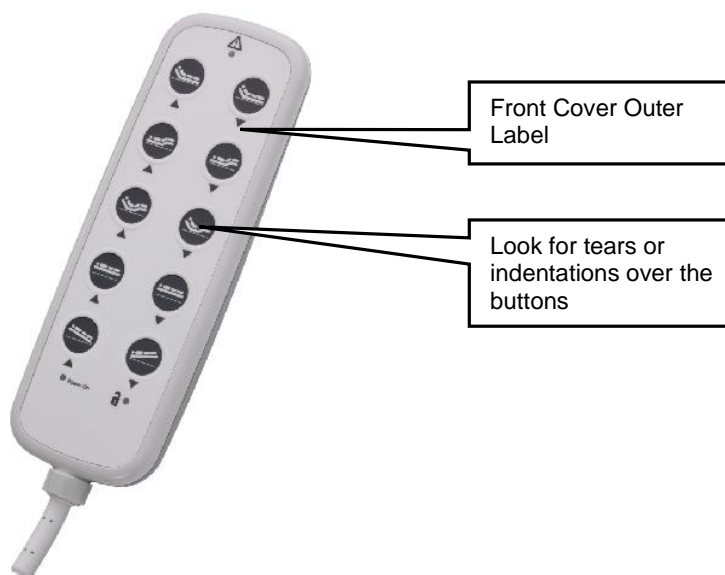
ArjoHuntleigh recommends that the full check and testing regime is conducted between each bed use or worst case during annual Preventative maintenance. This should take no more than one (1) minute to complete.

## WARNING

**Although preventative maintenance checks may identify damaged or faulty handsets which could lead to unintentional bed movement, ArjoHuntleigh strongly recommends that handset is locked out when no movement of the bed functions is required. This is done by swiping magnetic key over lock icon on handset. (Operation page)**

### 1. Visual inspection of handset casing

- 1.1 Inspect the outer plastic casing for any obvious cracks or damage.
- 1.2 Inspect for damage to the front cover (outer label) particularly over the buttons where the label may be torn or indented.



If any damage is identified while conducting checks 1.1 and 1.2, immediately quarantine the bed and report the damage to maintenance staff or replace the Handset.

### 2. Visual inspection of the cable and Cable insulation:

- 2.1 Inspect the cable for any nicks or cuts in the insulation
- 2.2 Inspect for any evidence that the cable may have been squashed or flattened.

Squashed or flattened cables may indicate a possible break in the internal conductors or insulation causing conductors to short together which could cause unwanted movement of the bed. Any handsets are found with obvious damage to the cable insulation, immediately report the damage to maintenance staff or replace the Handset.

### 3. Tactile inspection of the buttons:

All buttons and magnetic locking function should be operated and response tested.

Depress each button on the handset. Each button should have a positive audible click that is also felt. The function being pressed should also operate.

If the button:

- ) does not have a click feel
- ) does not have an audible click sound
- ) does not immediately operate the function
- ) feels soft offering no resistance
- ) feels different to the rest of the buttons
- ) travels further when depressed

Immediately quarantine the bed and report the damage to maintenance staff or replace the Handset, otherwise contact an ArjoHuntleigh approved Technician.

## Troubleshooting

Symptom	Possible Cause	Action
All actuators fail to work	Handset is locked	Swipe magnetic key across handset to activate.
	Control box and handset plugs disconnected	Check the plugs are fully inserted in the control box.
	Blown fuse	Contact ArjoHuntleigh Service Department on 1800 072 040.
	Damaged handset cable	Replace handset
One actuator fails to work	Actuator plug disconnected	Check that actuator plug is fully inserted in control box.
	Damaged actuator cable	Contact ArjoHuntleigh Service Department on 1800 072 040.
Brakes not affective	Wear or damage	Clean or replace castor.



