



Multicare[®] + Symbioso

Critical Care Bed



LINET

Cheiron

PHILIPS

180
60/40
85
15
120/80 90



LINET

multicare

Prevention of pulmonary complications with automatic lateral therapy



[01]

AUTOMATIC LATERAL THERAPY (ALT®) | Lack of movement puts patients in critical and intensive care units in danger of a number of medical complications. Reduction of the residual pulmonary capacity, atelectasis and pneumonia are serious medical complications that affect the respiratory tract of long-term immobile patients. The positioning of the patient plays an important preventative role here.

REFERENCES

1. Dodek P. et al.: Evidence-based clinical practice guidelines for the prevention of ventilator-associated pneumonia. Ann Intern Med. 2004 Aug 17;141(4):305-13.
2. Muscedere J. et al.: Comprehensive evidence-based clinical practice guidelines for ventilator-associated pneumonia: Prevention. Journal of Critical Care (2008) 23, 126-137.
3. Fink M. P. et al.:The efficacy of an oscillating bed in the prevention of lower respiratory tract infection in critically ill victims of blunt trauma. A prospective study. Chest. 1990 Jan; 97(1):132-7.



[02]

[01] BED IN MOTION

Automatic lateral therapy (ALT®) is a function that maintains the bed and the patient in it in a permanent cycle of programmed lateral tilts. This partly replaces the natural movement of the human body and acts preventatively against serious respiratory complications.

[02] PREVENTION OF PULMONARY COMPLICATIONS

Permanent automatic positioning forms part of a modern strategy^{1,2} preventing serious respiratory complications and helps to reduce the risk of atelectasis and the relative risk of Ventilator Associated Pneumonia³ (VAP).



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Origin Ports



X-raying without patient manipulation

RADIODIAGNOSTICS IN THE BED | The risk of internal bleeding associated with serious injuries to the skeleton and soft organs or the condition following a major surgery can mean a strict contraindication for any movement of the patient. X-ray examination of the chest without a prepared technical solution becomes a hard-to-resolve task under these conditions.



[01]

[01] LATERAL X-RAY CASSETTE TRAY

The lateral X-ray cassette holder enables safe imaging of the chest without needing to reposition the patient on the bed. It is equipped with a sliding cassette system for exact placement under the patient and enables imaging in both the landscape and portrait formats.



[02]

[02] C-ARM COMPATIBILITY

The radiolucent mattress platform enables examination of the patient using a C-arm from the pelvic area up to the head. For example, it is possible to perform some invasive cardiologic procedures directly in the bed.

Automatic weighing system (AWS)

PATIENT WEIGHT | Knowledge of the weight of a patient in critical condition can greatly simplify a number of important decisions. In the acute phase, this can involve, for example, an exact drug dosage. In the long term, historical information about the patient's weight will assist staff in visualizing the current state of nutrition and provide information on the fluid balance¹.

[01] WEIGHING

The Automatic Weighing System integrated into the Multicare® bed is capable of calculating the exact weight of the patient in all bed positions. This yields not only the current value of the patient's weight, but also provides valuable information on changes over time.

[02] MEMORY

The data-collection system automatically measures and regularly stores values of the patient's weight in its memory. It can be easily viewed in clear graphs showing daily, weekly or monthly reports. Export of the measured data to a PC is a simple process.

"FREEZE" FUNCTION

The AWS system also includes the "Freeze" function. This enables addition or removal of equipment from the bed (infusions, transport monitor, etc.) without any effect on measurement of the patient's weight.

¹ Campbell, S., Avenell, A, and Walker, A. (2002). Assessment of nutritional status in hospital in-patients. *QJM*, 95, 83-87.



[03]



[04]

Comfortable control

MULTIBOARD® | Most of the activity connected with critical care is concentrated in the area around the head and chest of the patient. The usefulness of the location of the MultiBoard® control element lies in the fact that it ensures easy access to the patient, to the important medical devices and to the main controller of the bed from a single place.



[01]



[01] CARE WITHIN THE REACH
The MultiBoard® is oriented so that its horizontal surface clearly indicates adjustment of the backrest to 30°, the preventative position for respiratory complications.



