TITAN Operating table
User Manual
This is a medical product of class I according to appendix IX of the Medical Product Directive (MDD) 93/42/EEC of 14 June 1993.

The manufacturer declares that the device is compliant with the fundamental requirements according to Appendix I of MDD, and that a conformity assessment procedure is performed as required for Class I products according to Appendix VII of MDD. This is documented by the CE symbol. 

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Within the bounds of the legal requirements, the manufacturer is only then responsible for the technical safety characteristics of this apparatus if the maintenance, repairs and modifications to this apparatus are performed by him or by someone appointed by him and in accordance with his instructions.

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ATTENTION!
This user manual applies to the following sales units:

TITAN operating table ........................................ 4 544 260
Cable remote control TITAN ............................... 1 246 219
IR remote control TITAN .................................... 1 246 218
Mobile charger.................................................. 4 544 122
Wall-fitting charger 230 ................................... 4 544 123
Wall-fitting charger 24 ................................. 4 544 139
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1 Important Information

Products from TRUMPF Medizin Systeme GmbH are manufactured to give a long and trouble-free service life. Development, design and production by TRUMPF Medizin Systeme GmbH have been certified in accordance with DIN ISO 9001.

This guarantees:
- highest quality and a long service life,
- easy operation,
- functional design and
- optimisation for the intended purpose.

The TITAN operating table fulfils the requirements of the Medizinproduktegesetz MPG (Law on Medical Products) and bears the CE sign.

Please read this user manual carefully from the beginning, in order to familiarise yourself step-by-step with the many and varied functions.

A comprehensive system of electronic sensors actively ensures safety while the TITAN is being used.

Reference is made to any residual dangers at the appropriate points in the manual.

Please observe the following instructions!

1.1 Proper Use of the Equipment

The TITAN operating table, in conjunction with the stated operating table components is intended for the following purposes:
- Holding patients during the operation:
  - induction of anaesthesia
  - operation
  - recovery from anaesthesia
- Transporting the patient on the tabletop:
  - from a patient transfer unit to the operating theatre
  - from the operating theatre to the patient transfer system
- The operating table must be covered with sterile material before use.

Intended use includes following the instructions in this user manual. Any other use of the operating table is regarded as incorrect usage.

The supplier/manufacturer is not liable for damage to property or injury to persons resulting from incorrect operation of the table or putting it to an improper use.
1.2 Explanation of Symbols

Important information in this user manual is marked with symbols and keywords.

Keywords such as WARNING, CAUTION or ATTENTION indicate the level of danger involved. The symbols emphasise the message visually. Additional symbols can indicate injury hazards or danger to life and limb.

The measures to prevent dangers arising must be implemented without fail!

![WARNING!](image)

**WARNING!**
Danger to life and limb
(for example electric shock)!  
Risk of serious injuries and damage to property.

![CAUTION!](image)

**CAUTION!**
Risk of injury and damage to property.

![ATTENTION!](image)

**ATTENTION!**
Risk of damage to property.

![NOTE!](image)

**NOTE!**
Useful additional information and tips.

1.3 Safety Instructions

In critical situations during operations, it may become absolutely necessary to change the position of the patient by changing the position of the operating table (zero position, Trendelenburg) in order to aid life-saving actions.

![WARNING!](image)

**WARNING!**
Hazard to the patient!

A functional failure of the operating table cannot be completely excluded with the current commercially available state of the art. In this rare case, the motor-driven operating table functions are no longer available during the operation.

If the electrical operating table functions fail, the position of the patient can only be changed by using suitable ancillary equipment (for example placing pads underneath the patient) or by removing the patient from the operating table.
Please observe the following instructions:

**General**

- Keep a log book for medical apparatus! All services, inspections and repairs are to be documented in this book.
- All repairs must be performed in accordance with the safety regulations as per DIN VDE 0750-1/IEC 601-1!
- Within the bounds of the legal requirements, the manufacturer is only then responsible for the technical safety characteristics of this apparatus if the maintenance, repairs and modifications are performed by him or by someone appointed by him and in accordance with his instructions.
- TRUMPF Medizin Systeme GmbH is not liable for damage of any kind arising from the failure to perform inspections or through inadequate repairs, modifications or maintenance.
- The pads specially developed by TRUMPF enable the patient to be positioned in a manner that inhibits the development of pressure necroses. Trained personnel have to eliminate the residual risk by active decubitus prophylaxis when positioning the patient.
- The edges of the pads are flush when the operating table components have been attached properly.
- Take note of the danger points and risks indicated by the pictograms on the operating table.
- **Always place the operating table in the zero position before a patient is laid on the tabletop!**
- Released elements may move autonomously. Check that fixing screws are seated tightly.
- Check that all electrical and mechanical functions/parts of the operating table, including accessories are undamaged and in good working order before using them. Defective or damaged products must not be used.
- Accessories with removable pads must not be carried by the pads.

**Changing position**

**WARNING!**

Risk of tipping over!

The operating table with patient only unlock or move in compliance with the conditions on page 23!

- Secure the patient before adjusting the operating table. The patient must be actively supported when the position is adjusted.
- Every change of position, whether executed by motor power or manually, must be performed in a controlled and responsible manner.
• Pay close attention to all electrically assisted functions and movements in order to exclude the possibility of
  - a risk to the patient arising
  - damage occurring to the equipment, the operating
table top or to the furnishings.

• When approaching the zero position, inclined patient positions may become steeper than they were before the movement commenced!
  Only approach the zero position if there is no risk of collision.
  Watch the approach to the zero position carefully until the end position has been reached.

• Pay particular attention during downward movement, as the tabletop may collide with operating accessories lying below it, or it may even contact the floor if it is in an extreme position.
  In addition, beware of the risk of crushing injuries to persons.

**Electricity**

• Get a qualified electrician to check the electrical safety of the TITAN operating table and the power supply every year!
  We recommend an annual general safety check by TRUMPF Medizin Systeme GmbH customer service.

• The electrically conductive properties of the operating table top comply with the legal requirements if the pads supplied are used and properly secured.

• Please perform the recommended care and cleaning of the pads in order to maintain their electrically conductive properties as per DIN EN 60601-1.

• Always keep the storage batteries in a state of operational readiness (charged).

• The TITAN operating table may only be used with the potential equalisation connected and on an electrically conductive flooring.

• The connection for the potential equalisation line on the column head complies with DIN EN 60601-1 (VDE 0750-1).

• Power pack cable and potential equalisation line:
  - Do not crush or runover with castors!
  - Do not continue to use damaged lines or cables!
  - Remove before relocating the apparatus.