### CONTROL BOX SAFETY FEATURE

The electric system has a 10% duty cycle i.e. 2 minutes of operation followed by 18 minutes of rest. If either the rated load or the duty cycle is exceeded, the self-resettable fuse will activate.

Repeated activation of the self-resettable fuse will result in relay failure.

The actuator will slowly retract under load to a rest position if it is deprived of low electrical resistance which enhances the braking power.

This slow retraction is meant to avoid a catastrophic failure in the event of overload.

**If any of the functions are seen to be slowly creeping down, contact a trained technician.**

## 7. Accessories

A full range of accessories, including mattresses, are available from ArjoHuntleigh. Details are available on request.

The following list of available accessories may be used on the **Evalo<sup>u</sup>** bed range:

DESCRIPTION	PRODUCT CODE	USER MANUAL REFERENCE	SAFE WORKING LOAD (NOT TO BE EXCEEDED)
IV Pole Socket	EL164-EV8385		10kg
IV Pole	93011755	UMIV01	10kg
Wall Buffer	EL164-EV8380	UMWB01	N/A

### **WARNING**

**Do not use accessories that have not been designed or approved for use with the bed.**

ArjoHuntleigh reserves the right to change accessory details and availability without notification.



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## **8. Warranty and Service**

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ArjoHuntleigh's standard terms and conditions apply to all sales. A copy is available on request. These contain full details of warranty terms and do not limit the statutory rights of the consumer.

For service, maintenance and any questions regarding this, or any other ArjoHuntleigh product, please contact:

ArjoHuntleigh  
78 Forsyth Street,  
O'Connor, Western Australia

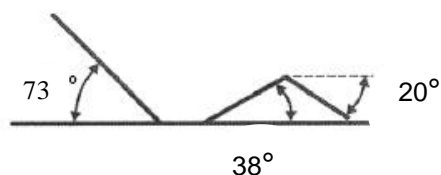
Free Call: 1800 072 040  
Telephone: +61 (0) 8 9337 4111  
Fax: +61 (0) 8 9337 9077

## 9. Dimensions and Data

### Dimensions

Overall length	210 cm
Overall length extended	228 cm
In-bed length	200 cm
In-bed length extended	218 cm
Overall width	90 cm
Overall width - King Single	103 cm
Height to mattress platform	16.4cm to 69.5cm
Trendelenburg tilt	0 to 16°
Reverse Trendelenburg tilt	0 to 16°

Deck angles (max.)



**Any mattress used on this bed must be within the following dimensions:**

Width	900mm
Width – King Single	1010mm
Length	1980mm
Depth	150mm

**Product weight** (approx.) 80kg


**Product weight** – King Single 92kg

**Transport Dimensions** 210cm x 90cm x 22cm

**Safe working load** 200 kg



## Electrical Data (230V)

Power in	100-240V~50/60Hz. 3,15A max.
Power out	29V DC constant
Duty rating	Intermittent 10%, Max. 2min. / 18 min.
Electrical Safety Standard	EN 60601-1 / EN60635 / norm UL, cUL
Electric shock protection	Class 2 
Liquid ingress protection	IPX6

## SYMBOLS



Refer to User Manual



Safe Working Load - Bed



Double insulated

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## 10. Transportation and Storage

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Handle with care. Do not drop. Avoid shock or violent impact.

The equipment should be stored in a clean, dry and well ventilated area.

The following limits apply during transport and for a storage period of up to 15 weeks:

Ambient temperature	-25°C to +70°C
Relative humidity	10% to 75%
Air pressure	50 kPa to 106 kPa

The following limits apply to Normal Operating Conditions **OR** periods of storage longer than 15 weeks:

Ambient temperature	+10°C to +40°C
Relative humidity	30% to 75%
Air pressure	70 kPa to 106 kPa