[02]



[02] THE INTEGRATED SIDERAIL CONTROL is within reach of the patient in the lying and sitting position.



[03]



[04]



[05]

[03] THE SUPERVISOR PANEL is connected to the bed by a plug and play connector and can be placed anywhere around the perimeter of the bed.

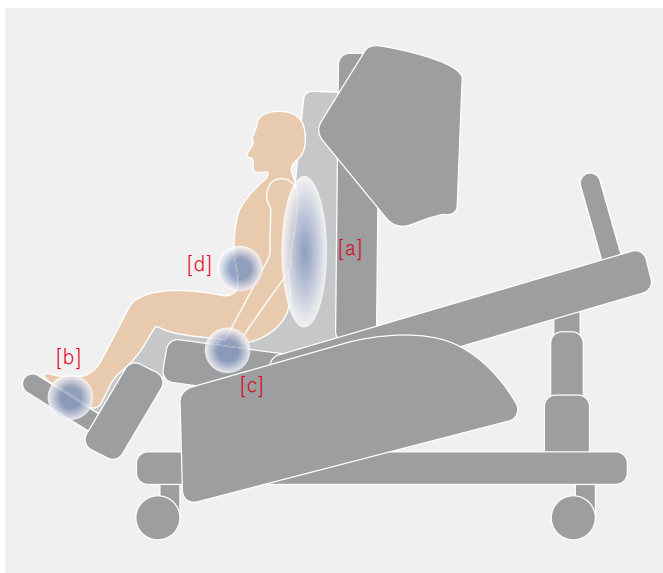
[04] HANDSET has an internal LED light for convenience during the night.

[05] THE PRACTICAL FOOT CONTROL adjusts the Hi-Low position of the bed and the lateral tilt.



Easier breathing

ORTHOPNEIC POSITION | The orthopneic chair® position created by the Ergoframe® mattress platform is intended mainly for patients with resting dyspnea, facilitating respiration. It combines a high Fowler's position, pressure reduction in the abdominal area for easier deep breathing and foot support, allowing the use of additional breathing muscles.



[01]

[01] ORTHOPNEIC CHAIR®

- [a] Position sitting up
- [b] Supported feet
- [c] Supported arms
- [d] Low pressure in the abdominal area

DEEP BREATHING

Regression of the back and thigh section reduces the pressure in the area of the pelvis and abdomen facilitating deep diaphragmatic respiration.

[02] FOOT SUPPORT

The feet are supported against the foot end of the bed helping the patient to use additional breathing muscles as well as helping patients with shortness of breath.



[02]



Mobi-Lift® – Active Patient mobilization

Patient immobility is one of the major complications of recovery. Immobility affects an average of 5–10% patients in acute care departments. In some branches (neurology, orthopaedics) temporary immobility can effect 30% of patients.

The Multicare bed is perfectly adapted to patient mobilization and helps eliminate the risks associated with mobilization. The Multicare contains an integrated system of mobilizing features which makes patients' mobility easier and provides a feeling of security when ambulating or transferring.



[01]

The Mobi-Lift® handles:

- Saves the patient's energy.
- Make ambulation easier and safer.
- Saves nurses physical work.
- Can fully take the place of one nurse.

[01] A simple bed height adjustment button is integrated into the Mobi-Lift® support handles. This function is used to lift the bed and position the patient sitting on the edge of the mattress.



[02]

[02] The Mobi-Lift® support handles can be stored under the mattress platform if needed, so they do not obstruct movement around the bed while caring for the patient.



Özgen Form

60

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Less Effort

Nursing is one of the professions with the highest risk of back pain. This is usually caused by the strain endured during positioning of heavy patients while providing care. Lateral tilt of the bed can help significantly in these situations. Work becomes much easier with automatic bed function, which also reduces the potential risk of human error.



[01]



[02]

[01] I-BRAKE®

The I-Brake® automatic brake is activated after 10 seconds if the bed remains unbraked and is plugged in. It protects against uncontrolled movement, impacts and falls caused by leaning on an unbraked bed.

