



Multicare[®]

Critical Care Bed





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Prevention of pulmonary complications



[01]



[02]

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.

[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).

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.



Origin Ports



LINET

Safe X-raying

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 contra-indication 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] 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 as well as some controlled examinations directly in the bed.



[02]

INVASIVE CARDIOLOGIC PROCEDURES IN THE BED

The insertion or localization of temporary intracardial stimulation, intra-aortic balloon contrapulsation or catheters measuring hemodynamic parameters in the pulmonary artery are examples of invasive cardiologic procedures that can be performed directly in the bed.

Automatic weighing

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.

[03] WEIGHING

The Advanced 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.

[04] CLARITY

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 vital functions of the patient are secured in this area and most of the medical devices are controlled from the head end. 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. In addition, it is easily accessible in the orthopaedic chair® position or with lowered central siderail.



[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.

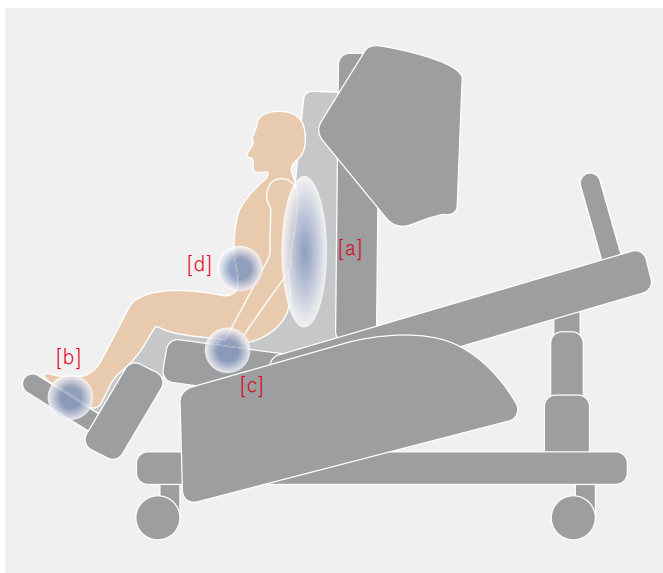
[04] HANDSET has an internal LED light for convenience during the night.

[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] FEET 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]



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60
120/70
95
15

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]



[05]



[06]



[07]

[04] PATIENT MOBILIZATION

Lateral tilt of the bed can be advantageously combined with further functional elements for active patient mobilization, which reduces the physical demands of the procedure and increases its safety. The ergonomic Mobi-Lift® handle with a button for adjusting the height of the bed and the hand-grips integrated into the sides assist in active participation of the patient in the process of standing up.

[05] 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.

[06] NURSING CARE

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.

[07] MOVING THE PATIENT TO A 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

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] MINIMAL GAPS

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 complies with the strictest requirements of safety standard EN 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 provides for 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.

[02] LATERAL TILT

Positioning of the patient by tilting the bed can help reduce excessive pressure acting on places on the patient body with high risk of pressure ulcer development. In some cases, it can take advantage as an addition to or in combination with a standard method of pressure ulcer prevention.

VIRTUOSO®

The function of the Virtuoso® active mattress is based on the principle of zero pressure alternation in air cells. In a 7.5-minute cycle, the pressure is reduced to zero in one of three neighboring cells. The Virtuoso® mattress is fully compatible with the Multicare® bed.



[01]



[02]







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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

ADVANCED WEIGHING SYSTEM

- 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 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 electromotor 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 MECHANICAL PROTECTION ELEMENTS

- horizontal protective bumpers
- siderail line bumpers

OTHER EQUIPMENT

- battery backup with state and durability indicator

Description

[01] MULTIBOARD®

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

[02] ERGOFRAME® BED SURFACE

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

[03] INTEGRATED PATIENT CONTROL

accessible in both the lying and sitting positions.

[04] THE FOOT-END OF THE BED

is adjustable by electromotors.

[05] SUPERVISOR PANEL

this is an additional control for the bed.