• If devices are attached to the table, they must not have any detrimental effects on safety.
  In accordance with DIN EN 60601, the regulations of the manufacturer of the device concerned must be observed when it is used on or near operating table tops (e. g. defibrillators, defibrillator monitors, high-frequency surgical devices etc.).

• The use of HF surgical devices can lead to operating functions being interrupted.
Important Information

Environmental Protection

- Dispose of all left over cleaning materials and disinfectants and any residues thereof in a safe manner which does not harm the environment!
- Utilise the facilities available for recycling batteries which are no longer serviceable.
- Ensure that this document is disposed of in a way which does not harm the environment.

Protection against Infection

- Comply with all the stipulations concerning cleaning/disinfection and sterilisation. Follow the instructions in this manual concerning cleaning, disinfection and sterilisation procedures and the substances to be used.
- The operating table and the fitments for patient positioning must be covered with sterile material before use.
- Devices and fitments must be cleaned and disinfected before being handed over to service technicians for maintenance and repair work.
- Pads which no longer fulfil the requirements concerning hygiene and protection against infection must be replaced.

1.4 Glossary

The following terms and abbreviations are used in this user manual:

<table>
<thead>
<tr>
<th>Text written in <strong>ITALICS</strong></th>
<th>Key designations and inscriptions on the equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number in brackets [50]</td>
<td>Number code for illustrations (Referencing graphics to text)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fitments</th>
<th>Head/leg sections etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column keypad</td>
<td>Operating keypad on the column</td>
</tr>
<tr>
<td>Remote control</td>
<td>Cable and IR remote control</td>
</tr>
<tr>
<td>Standard rail</td>
<td>Fixing rails for accessories</td>
</tr>
<tr>
<td>Coupling point</td>
<td>Separable joints between the fitments</td>
</tr>
<tr>
<td>AP area</td>
<td>Area subject to special conditions as per DIN VDE 0100-710</td>
</tr>
<tr>
<td>Zone M</td>
<td>Zone classification as per DIN VDE 0100-710</td>
</tr>
<tr>
<td>AP</td>
<td>Identification of the apparatus protection type for apparatus which may be used in the AP area of zone M</td>
</tr>
</tbody>
</table>
Important Information

**Two-key operation**
Press two keys at the same time in the case of
- additional equipment with motorised drive operated from the remote or manual control keypads
- selecting functions on the column keypad

**Acoustic signals**
- **Error** 1x1 s
  A continuous signal if actuation is constantly incorrect.
- **Indication** 1x0,2 s
- **Confirmation** 2x0,2 s

**Zero Position**
In the zero position
- the section elements are in a horizontal position or above the tabletop,
- the additional tabletop movement is reset to zero,
- the longitudinal displacement and tilting are in their central positions and
- the Anti-/Trendelenburg position is horizontal.

Reaching the zero position is confirmed by an acoustic signal.

**Coupling points**
Joint between the operating table top and the fitments.

**Special features**
Sections marked with * (star) are available optionally!
2 Preparatory Work

2.1 Condition on Delivery

Packaging

The TITAN operating table system is supplied in a carton on a pallet. The ordered fitments, individually packed, also lie on the pallet.

Package dimensions:
- Length: 1940 mm
- Width: 800 mm
- Height: 1250 mm

Weight:
- TITAN: 275 kg
- plus the weight of the other items in the consignment.

NOTE!

The packaging is not weatherproof. Store in accordance with the instructions in the technical data.

2.2 Unpacking

Sequence

Unpack in a room with a level floor and with sufficient free space for the apparatus to be rolled off the pallet.

Unpack in the following sequence of stages:

1. Place the pallet in a position where there is a free space of approx. 1.5 x 5 m available.

2. Open the top of the carton.

3. Pull the two-part ramp out in an upward direction and place it at the front end of the pallet.

4. Free the bottom of the carton from the pallet.

5. Pull the carton off in an upward direction.

6. Remove the delivered parts.

7. Take off the tension bands.

8. Remove the wooden chocks.
Preparatory Work

9. Press the *UNLOCK* key on the column keypad for at least 1 second.

The operating table is now unlocked.

**CAUTION!**
Risk of tipping over!
Do not allow the operating table to fall over the edge of the pallet.
Run the TITAN off the pallet and down the ramp under the control of at least two persons!

10. Move the TITAN carefully off the pallet, down the ramp and to a flat surface. Press the *LOCK* key on the column keypad for at least 1 second.

The operating table is now locked.

11. Dispose of the palette, ramp and packing material in a way that safeguards the environment.

2.3 Installation

1. Press the *UNLOCK* key on the column keypad for at least 1 second

and push the operating table to its intended location.

2. Set the TITAN down safely in its designated position.

3. Press the *LOCK* key on the column keypad for at least 1 second.

The operating table is now locked.
2.4 Connecting

**ATTENTION!**
Take note of the mains voltage!
Only connect the operating table to an AC voltage corresponding to that shown on its type plate. When disconnecting the power supply, first separate the power cable from the mains network, only then disconnect the cable from the operating table.

Connecting to the mains supply:
1. Connect the connecting pin [4.1] on the operating table via a potential equalisation cable to the potential equalisation system in the operating theatre.
2. Insert the power supply cable [4.2] into the socket on the TITAN running gear [4].
3. Insert the power cable plug into an earthed socket.
4. Check that the power supply is connected on indicator of the column keypad. The indicator [2.25] must light up.
5. Operating table is ready for use.

**CAUTION!**
Danger of tripping over!
Watch out for the power supply and potential equalisation cables, particularly in the vicinity of the operating table. Stop using any cable if it shows signs of crushing or if the insulation is damaged.
3 Charging devices for the IR remote control

The charging device is available in two designs for two different supply voltages.

- Table charger with connecting cable [5]
  4 544 122 for 230 V/50/60 Hz

- Wall-fitting charger with connecting cable [6]
  4 544 123 for 230 V/50/60 Hz
  4 544 139 for 24 V AC/DC

The table charger [5] can be placed on any table in any position. The rear side of the wall charging device [6] must be screwed to a wall with 2 screws.

The charging devices for 230 V can be used at any earthed socket. The low voltage charging device 4 544 139 is connected to a switchable 24 V supply by a plugless connecting line.

Device types 4 544 122 and 4 544 123 are disconnected from the power supply by pulling out the mains plug.

All these charging devices are maintenance free.

3.1 Charging Readiness

If the devices have been connected to the mains, a green LED [5.1]/[6.1] on the device will indicate readiness for charging.