[02] I-DRIVE®

The I-Drive® System controls automatic retraction of the castor to the chassis. If the bed is plugged in, it is automatically retracted. It does not obstruct underpass equipment, such as a C-arms or servers and is not an obstruction when cleaning the floor.



[03]

[03] EASY TRANSPORT

Bed movement and direction are stabilized by the fifth castor. I-Drive® recognizes when the castor is useful and retracts it automatically. Ergonomic handles built into the foot and head end are designed for a solid grasp while pulling or pushing the bed.



[04]

[04] RESPIRATION PHYSIOTHERAPY

Lateral tilt of the bed can facilitate performance of the techniques of respiration physiotherapy. For effective postural drainage of the chest, lateral tilt can be advantageously combined with the Trendelenburg position, provided that there are no contra-indications for this position.



[05]

[05] LINEN CHANGES

Making the bed, daily hygiene and other nursing duties on an unconscious patient require substantial physical strength and are frequently performed with the cooperation of several medical staff. A lateral tilt of 15° facilitates turning the patient on his/her side and ensures stability when resting on the hip.



[06]

[06] MOVING PATIENT TO STRETCHER

Moving the patient to a stretcher is a demanding procedure that generally requires a large number of personnel and substantial physical strength. Use of the described lateral tilt of the bed and the roll board greatly facilitate this activity.

Excellent safety

MULTIPROTECT SIDERAILS | Minimum gap concept of side rails prevents the risk of patient entrapment and meets the newest legislative demands. Siderails are equipped with the intuitive and safe locking mechanism.



[01]

[01] HEIGHT OF THE SIDERAILS

The siderails cover the body of the patient from the area of the knees to the head and thus protect the patient against a possible fall. The parameters of the siderails make the bed compatible with both active and passive mattresses up to height of 23 cm.

[02] COMPLY WITH IEC 60601-2-52

The concept of minimal gaps reduces the risk of injury by pinching of the patient between the moving parts of the bed.

- [a] During back rest adjustment, the space between the siderails remains constant.
- [b] The space between the siderails as the rest of the bed complies with the strictest international requirements of safety standard IEC 60601-2-52.



[02]

SIDERAIL LOCKS

The double-position manual locks prevent patients from lowering siderails by themselves. However, rails can be easily adjusted by medical staff with a single hand.

BLOCK OF LATERAL TILT

The electronic equipment monitors the position of the siderails and, if they are in the lowered position, adjustment of lateral tilt is electronically blocked, preventing any accidental turning.

BED EXIT ALARM

This initiates an audio signal and enables the medical staff to actively intervene if the patient leaves the bed.



Complex prevention of pressure ulcers

Pressure ulcers are a complication that can be prevented. Careful positioning of the patient, reduction of pressure on the soft tissues and reduction of shear forces during changes in the position of the bed are key aspects that the Multicare® bed assists in the prevention of pressure ulcers.

[01] ERGOFRAME®

The shape of the Ergoframe® surface acts preventatively against pressure ulcers by reducing shear and friction forces acting on the patient during a change in the position of the bed. It also reduces the pressure acting in the area of the pelvis and sacral area.



[01]

[02] LATERAL TILT

Repositioning the patient using lateral therapy can help reduce excessive pressure acting on places of the body with the greatest risk of pressure ulcers.



[02]