[06] MOBI-LIFT® HANDLE

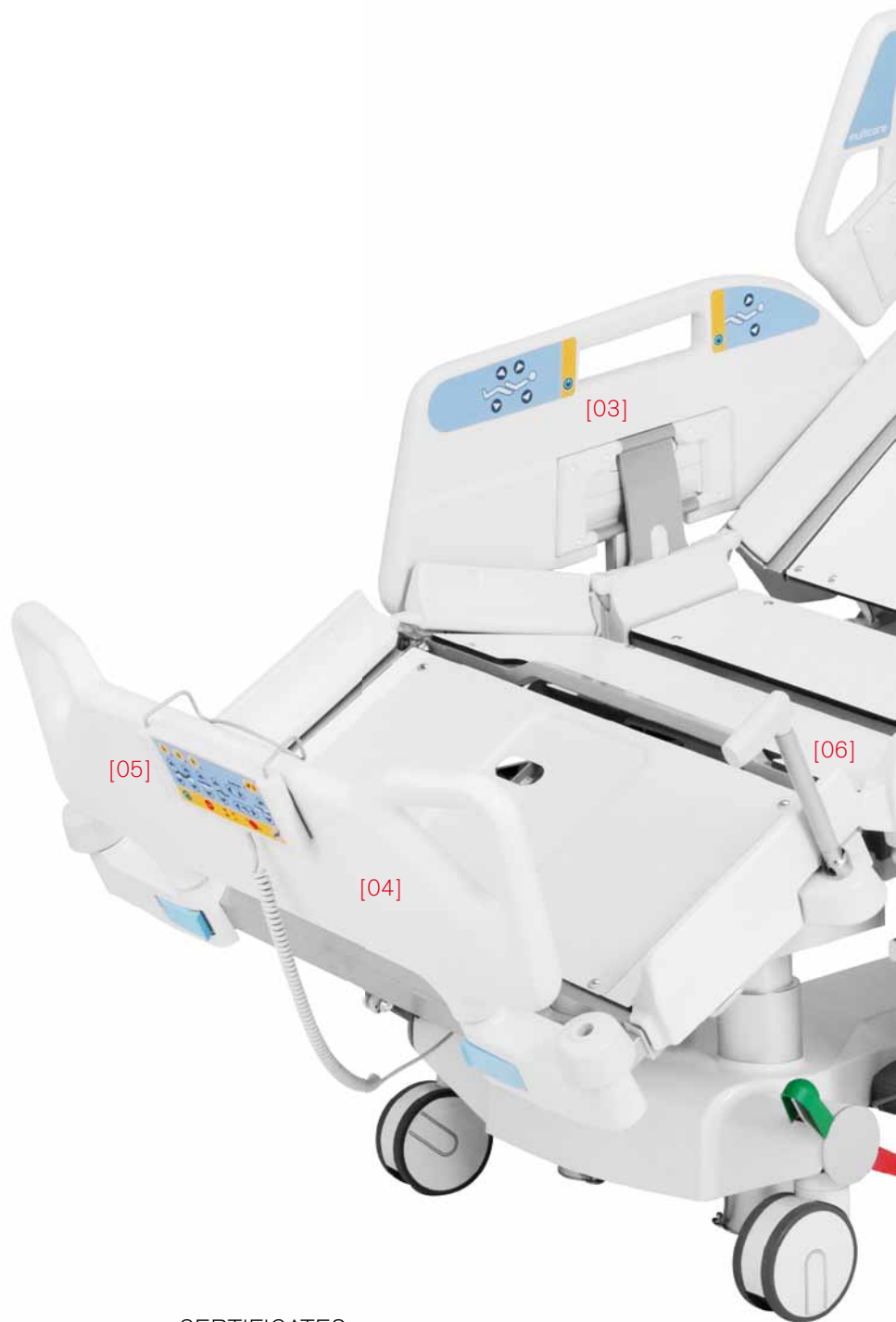
assists the patient to exit the bed safely.

[07] ANCHOR POINTS

for Segufix patient restraints.

[08] HANDSET

with 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 of the bed.

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

[11] I-BRAKE®
system of automatic braking of the chassis.

[12] SIDE HOLDER
of X-ray cassettes with position location option.

[13] CPR CONTROL HANDLE

[14] SIDERAIL CONTROL
with integrated angle-meter.

TECHNICAL PARAMETERS

- External dimensions
215×105 cm (shortest mattress platform position)
237×105 cm (longest mattress platform position)
- Mattress dimensions 208 × 86 cm
- Max. mattress height 23 cm
- Height adjustment 44–82 cm
- Lateral tilt ±30°
- TR/ATR tilt 13°/16°
- Weight (basic equipment) 210 kg
- Safe working load 250 kg

ELECTRIC PARAMETERS

- Power supply 230 V, ±10 %, 50–60 Hz
- Maximum input max. 1,6 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

Effective maintenance and service

INFECTION CONTROL

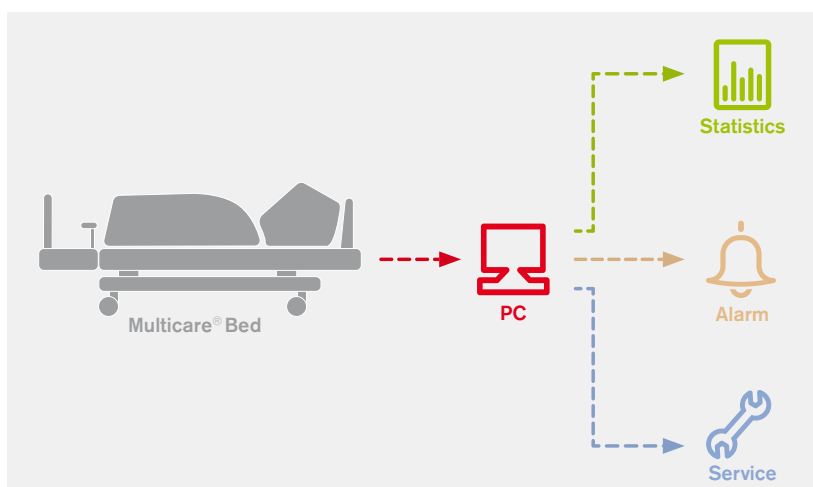


MAINTENANCE

For easy cleaning and decontamination, the bed has a minimal number of small parts, plastic parts are smooth with no fissures, sealed column construction prevents contaminated liquids from leaking into the motors.