## 11. Risk Assessment

### HOSPITAL BED HAZARD & RISK ASSESSMENT

Hazard	Hazard? Yes / No	Level of Risk	Suggested Actions To Minimise Risk
<b>Mechanical</b> Entanglement, crushing, cutting, abrasion, puncture.	Yes	Medium	The bed is designed in accordance with IEC60601-2-52 which should prevent injuries during normal use. However, to prevent accidents when a person may be under the bed or may have a limb between the mechanisms when the bed is being operated, a warning of the danger has been placed on the bed frame and also in the operating instructions.
<b>Ergonomic</b> Height, size and human fit.	Yes	Low	The Mattress platform size has been designed to accommodate most people, For individuals over 190cm tall, extend mattress platform at the foot-end along with the use of a suitable size bolster. The bed is not designed for people over 170kg.
<b>Electrocution</b> Risk to operator, occupant	Yes	Low	All electric equipment is double insulated. All motors and circuits other than the mains to the control box are low voltage. In the event of a fire the power cord could melt and cause the bed to become live. Damage to the power cord or entanglement in the mechanism of the bed can pose a risk. A warning to this effect is included in the operating instructions.
<b>Hazardous Substance</b> Chemical/ Radioactive	No	None	
<b>Temperature</b>	No	None	
<b>Noise</b> Excessive Noise	No	None	
<b>Pressure Equipment</b> Fluids/Gases	No	None	
<b>Infection Control</b> Is Equipment easily cleaned?	Yes	Low	All metal surfaces in contact with patients or staff are powder coated for ease of cleaning. All efforts have been made to minimise areas which can trap fluids, etc.
<b>Service</b> Hazard due to lack of maintenance.	Yes	Low	After extended periods of continuous use without maintenance, the bed may fail under load. Servicing information is provided in the operation manual.
<b>Fire / Excessive Temperature.</b> Combustion Source Present?	No	Low	The bed is mostly made of metal and is unlikely to ignite. However should a fire occur, the heat may melt the power cord causing the bed to become live.

## 12. Parts List

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<u>Electrical Components</u> (Standard model)	Supplier's Part No
Main lift Actuator .....	EVEL-MLACT
Backrest Actuator .....	EVEL-B-ACT
Knee break Actuator.....	EVEL-KLACT
Control Box .....	EVEL-CB-04
Control Box Mounting Plate.....	EVEL-CBMNT
Control Box (Battery backup).....	EVEL-CB-BB
Mains Cable – Grey Spiral non Earth.....	EVEL-M-CAB
Battery Backup.....	EVEL-BAAG7
Battery Mount Plate.....	EVEL-BATMT
Handset.....	EVEL-H-SET
Magnetic Key .....	EVEL-MAGKY

### Mechanical Components

Backrest frame .....	008310
Backrest sheet.....	008201
Hip Frame.....	008320
Hip sheet .....	008302
Thigh frame .....	008330
Thigh Sheet.....	008203
Calf frame .....	008335
Calf sheet .....	008204
Leg Frame.....	008340
Leg Lever Frame .....	008350
Castor Carriage .....	008354
Bed Frame .....	008360
Headboard Bracket .....	008396
Foot Extension Frame .....	008395
Foot Extension Push Knob .....	000015
Foot Extension Plunger Stud .....	008389
Foot Extension Spring .....	008391
Foot Extension Locking Bar .....	008392
Castor (Toe brake) .....	EVCA-75TWB
Castor (Swivel) .....	EVCA-75TWS
Pipe Linch Pin – 8mm .....	S12795
Nylon Roller .....	008366

Panels & Covers

Laminate Head Panel ..... 001916  
Laminate Foot Panel ..... 001917

King Single

King Single Width Extension Frame .....008375

Manufactured by  
Mac's Metalcraft Pty Ltd  
2/40 Stephen Rd, Dandenong Sth  
Victoria 3175 Australia

**ARJOHUNTLEIGH**  
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**PERTH – ADELAIDE – MELBOURNE – SYDNEY – BRISBANE**

As our policy is one of continuous development ArjoHuntleigh reserves the right to  
change specifications without notice.

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Member of the Getinge Group