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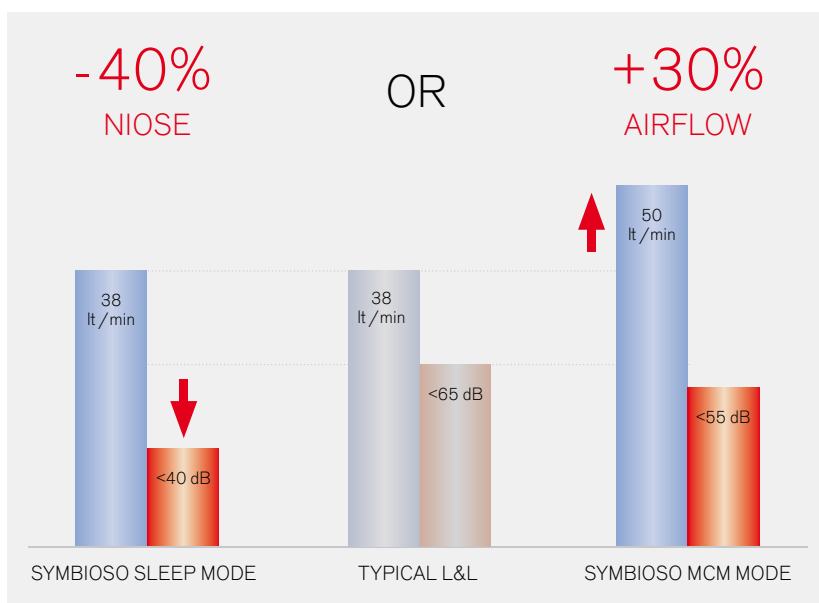
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Integrated active mattress Symbioso

DUAL MODALITY | MicroClimate Management & Constant Low Pressure modes help keep patients skin safe from damage due to moisture and pressure. The integrated air surface is designed to work in collaboration with the Multicare. Pump & controls are part of the bed frame leaving the foot board uncluttered. No additional staff training is needed and the Symbioso has the same weight limit as the bed frame.

FEATURES

- Dual Modality MCM and CLP
- Fully Automatic
- Specialty designed for heel protection
- Integrated with Multicare
- Easy maintenance and operation
- One touch CPR for bed and mattress



[02]

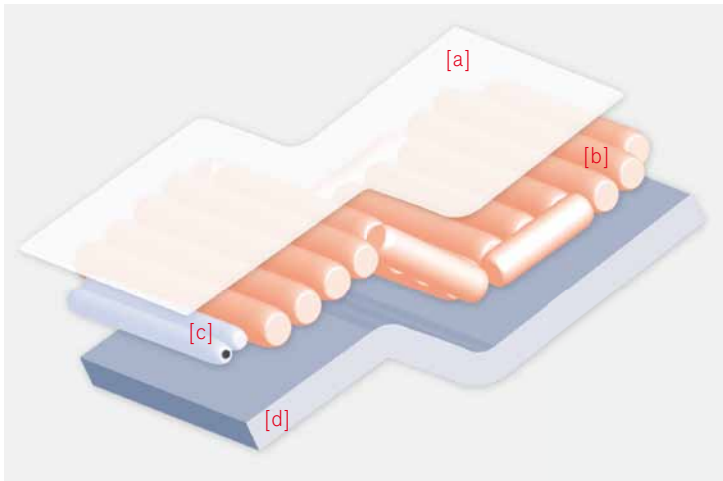
[01]

[01] MCM MODE – (MicroClimate Management) – quiet comfort with high performance

This creates dynamic MicroClimate Circulation within the mattress cover, encouraging MVT (Moisture Vapor Transfer), which helps manage the general condition and health of the patient's skin by reducing risk of moisture damage and allowing the body's natural thermoregulation process to take place.

[02] SLEEP MODE – MINIMIZE SLEEP DISTURBANCE

This mode reduces MCM blower speed reducing noise while CLP adjustment are automatically made to minimize patient disturbance while sleeping. The sleep mode still delivers 38 litres per minute of dynamic air flow.

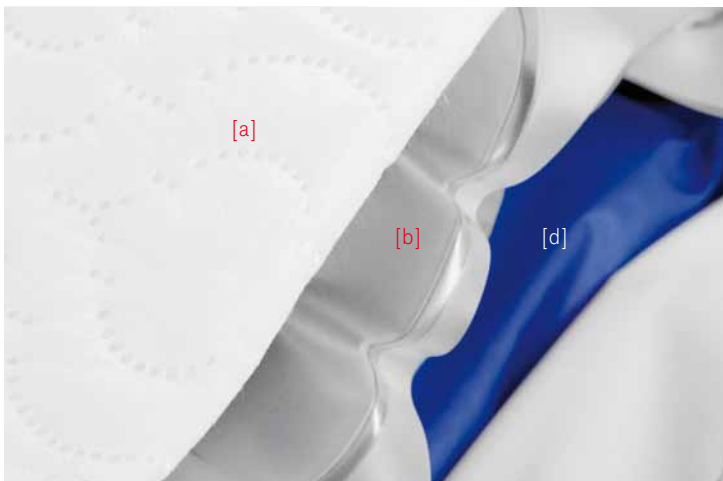


[03a]