The charging devices do not have any operating elements.

The 9 V NiMH storage battery located in the IR remote control is recharged safely and inductively (non-contact) by inserting it into the retainer pocket [5.2]/[6.2].

NOTE!
Place the IR remote control in the charger with the control side facing forwards.
4 Control Units

The following cable connected control units can be connected to the TITAN operating table:
- Cable remote control [7] or
- Foot control

The operating table can be operated by more than one control unit at the same time:
- Column keypad [2]
- IR Remote control
- Cable remote control [7] or
- Foot control

4.1 Priorities

Entries keyed into the individual control units are accepted in the following order of priority:
1. Column keypad
2. Cable remote control
3. Foot control
4. IR remote control

Simultaneously pressing several keys leads to acoustic error signals or to functions being executed in order of priority.

NOTE!
Functions are only executed if the keys are kept held down. If the key is released, the function also stops. Two key operation is necessary on the column keypad.
Exceptions: The selection of the head end can be made directly with keys REVERSE [2.1] and NORMAL [2.16].
4.2 Operating the Column

[2] Column keypad
[2.1] Select head position left -REVERSE-
[2.16] Select head position right -NORMAL-
[2.2] Indicator: head position left
[2.17] Indicator: TITAN switched on
[2.3] Longitudinal displacement to foot end
[2.18] Power-on key, green
[2.4] Back section, up
[2.19] Zero position
[2.5] Leg section, up
[2.20] Unlock operating table
[2.6] Longitudinal displacement to head
[2.21] Indicator: TITAN locked
[2.7] Leg section, down
[2.22] Lock operating table
[2.8] Back section, down
[2.23] Indicator: batteries must be recharged
[2.9] Tilting, left
[2.24] Indicator: batteries charging
[2.10] Trendelenburg
[2.25] Indicator: power supply connected
[2.11] Raise table top
[2.26] Indicator: operating fault
[2.12] Anti-Trendelenburg
[2.27] Power-off key, orange
[2.13] Lower tabletop
[2.28] Indicator: extended longitudinal displacement range
[2.14] Tilting, right
[2.29] Indicator: not in use

NOTE!
The individual functions on the column keypad can only be executed with two-key operation. Press the green ON key [2.18] and also the desired function key!
Only the head position can be selected directly.
Head position

WARNING!
Risk to the patient!
Check that the head position of the patient corresponds to that shown on the display [2.2] or [2.15]. If it does not correspond with the indicators, then you must switch over with the REVERSE or NORMAL [2.1]/[2.16] key!

If the patient is lying the other way round on the tabletop (head on the leg section end) and no end correction has been made, then the following table movements will be executed at the wrong end:

- Trendelenburg
- Tilting
- Longitudinal displacement
- Leg sections - back section

These table movements will be executed correctly after the head position has been changed over with the REVERSE [2.1] or NORMAL [2.16] key.

Operating fault

Functional disturbances are shown on a display on the column keypad of the TITAN operating table. The different colours of the display have the following meanings:

<table>
<thead>
<tr>
<th>Signal</th>
<th>Meaning</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Indicator: orange</td>
<td>Error</td>
<td>Press zero key. The operating table becomes fully functional once more when the zero position has been reached and the indicator light has gone out. Call Service if the indicator light does not go out.</td>
</tr>
<tr>
<td>- Indicator: orange</td>
<td>Operating table available for restricted use</td>
<td>Press zero key. The operating table becomes fully functional once more when the zero position has been reached and the indicator light has gone out. Call Service if the indicator light does not go out.</td>
</tr>
<tr>
<td>- Acoustic signal when</td>
<td></td>
<td></td>
</tr>
<tr>
<td>function is selected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Indicator: red</td>
<td>Error</td>
<td>Press zero key. The operating table becomes fully functional once more when the zero position has been reached and the indicator light has gone out. Call service!</td>
</tr>
<tr>
<td>- Operating table</td>
<td></td>
<td></td>
</tr>
<tr>
<td>available for</td>
<td></td>
<td></td>
</tr>
<tr>
<td>restricted use</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.3 Cable and IR remote control, 1 246 219 / 1 246 218

Connecting the cable remote control

Insert the plug [7.28] of the cable remote control into one of the connector sockets [3] next to the column keypad. The cable remote control is ready to function when the TITAN is switched on. If not, press the ON key the column keypad [2].

The cable remote control is supplied with power by the connecting cable. It does not contain any batteries.

ATTENTION!
Do not use alkaline or zinc-carbon batteries as substitutes for defective batteries! Replace with NiMH (9 V/170 mAh) batteries only! The batteries must be removed from the IR remote control, if the operation table is shut down for a longer period!

The IR remote control is supplied with power by its own battery.

Recharging the batteries

NOTE!
Place the IR remote control in the charger with the control side facing forwards.

Always insert the IR remote control into the charger after use. This ensures that the unit will be ready for use. If the green indicator on the charging device lights up, it is ready for operation.

IR number

The transmitter of the IR remote control is assigned to the receiver in the column by an infrared code.

NOTE!
There is a specific IR remote control with a matching infrared code for each column.

The column and IR remote control therefore each carry an IR number for identification. The IR number is located as follows

Column: type plate
IR remote control: rear side
These IR numbers must be identical.
Functions

The remote control provides the following functions in addition to the key assignments on the column keypad:

- Left leg section raise individually/lower individually
- Right leg section raise individually/lower individually
- Reflex position/flex position
- Traction drive head end/foot end

Key functions:

[7.1] Leg section, right, up
[7.2] Leg section, right, down
[7.3] Leg section, left, up
[7.4] Leg section, left, down
[7.5] Leg sections, up
[7.6] Leg sections, down
[7.7] Back section, up
[7.8] Back section, down
[7.9] Longitudinal displacement to foot end
[7.10] Longitudinal displacement to head end
[7.11] Anti-Trendelenburg
[7.12] Trendelenburg
[7.13] Raise table
[7.14] Lower table
[7.15] Tilting, left
[7.16] Tilting, right
[7.17] Reflex position
[7.18] Flex position
[7.19] Traction drive in foot direction
[7.20] Traction drive in head direction
[7.21] Lock operating table
[7.22] Unlock operating table
[7.23] Zero position
[7.24] Off key/shift key

Press the OFF/SHIFT key for more than 2 seconds to switch the column off with the remote control.

When the remote control is not in use, it should be hung in the holding plate on the rear side of a standard rail.
Control Units

Indicators

The green indicator on the control lights up when a key is pressed.