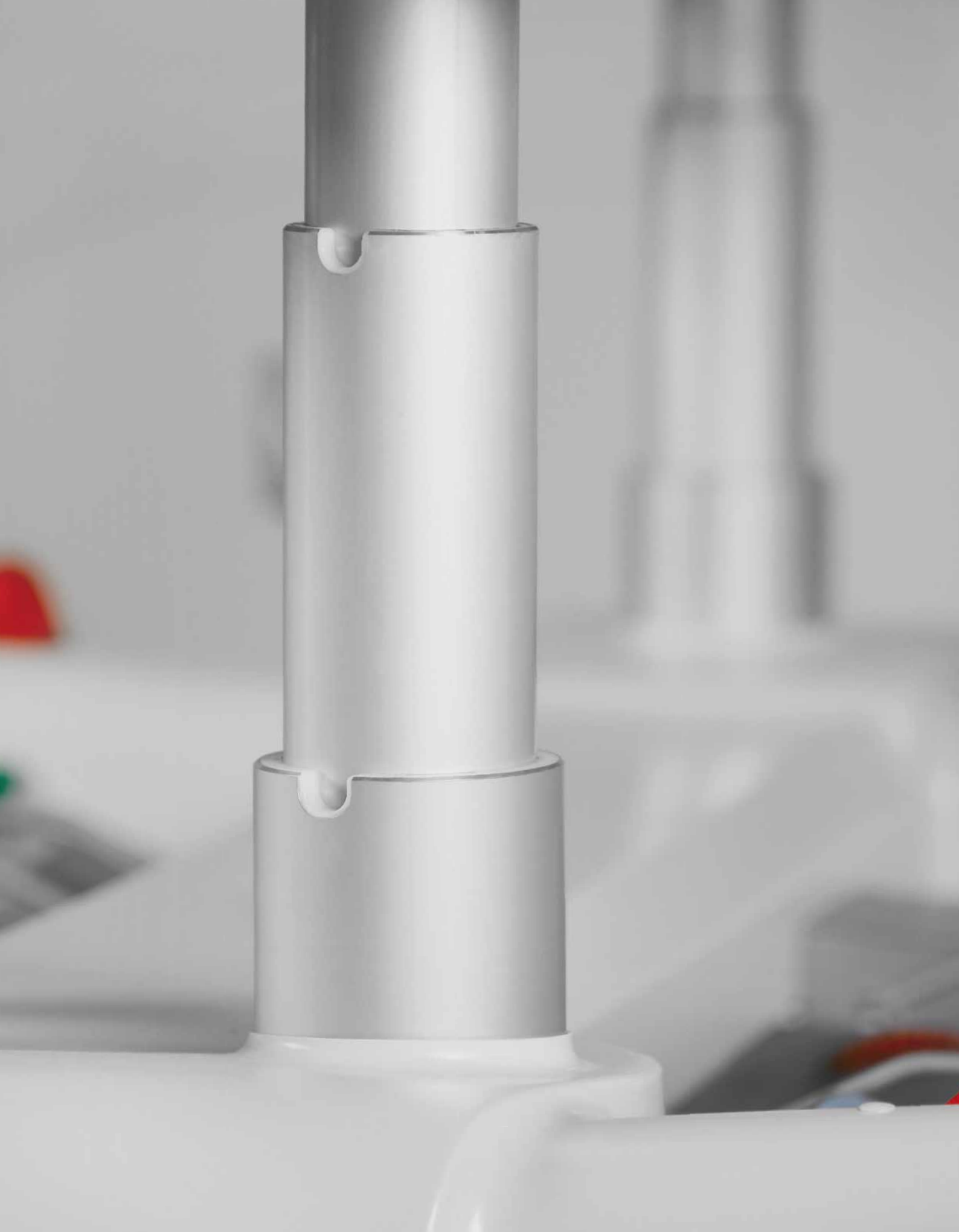
INTELLIGENT BED

The brain of the Multicare® bed is an inner electronic system controlled by several microprocessors. It guards the safety of bed operations, analyzes working situations, controls automatic systems and provides for communication with the Linis® information system.



LINIS®

The bed is able to communicate with other electronic systems. It transfers clinical and technical data to Linis® (Linet Information System) for the next assessment. It is possible to observe multiple therapeutic functions or to maintain telemetric diagnostics of the bed. Most service repairs can be completed by a technician on-site without the bed leaving the hospital.



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Critical Care Bed



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This project was realized with the financial support of the Ministry of Industry and Trade of the Czech Republic as part of the national budget