[03] COMFORT LAYER

Internal comforter layer between mattress cover & air cells increases patient comfort & aides dynamic MicroClimate circulation by providing additional air flow paths. This layer can easily be removed for cleaning or be replaced separately from the top cover thus reducing the cost of ownership

- [a] comfort layer
- [b] active mattress
- [c] mattress extension (2 cells)
- [d] overlay (passive mattress)



[03b]

[05] INTEGRATED CONTROLS

All air surface features are controlled using Mutiboard touchscreen.

CLP MODE – (Constant Low Pressure)

In this mode the mattress automatically maintains the selected pressure (5 levels) regardless of changes in the patient's weight distribution or position to achieve constant levels of pressure redistribution.

MAXIMUM INFLATE

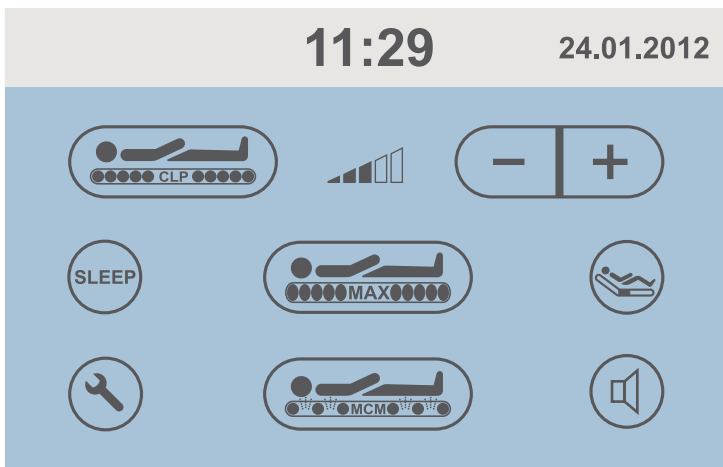
This mode stops the mattress CLP action and inflates it to one level above its maximum pressure (Level 5) to provide a stable surface for patient transfer or delicate nursing procedures. An automatic 30 minute time out helps prevent accidental prolonged use of this mode.

AUTOMATICLY FOWLER BOOST

Fowler boost function increases the pressure level in the seat section by one level setting when the back rest is raised greater than 30 degrees. This function can be turned off for lighter weight patients.

ALARM SYSTEM

Detects any system faults & provides audible & visual indications. Audio alarm can be muted via the Multiboard touch screen.



[05]

Bed Specifications

ALT® (AUTOMATIC LATERAL THERAPY)

- ALT® control screen on the Multiboard® LCD touchscreen
- kit of stabilizing pads
- holder of ventilator circuit
- footside ALT® barriers

AUTOMATIC WEIGHING SYSTEM (AWS)

- integrated scales controlled through the LCD touchscreen with graphical presentation of weight history
- absolute values and measurement of weight changes
- value-freezing function
- bed exit alarm

X-RAY

- X-ray cassette holder
- X-ray cassette shelf
- X-ray cassette anti-crush switch off

ADDITIONAL CONTROLS

- foot control for lateral tilt of 15°
- foot control for adjusting the height and examination position
- manual control for the patient with under-lit keyboard and LED lamp and connector for easy connection/disconnection
- additional supervisor panel with plug-and-play connector for easy connection/disconnection

SPECIAL ACCESSORIES

- Mobi-Lift® handles
- I-Drive®—system of automatic activation of the fifth castor
- I-Brake® (intelligent automatic brake)
- double castors