**Cable remote control:**
- green [7.25] = indicates key functions
- red [7.26] = column batteries flat!
- yellow [7.27] = no function

**IR remote control:**
- green [7.25] = indicates key functions
- red [7.26] = IR remote control batteries flat!
- yellow [7.27] = IR remote control batteries charging

The red indicator [7.26] lights up when a key is pressed, if the batteries are around 70 % discharged. This shows the need to recharge in good time. If the light stays on, the batteries are already heavily drained. Use the column keypad and the cable remote control!
5 Description of the Power Supply

ATTENTION!
The batteries must be removed from the column, if the operation table is shut down for a longer period!

Power supply

The electronics monitor the power supply and the charge level of the batteries in the column.

The following are monitored:
- charge level (battery voltage)
- mains power supply
- charging current
- end of charging

Meaning of the indicators:

- **BATTERIES MUST BE CHARGED [2.23]**:
  - **Lights up** when the batteries need to be recharged!
  - **Flashes when the batteries are low**. Functions are blocked, and the device switches off after 30 seconds! **Operate the TITAN operating table from the mains.**

  If indicator [2.23] lights up when the power supply is switched on, then the batteries must be checked by the service!

- **BATTERIES CHARGING [2.24]**:
  - **Lights** when the charge process starts.
  - **Flashes** after the charging has finished.

- **EXTERNAL POWER SUPPLY [2.25]**:
  - **Lights up** when the supply voltage is applied.

  The column is supplied with power from batteries if there is a power cut.

Duration of use

With a fully-charged set of charged batteries, use of the operating table functions is assured for about 1 hour (continuous operation of the electrical adjustment functions).

There is no restriction on the duration of use if the operating table is connected to an external power supply.

ATTENTION!
The electric motorised functions are blocked if the batteries are flat or very low.

Provide a power supply from the mains.
### Description of the Power Supply

#### Charging the batteries

**NOTE!**
Charge the column batteries overnight so that they are always ready for use.

Connect to the mains in order to recharge the batteries. Check indicator [2.24].

#### Maintenance Charging

Once the batteries have been recharged, the charging current is reduced to a maintenance charging current which does not damage the batteries.

#### AP Safety

**WARNING!**
Avoid electrostatic charges developing.
Only use the operating table with
- electrically conductive pads and on
- electrically conductive floors.

The TITAN operating table may be used with the built-in batteries in the area at risk of explosion in zone M.

When powered from the mains, it may only be used in the area at risk of explosion in zone M if the steps for connecting and disconnecting the mains are observed.

**Symbol:**
Device protection type AP for use in the area at risk of explosion in zone M as per DIN VDE 0100-710 (IEC 601-1).

#### Electrical Safety

If there are doubts about the condition of the power cable or potential equalisation line replace the appropriate cable immediately.

**CAUTION!**
Only operate the operating table when the potential equalisation is connected even when using the internal batteries!

Connect the operating table to the potential equalisation of the operating theatre in accordance with DIN VDE 0100-710!

The connection to the potential equalisation line is made at the pin [4.1].

This connection point is marked with the symbol for the potential line connection point.
5.1 Readiness for use with external power supply (mains)

**CAUTION!**
Danger of tripping over the power cable and the potential line!
Do not crush or runover.

**WARNING!**
Risk of explosion in the AP area!
When the operating table is powered from the mains, it may only be used in the area at risk of explosion in zone M if the following operating steps are adhered to:

**Connecting**

1. Connect the power supply cable to the socket [4.2] on the TITAN running gear [4].
   This connection point is marked with the symbol for the main supply.
2. Insert the power supply plug into an earthed socket.
3. Check that the power supply is connected on indicator of the column keypad. The indicator [2.25] must light up.

**Disconnecting**

1. Disconnect the power supply cable from the mains supply.
2. Pull the power supply cable out of the connection socket [4.2] on the TITAN running gear [4].
   This connection point is marked with the symbol for the main supply.

**ATTENTION!**
Do not perform any movements of the operating table with the electric motor while it is being disconnected from the electricity supply.
5.2 Readiness for use with internal power supply (battery)

**CAUTION!**
Danger of tripping over the potential line!
Do not crush or run over.

**Switching on**
2. Check TITAN ON [2.17] indicator. This indicator lights up when the column is switched on.

**CAUTION!**
When the operating table is switched on, the selected function is executed immediately.

**NOTE!**
Keep an eye on the indicator [2.23]!
The batteries need recharging if the indicator lights up.

**Standby**
The operating table switches to standby mode for protecting the batteries 12 hours after the last button depression.
To abort the standby mode, press and hold the OFF/SHIFT button [7.24] at the cable/IR remote control for more than 2 seconds. Indicator [2.17] flashing.
To switch ON the operating table again, press any function key on the cable / IR remote control.

**Switching off**
The TITAN operating table remains on stand-by for 5 days after the last key was pressed on a control unit. Then its electronics switch to the OFF operating state to save the batteries.
To switch OFF the operating table immediately, press and hold the OFF key [2.27] on the column keyboard for more than 2 seconds.
6 Travel Modes

**WARNING!**
Risk of tipping over!
The operating table with patient only unlock or move in compliance with the following conditions!

**Conditions for unlocking/moving**
- Lower the tabletop until the relevant pictogram has been covered by the column coverings (depends on the weight of the patient).
- Set the tilting to horizontal position
- Align spreadable leg sections parallel to the longitudinal direction of the operating table
- Remove or fold in accessories

<table>
<thead>
<tr>
<th>Patient weight</th>
<th>Lower to the</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 225 kg</td>
<td>lower pictogram</td>
</tr>
<tr>
<td>225 kg - 450 kg</td>
<td>upper pictogram</td>
</tr>
</tbody>
</table>

6.1 Free-Wheel (unlocking)

After being jacked down (brakes released), the operating table is in free-wheel mode, and can be moved to another location by hand or with the aid of the drive unit.

1. Set the tilting to horizontal position

**NOTE!**
For safety reasons, the operating table software blocks the table from being unlocked if it is tilted more than 5°.

<table>
<thead>
<tr>
<th>Column keypad</th>
<th>Remote control</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Column Control" /></td>
<td><img src="image" alt="Remote Control" /></td>
</tr>
</tbody>
</table>
2. Lower the tabletop until the relevant pictogram has been covered by the column coverings (depends on the weight of the patient).