MATTRESS PLATFORM AND ADJUSTMENTS

- 4-section mattress platform, on 3 telescopic columns
- CPR mechanical releasing of backrest
- complete electronic positioning including preprogrammed positions

SIDERAILS

- Multi Protect Siderails with siderails-down sensors and tilt indicators

BED ENDS

- removable plastic head and foot ends (foot end with safety locks)

CONTROL ELEMENTS

- Multiboard® with LCD touchscreen in both head siderails
- function control through LCD touchscreen (lateral tilt, autocontour, mobilization position, transport regime, TR/ATR tilt)
- tilt indicators (backrest, lateral tilt, TR/ATR tilt) through LCD touchscreen
- functions lockouts through LCD touchscreen
- service data interface on LCD touchscreen
- user communication setup on LCD touchscreen
- quick reference guide on LCD touchscreen
- activation GO button and safety STOP button
- battery back-up indicator
- panel in siderails for the bed height adjustment
- integrated multipoint controls in siderails for the patient

CASTORS

- 4 castors 150mm Tente Integral, central brake system adjustable from 4 points

ACCESSORIES ADAPTORS AND HOLDERS

- bi-lateral holders for small accessories
- multifunctional adaptor for accessories in the undercarriage
- 8 bushings for IV poles or other accessories
- points for patient fixation belts

BED PROTECTORS

- horizontal protective bumpers
- siderail line bumpers

OTHER EQUIPMENT

- battery backup with status indicator



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Chairin

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Description

[01] MULTIBOARD®

main control element of the bed, used to control all of the bed functions.

[02] ERGOFRAME® MATTERS PLATFORM

works preventively against pressure ulcer development and in Orthopneic position to facilitate breathing.

[03] INTEGRATED SIDE RAIL CONTROLS

accessible in both the lying and sitting positions.

[04] REMOVABLE FOOT ENDS

is adjustable by electromotors.

[05] SUPERVISOR PANEL

this additional control for the bed can be placed everywhere in the perimeter of the bed.

[06] MOBI-LIFT® HANDLE

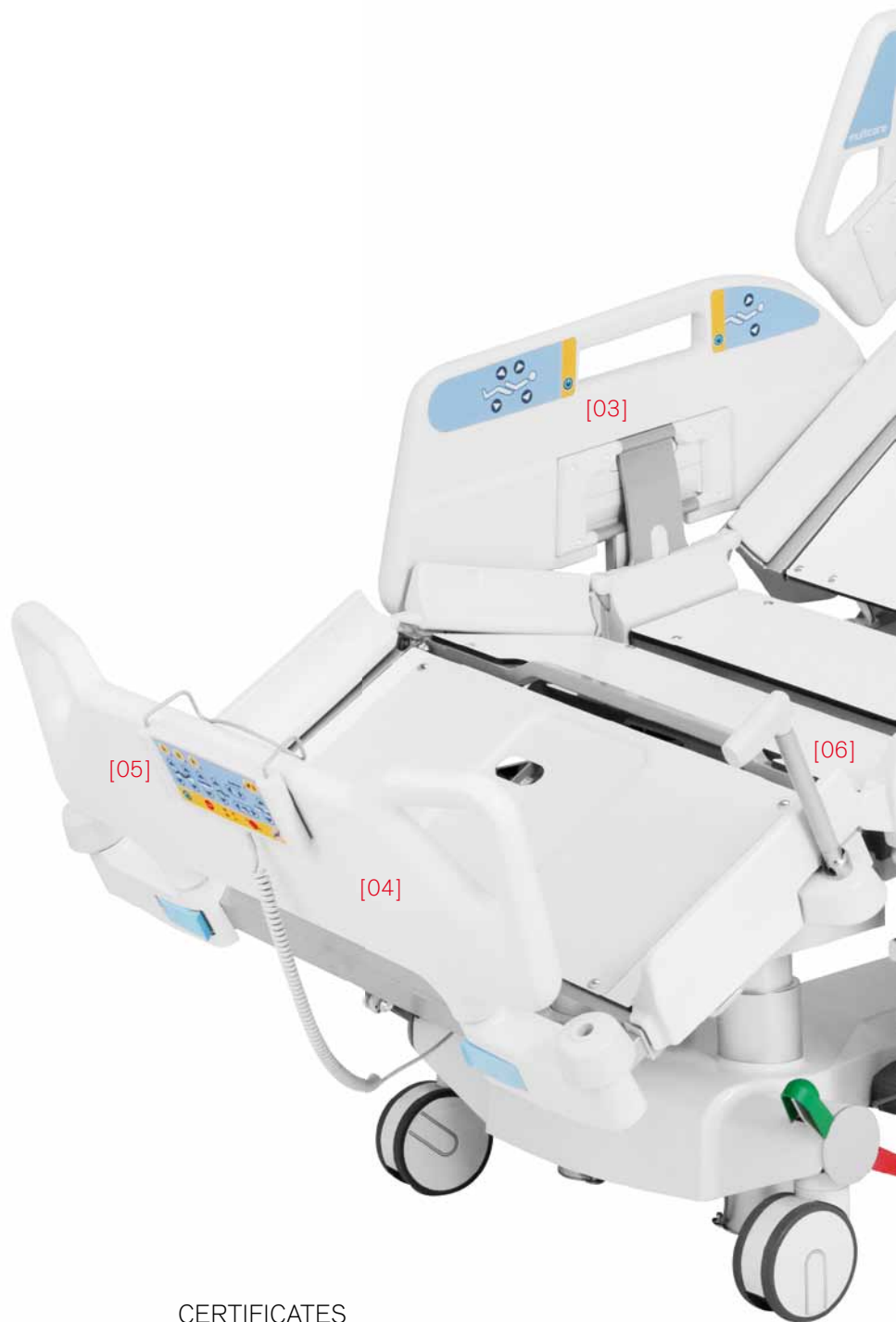
assists the patient to exit the bed safely.

[07] ANCHOR POINTS

for Segufix patient restraints.

[08] PATIENT'S PENDANT

is equipped by integrated LED flash light..



CERTIFICATES

- Linet is certified according to the European standards and quality system: EN ISO 9001:2000, EN ISO 13485:2003.
- Products are manufactured according to the European standards for medical technology and hospital beds: EN 60601-1, EN 60601-1-2, EN 60601-1-4, EN 60601-2-52, EN ISO 14971, 93/42/EEC, 90/384/EEC.



[09] I-DRIVE®
fifth castor for safe transporting and maneuvering is automatically released during patient transport in the bed.

[10] FOOT CONTROL
for adjusting the height and lateral tilt of the bed.

[11] I-BRAKE®
an automatic braking system.

[12] LATERAL X-RAY CASSETTE HOLDER
of X-ray cassettes with position location option.

[13] CPR MANUAL HANDLE
control release of the bed backrest.

[14] SIDERAIL DUAL LOCK
with integrated goniometer.

TECHNICAL PARAMETERS

- External dimensions
84,6×41,3 inch (shortest mattress platform position)
93,3×41,3 inch (longest mattress platform position)
- Mattress dimensions 81,9 × 33,9 inch
- Max. mattress height 9,1 inch
- Height adjustment 17,4–32,4 inch
- Lateral tilt ±30°
- TR/ATR tilt 13°/16°
- Weight (basic equipment) 457 lbs
- Safe working load 544 lbs

ELECTRIC PARAMETERS

- Power supply 110 V, ±10%
50–60 Hz
- Maximum input max. 3,15 A, 370 VA
- Cover against water and dust IP 54
- Type of protection against electrical current Class I
- Level of protection against injury from electrical current
Applied part type B
- Electric motor operation mode (load factor)
10%, max. 2 min/18 min