<table>
<thead>
<tr>
<th>Patient weight</th>
<th>Lower to the</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 225 kg</td>
<td>lower pictogram</td>
</tr>
<tr>
<td>225 kg - 450 kg</td>
<td>upper pictogram</td>
</tr>
</tbody>
</table>

3. Press the UNLOCK key for at least 1 second.

<table>
<thead>
<tr>
<th>Column keypad</th>
<th>Remote control</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.18 + 2.13</td>
<td>7.14</td>
</tr>
</tbody>
</table>

The operating table is automatically jacked down by retracting the jacks [4.3] in all four wheels. An acoustic signal sounds when the end position has been reached.

In free-wheel mode, all four wheels can rotate freely around their own vertical axes.

**Emergency release**

If the TITAN operating table is jacked up and the electronics fail, the operating table can also be jacked down manually, and then shifted.

**Procedure**

1. Remove the cover [4.7] from the battery compartment on the running gear (head end).
2. Remove the crank [4.6] and insert it into the EMERGENCY RELEASE socket [4.8] at the head end of the running gear.
3. Turn the crank [4.6] anticlockwise as far as it will go.
4. Remove the crank and put it back into the battery compartment. Put the cover [4.7] back onto the running gear.
5. Operating table can be shifted.

**ATTENTION!**
The Service Dept. must be informed after the emergency release has been pressed after a fault occurs.

After being jacked down manually, the operating table also has to be manually jacked up.

Turn the crank [4.6] on the head end of the running gear clockwise as far as it will go.

### 6.2 Directional travel

Directional travel mode assists the operating table to run straight.

**Extending the wheel**
The extra wheel can be extended with both the cable and IR remote controls.

Press the **TRACTION DRIVE FOOT DIRECTION** key or **TRACTION DRIVE HEAD DIRECTION** key for at least 1 second.

The operating table is automatically jacked down by retracting the jacks [4.3] in all four wheels. At the same time, the wheel [4.5] in the centre under the running gear is extended. This wheel makes it easier to move the operating table in a straight line.

If the wheel [4.5] is down,
- the table cannot be pushed sideways.
- an acoustic signal sounds and the **TITAN LOCK** display flashes.
Travel Modes

Retract wheel

The extra wheel can be retracted either from the column key pad or from the cable or IR remote control.

Press the UNLOCK key for at least 1 second.

<table>
<thead>
<tr>
<th>Column keypad</th>
<th>Remote control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.20</td>
</tr>
<tr>
<td></td>
<td>7.22</td>
</tr>
</tbody>
</table>

The wheel [4.5] in the center under the running gear is retracted. After being jacked down, the operating table is in free-wheel mode.

Travel mode

The TITAN operating table has a drive unit for directional travel. For safety reasons, this can only be operated with the cable remote control.

If the extra wheel [4.5] has been extended, press the desired direction of travel key and keep it pressed until the operating table has arrived at its destination.

<table>
<thead>
<tr>
<th>Directional key</th>
<th>Column keypad/remote control</th>
<th>Cable remote control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head-direction</td>
<td>-</td>
<td>7.20</td>
</tr>
<tr>
<td>Foot-direction</td>
<td>-</td>
<td>7.19</td>
</tr>
</tbody>
</table>

The operating table starts moving slowly in directional travel. It reaches its maximum speed after approximately two seconds.

ATTENTION!
The drive unit only assists straight running. The operating table has to be steered manually.

After changing the head position with the REVERSE key, the direction of travel keys are also reversed.
6.3 Brake

Locking

ATTENTION!
There is a risk of the brake jack [4.3] crushing the cable.

The brake function prevents the operating table from rolling away.

The TITAN operating table can be automatically jacked up either from the column keypad or the cable or IR remote controls.

Press the LOCK key for at least 1 second.

Jacks [4.3] are extended next to all four wheels, on which the operating table now stands securely.

If the operating table is jacked up, the TITAN LOCK [2.21] display alongside the LOCK key lights up and an acoustic signal sounds.

Release

To release the brake, press one of the following buttons for at least one second:

<table>
<thead>
<tr>
<th>Column keypad</th>
<th>IR remote control</th>
<th>Cable remote control</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNLOCK</td>
<td>2.20</td>
<td>7.22</td>
</tr>
<tr>
<td>TRACTION DRIVE IN HEAD DIRECTION</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TRACTION DRIVE IN FOOT DIRECTION</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

An acoustic signal sounds when the selected function has been executed.

After releasing the brake (retraction of the jacks), the operating table can be moved, and it has the following travel modes:

JACK DOWN button - free running

TRAVELLING DRIVE button - directional travel
7 Operating Table Top

7.1 TITAN coupling points

Definition
A coupling point is a separable joint for attaching fitments to the operating table top.

It ensures
• easy assembly/disassembly,
• a secure connection without play and
• that operating tables can be put together in various ways.

CAUTION!
Always ensure that the fitments have been attached securely.
Check the fixings every time before using the equipment.

There are coupling points on all fitments.
The fitments are equipped with physically different coupling points in order to prevent combinations which are mechanically unstable.

CAUTION!
Heavy weight!
Never uncouple more than one fitment at a time!
Overview of coupling variants

The coupling points on the TITAN operating table offer variable options for attaching fitting.

The overview shows the coupling variants.

- Double clamp, wide
- Double clamp, narrow
- Single clamp
- Double clamp, narrow
- Single clamp
- Double bar, wide
- Double bar, narrow
- Single bar
- Standard rail
### Coupling

**Double clamp**

- Double clamp, wide to double bar, wide or
- Double clamp, narrow to double bar, wide/narrow:

1. Turn the locking handle to the left stop position.
   On both sides in the case of closed fitments.

2. Press the coupling points of both fitments together until the coupling point slots in.

3. Tighten the tension handle until there is no more play in the coupling point.
   Tighten both sides in case of closed fitments.

#### NOTE!

If a one-piece (closed) fitment is to be coupled turn the joints to the same angular position before coupling.

#### CAUTION!

- **Tighten hand-tight!**
- **Test the connection before use.**

### Uncoupling

**Double clamp**

#### CAUTION!

- Hold the part being uncoupled securely before pulling it out. Because of the heavy weights involved, never uncouple more than one fitment at a time.

1. Turn the locking handle to the left stop position.
   Loosen both sides in the case of closed fitments!

2. Press the locking handle upwards and, at the same time, lift the fitment slightly and pull it out.
   In the case of closed sections, press the tension handles on both sides upwards at the same time.
Coupling
Single clamp
on single bar or
on double bar - wide/narrow:

1. Loosen the tension handles completely.

2. Tilt the fitment slightly upwards and press the coupling points until both coupling points slot in.

3. Achieve tension without play by tightening the tension handles.

**CAUTION!**
Tighten hand-tight!
Test the connection before use.

Uncoupling
Single clamp

**CAUTION!**
Hold the part being uncoupled securely before pulling it out. Because of the heavy weights involved, never uncouple more than one fitment at a time.

1. Loosen the tension handle on each side completely.

2. Press the locking lever upwards on both sides and, at the same time, tilt the fitment slightly upwards and pull it out.
7.2 Components

The TITAN operating table, material no. 4 544 260, consists of the following components:

Components of TITAN, material number 4 544 260

[1] Operating tabletop
[1.1] Lower back section
[1.2] Seat section
[1.3] Coupling point leg section:
  double bar, wide
[1.4] Leg section joint
[1.5] Standard rail, seat section
[1.6] Seat section joint
[1.7] Standard rail, lower back section
[1.8] Back section joint
[1.9] Coupling point, upper back section:
  double bar, narrow
[1.10] OR support adapter
[1.11] Connector socket for electrical accessories

[2] Column keypad
[3] Connecting socket for cable remote control
[4] Running gear
[4.1] Potential connector pin
[4.2] Connection socket for supply voltage
[4.3] Jack
[4.4] Freely swivelling castors
[4.5] Castor for directional travel and traction drive
[4.6] EMERGENCY RELEASE crank
[4.7] Battery compartment cover

All fitments can be coupled in various ways, in as far as this is permitted by the coupling points.

Head end: Joint with double rail/narrow
Foot end: Joint with double rail/wide
7.3 Radiolucence

The TITAN operating table is X-ray compatible between the struts. The column area is not X-ray compatible.

7.4 Loading capacity

**Operating table**

**WARNING!**

Risk of tipping over!

The operating table may be loaded to its maximum only in compliance with the following conditions!

The load consists of the patient weight and the attached accessories.

**Conditions of operating table load up to 450 kg**

1. **Variant:**

   ![Diagram](image)

   A upper back section  
   B head section  
   C leg section  
   D head position NORMAL  
   E patient's head  
   F standard range of longitudinal displacement  
   G extended range of longitudinal displacement

   - Operating table equipment:
     - head end with upper back section (A) and head section (B)
     - foot end with a leg section (C)
   - The direction of patients on the tabletop is NORMAL (D)
     - The patient's head (E) lies on the head section (B)
   - The tabletop is within the standard range of longitudinal displacement (F)
     - (See page 40, section “Longitudinal displacement”)

**CAUTION!**

Danger of tipping over!

Do not go into the extended range of longitudinal displacement (G).

The operating tabletop stops automatically when it reaches the head end limit position of the standard range of longitudinal displacement.
Conditions of operating table load up to 450 kg

2. Variant:

- Operating table equipment:
  - head side with, at most, the upper back section (A) and head section (B)
  - foot end with seat section extension (H) and leg section (C)
- The direction of patients on the tabletop is NORMAL (D)
- The tabletop must be at the head end limit position (I) of the standard range of longitudinal displacement (F)

(See page 40, section „Longitudinal displacement“)

CAUTION!
Danger of tipping over!
Do not go into the extended range of longitudinal displacement (G).
The operating tabletop stops automatically when it reaches the head end limit position of the standard range of longitudinal displacement.
Conditions of operating table load up to 225 kg

- Maximum operating table equipment:
  - head end with upper back section (A) and head section (B)
  - foot end with seat section extension (H) and leg section (C)
- the direction of patients on the tabletop is NORMAL (D)

If the operating table is equipped in a different manner or the patient is in a different position then the maximum patient weight is 160 kg.

NOTE!
The extended range of longitudinal displacement (G) can be entered with the following buttons:

<table>
<thead>
<tr>
<th>Adjustments</th>
<th>Remote control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement toward the headend</td>
<td>7.22 + 7.10</td>
</tr>
</tbody>
</table>

WARNUNG!
Irrespective of the maximum tabletop load, do not exceed the loading capacity, and only use the coupled section segments and accessories for their intended purposes. The values can be found in the relevant Instructions for Use.
Operating Table Top

Standard rails

WARNING!
Risk of tipping over!
Irrespective of the permissible loads of the individual standard rails, to conform with the specifications for use of the operating table, the total moment on one side around the longitudinal axis of the operating table must not exceed 150 Nm.

Before transporting the operating table TITAN with patient:
- align spreadable leg sections parallel to the longitudinal direction of the operating table
- remove or fold in the accessories

CAUTION!
Do not exceed the loading capacity of the standard rails.

Standard rail, seat section: 150 Nm
Standard rail, back section: 150 Nm
Standard rail, leg section joint: 150 Nm

Patient positioning

CAUTION!
The patient's extremities must not hang over the end of the operating table.

Normal position [A]:
The head of the patient lies at the head end of the tabletop.
Reverse position [B]:
The head of the patient lies at the foot end of the tabletop.

CAUTION!
Take note of the head position of the patient and the displays on the column keyboard. See page 15, section „Head position”.
7.5 Table top settings

The seat and back sections form a unit and can be adjusted by using the control units. They have coupling points for additional fitments.

Important settings and positions of the tabletop are monitored by sensors and evaluated.

**CAUTION!**

Every time before the TITAN operating table is used, the potential equalisation cable must be plugged into the potential equalisation connector and the other end connected to the potential equalisation in the operating theatre.

**DANGER!**

Risk of jamming and collision!

Watch all motorised movements carefully right up until the end position! If the operating table is fully fitted-out, not all table and coupling variants are recognised by the electronics. Therefore, the risk of collisions cannot be completely excluded.

Take care of all attached accessories in the column area when adjusting the position of any part of the table.

When adjusting the tabletop, press the relevant function key on a control unit only until the desired position has been reached.

**Zero position**

The run-up to the zero position means:
- Motor-driven joints which have been set downwards are automatically brought back into the starting position (joints straight).

**ATTENTION!**

Danger of collision!

Before going to the zero position, ensure thatspreadable leg sections or accessory items coupled to the leg section joint are not lying one above the other.

**Standard**

**ATTENTION!**

Section segments angled above the horizontal remain in their positions.

- The additional tabletop lift is reset to zero (no additional lift).
- Any Trendelenburg or Anti-Trendelenburg angle is returned to the horizontal.
- A tilted position is returned to the horizontal.
- The longitudinal displacement is brought into its starting position.
Optional

If the leg sections and the back section are above the zero position, they can also be optionally included in the zero positioning process.

The section elements which are angled upwards are brought into the zero position at the end of the zero positioning.

NOTE!
The corresponding option must be set by TRUMPF Service.