Easy infection control



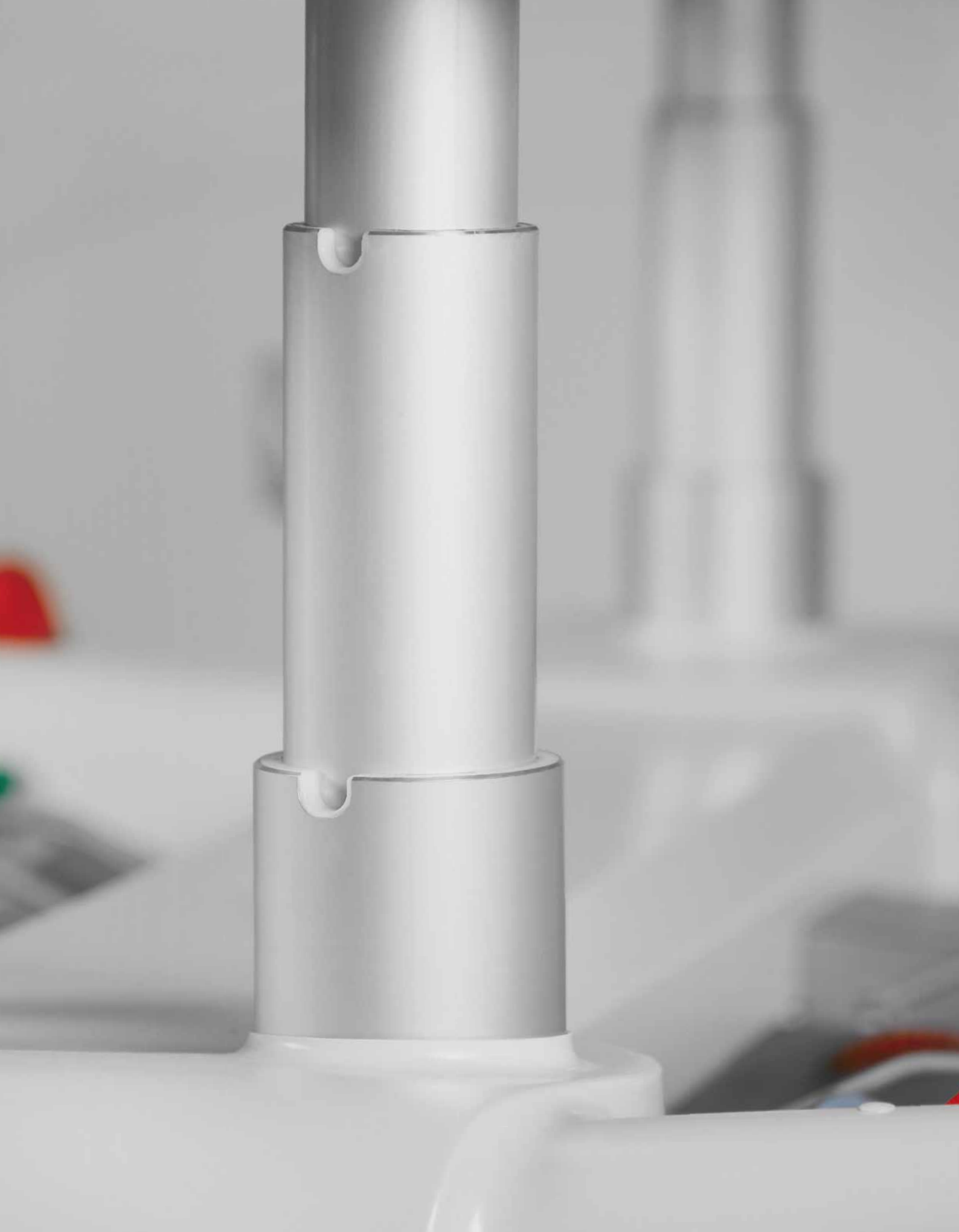
[01]

[01] SEAMLESS AND SMOOTH PLASTIC SIDE RAILS, flat mattress platform and a minimal number of small parts reduce the time needed for cleaning and simple maintenance.



[02]

[01] COLUMN CONSTRUCTION
Our patented, sealed column construction prevents any foreign matter from entering the mechanical components, while allowing platform-based lateral rotation. Our unique chassis design allows for fast and effective decontamination of the undercarriage, saving hospital staff time.



Multicare[®] + Symbioso

Critical Care Bed



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