Adjustment

CAUTION!
Hazard to the patient! Monitor the patient’s position. When approaching the zero position, inclined patient positions may become steeper than they were before the movement commenced.

The zero position can be approached by pressing the following key(s) on one of the operating units:

<table>
<thead>
<tr>
<th>Adjustment</th>
<th>Column keypad</th>
<th>Remote control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero position</td>
<td>2.18 + 2.19</td>
<td>7.23</td>
</tr>
</tbody>
</table>

Reaching the zero position is confirmed by an acoustic signal.

Tilting

When the tilting function is actuated, the tabletop tilts to the left or right around its longitudinal axis at a speed of 1 °/s. The adjustment range of ± 25 degrees is monitored and restricted by sensors.

The tilting position can be approached by pressing the following key(s) on one of the operating units:

<table>
<thead>
<tr>
<th>Adjustment</th>
<th>Column keypad</th>
<th>Remote control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilting left</td>
<td>2.18 + 2.9</td>
<td>7.15</td>
</tr>
<tr>
<td>Tilting right</td>
<td>2.18 + 2.14</td>
<td>7.16</td>
</tr>
</tbody>
</table>

NOTE!
Tilting cannot be selected in travel mode (directional travel or free wheeling).
Anti-/Trendelenburg

When the Trendelenburg/Anti-Trendelenburg function is actuated, the tabletop turns around its transverse axis to the foot/head end at a speed of 2 °/s. The adjustment range of ± 40 degrees is monitored and restricted by sensors.

The Anti-/Trendelenburg position can be approached by pressing the following key(s) on one of the operating units:

### Adjustment | Column keypad | Remote control
--- | --- | ---
Anti-Trendelenburg | 2.18 + 2.10 | 7.11
Trendelenburg | 2.18 + 2.12 | 7.10

**NOTE!**
The Trendelenburg adjustment range is restricted if there is a steep tilt. This tilt must be reduced in order to obtain a steeper Trendelenburg position.

Raise/lower table

The complete tabletop is moved upwards or downwards with the raise/lower table function. Raise/lower table is made up of a main motion of 400 mm and an additional lift of 100 mm.

The adjustment ranges are monitored and restricted by sensors. Adjustment speeds: 
- Main motion: 10 mm/s
- Additional lift: 5 mm/s

A specific height can be approached by pressing the following key(s) on one of the operating units:

### Adjustment | Column keypad | Remote control
--- | --- | ---
Raise tabletop | 2.18 + 2.13 | 7.14
Lower tabletop | 2.18 | 7.13
Operating Table Top

Longitudinal displacement

When the longitudinal displacement is actuated, the tabletop shifts toward the foot or head end at a speed of 12 mm/s.

The longitudinal displacement (300 mm) consists of a standard range of 230 mm and an extended range of 70 mm in the direction of the head.

The adjustment ranges are monitored and restricted by sensors.

NOTE!
The longitudinal displacement is restricted or prevented in certain positions.

### The longitudinal displacement is restricted when

<table>
<thead>
<tr>
<th>Adjustment</th>
<th>To make further adjustments</th>
</tr>
</thead>
<tbody>
<tr>
<td>The tabletop is steeply inclined (Anti-/Trendelenburg) (depending upon the load)</td>
<td>Reduce the inclination of the table top</td>
</tr>
<tr>
<td>The leg sections are angled downwards</td>
<td>Set the section segment(s) upwards</td>
</tr>
<tr>
<td>The back section is angled downwards</td>
<td></td>
</tr>
</tbody>
</table>

Standard range

The longitudinal displacement can be adjusted by pressing the following key(s) on one of the operating units:

<table>
<thead>
<tr>
<th>Adjustments</th>
<th>Column keypad</th>
<th>Remote control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement toward the foot end</td>
<td><img src="image" alt="2.18" /> + 2.3</td>
<td><img src="image" alt="7.9" /></td>
</tr>
<tr>
<td>Displacement toward the head end</td>
<td><img src="image" alt="2.18" /> + 2.6</td>
<td><img src="image" alt="7.10" /></td>
</tr>
</tbody>
</table>

NOTE!

If the patient is in the reverse position (REVERSE - the maximum patient weight is 160 kg), the longitudinal displacement is unrestricted into the extended range.
Extended range

**WARNING!**
Risk of tipping over!
The extended range of longitudinal displacement may only be used if the patient's weight does not exceed 225 kg!

When the tabletop has reached the head end limit position of the standard range of longitudinal displacement, the tabletop can be moved further 70 mm toward the head end by pressing the following keys on the remote control.

<table>
<thead>
<tr>
<th>Adjustments</th>
<th>Column keypad</th>
<th>Remote control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement toward the head end</td>
<td>-</td>
<td><img src="7.22" alt="7.22" /> + <img src="7.10" alt="7.10" /></td>
</tr>
</tbody>
</table>

The display [2.28] on the column keypad lights up when the tabletop is in the extended range.
The lower back section [1.1] is permanently attached to the seat section [1.2] by a motorized joint [1.6].

When the back section function is actuated, the lower back section, together with any coupled functional accessories, moves up or down at a speed of 2.5 °/s. The adjustment range of + 85 degrees/- 45 degrees is monitored and restricted by sensors.

The range of downward adjustment is restricted if the BACK SECTION DOWN function is selected while the tabletop is displaced toward the foot end.

The upper back section can be adjusted by pressing the following key(s) on one of the operating units:

<table>
<thead>
<tr>
<th>Adjustment</th>
<th>Column keypad</th>
<th>Remote control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back section, up</td>
<td>2.18 + 2.4</td>
<td>7.7</td>
</tr>
<tr>
<td>Back section, down</td>
<td>2.18 + 2.8</td>
<td>7.8</td>
</tr>
</tbody>
</table>

**NOTE!**

When the back section is lowered from a position above the horizontal it automatically stops at the zero position.

To lower below the zero position, briefly release the function key and press it again.
Fitments (typically an upper back section) coupled to the back section joint [1.8] can be set manually into the desired angled position.

Range of adjustment:
- upwards: + 90° in steps of 6.9°
- downwards: - 55° in steps of 6.9°

The size of the angular adjustment steps is determined by the gear toothing.

Adjustment

1. **ATTENTION!**
   - Do not attempt to make any single joint adjustments with one-piece section segments.
   
   Press the locking lever [1.11].

2. **CAUTION!**
   - Hazard to the patient!
   - Support the section segment you are going to adjust before opening the cam handle.

   Pull the cam handle(s) [1.12] outwards.

3. Move the section segment upwards or downwards into the desired position.

   **ATTENTION!**
   - Pay attention to the gear teeth!
   - The teeth must mesh (not tooth on tooth)!
   - Bring both sides to the same angled position for one-piece functional accessories.

4. Push the cam handle(s) [1.12] inwards.

5. Check whether the locking lever [1.11] has slotted in!

**NOTE!**
- The sections are horizontal when the marked lines are aligned.
Both leg section joints [1.3] are motor driven and can be adjusted individually (only with cable or IR remote control) or together (with column keypad, cable or IR remote control).

ATTENTION!
Risk of collision!
Watch all motorised movements carefully. When the leg sections are moved downwards there is a risk of collision with the column and running gear, especially in Trendelenburg and tilted positions.

Sensors on the motorized, adjustable coupling point check whether a closed section (one-piece) is attached. If this is the case, the adjustment of an individual joint is blocked. Nevertheless, individual joint adjustment should not be selected.

The leg section joints are adjusted up or down at a speed of 3 °/s. The adjustment range of ± 90 degrees is monitored and restricted by sensors.

The range of downward adjustment is restricted if the LEG SECTION[S] DOWN function is selected while the tabletop is displaced toward the head end.

The leg section joints can be adjusted by pressing the following key(s) on one of the operating units:

<table>
<thead>
<tr>
<th>Adjustment</th>
<th>Column keypad</th>
<th>Remote control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leg section, up</td>
<td>2.18</td>
<td>2.5</td>
</tr>
<tr>
<td>Leg section, left, up</td>
<td>-</td>
<td>7.3</td>
</tr>
<tr>
<td>Leg section, right, up</td>
<td>-</td>
<td>7.1</td>
</tr>
</tbody>
</table>
Exchanging sections

Replacing two sections with a one-piece section.

1. Bring both leg sections into a position above the zero position.
2. Lower the leg sections until both sections stop in the zero position with an acoustic signal.

**NOTE!**
A one-piece section can only be coupled to the leg section joints [1.3] if both coupling points are at the same setting angle.

The optimal setting angle is when the joints are horizontal (zero position).

3. Remove the leg sections and attach a one-piece section.

When the leg sections are below the zero position, both leg section joints can be moved into the horizontal position with the ZERO POSITION key.

**CAUTION!**
When approaching the zero position, the - lowered back section, - lift, - tilting, - Trendelenburg/Anti-Trendelenburg and - longitudinal displacement are also adjusted.
Flex/Reflex

In the Flex position, the ANTITRENDELENBURG and the BACK SECTION DOWN functions are executed together. The adjustment procedure stops when the first end position is reached.

The Reflex adjustment is similar. The TRENDELENBURG and BACK SECTION UP functions are executed simultaneously. The adjustment procedure stops when the first end position is reached.

The Flex/Reflex position can only be adjusted on the cable or IR remote control. Press the appropriate function key on a control unit until the operating table reaches the desired position.

<table>
<thead>
<tr>
<th>Adjustment</th>
<th>Column keypad</th>
<th>Remote control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero position</td>
<td><img src="image" alt="2.18" /> + <img src="image" alt="2.19" /></td>
<td><img src="image" alt="7.23" /></td>
</tr>
</tbody>
</table>

7.6 Using electrical equipment

Connecting socket

The connection socket [1.11] for additional electrical equipment, e.g. motorized seat section extension, is located on the column under the seat section.

ATTENTION!
The socket [1.11] only serves for connecting electrical auxiliary equipment.
8 Care, Cleaning and Disinfection

CAUTION!
Remove the power plug before starting all care, cleaning or disinfecting work! Ensure that no motorised movements can take place.

ATTENTION!
Do not use cleansers or disinfectants that are:
- abrasive,
- erosive,
- contain halogens or
- peracetic acid!

8.1 Control units and charging devices

Care
The care of the control units and charging devices is limited to regular cleaning/disinfection by wiping (not immersing!) with suitable substances.

Cleaning
The following cleaners are permitted:
- for plastic parts
  All-purpose cleansers on a weak alkaline base
  (active cleaning ingredients: tensides and phosphates)

Disinfection
All commercially available substances conforming with the requirements of the hygiene regulations in the hospital.

8.2 Column/running gear

Care
The table top should be raised to its highest position for regular cleaning/disinfection of the column.

Cleaning
NOTE!
Raise the tabletop to its highest position. This opens the expansion bellows and exposes the sheet metal coverings thus making them easier to clean.

The following cleaners are permitted:
- Stainless steel parts
  All commercially available stainless-steel cleansers.
- Plastic parts/pads
  All-purpose cleansers on a weak alkaline base
  (active cleaning ingredients: tensides and phosphates)

Disinfection
All commercially available substances conforming with the requirements of the hygiene regulations in the hospital.
8.3 Operating table top

Care
The care of the tabletop is limited to regular cleaning/disinfection with suitable substances.

Cleaning
ATTENTION!
Do not use cleansers that are:
- abrasive,
- erosive,
- contain halogens
- peracetic acid or
- alcohol!

The following cleansers are permitted:

- Stainless steel parts
  All commercially available stainless-steel cleansers.

- Plastic parts/pads
  All-purpose cleansers on a weak alkaline base
  (active cleaning ingredients: tensides and phosphates)

Disinfection
All commercially available substances conforming with the requirements of the hygiene regulations in the hospital.
9 Technical data

9.1 Conditions for Operation, Storage and Transport

Temperature
- Operation: +10 °C to +40 °C
- Storage: -15 °C to +55 °C

Air humidity
- Operation: 20 % to 80 %
- Storage: 5 % to 95 %

Air pressure
- min. 700 mbar to 1000 mbar

NOTE!
The lead gel batteries must be removed from the column, if the operation table is shut down for a longer period. If the infrared remote control is used, the 9 V/170 mAh NiMH battery is to be removed.

9.2 TITAN operating table

Dimensions
- Height (without pads): 630 mm to 1130 mm
- Length (without leg and head sections): 957 mm
- Width (with standard rail): 600 mm

Main motion
- 400 mm (10 mm/s)

Additional motion
- 100 mm (5 mm/s)

Trendelenburg
- ± 40° (2 °/s)

Tilting
- ± 25° (1 °/s)

Longitudinal displacement
- Standard range: 230 mm (12 mm/s)
- Extended range: 70 mm (12 mm/s)

Back section
- ± 85°/- 5° (2,5 °/s)

Leg section
- ± 90° (3 °/s)

Weight
- 275 kg

Maximum patient weight
- 160 kg (maximum of 450 kg when conditions under „Loading capacity” are observed)

Power supply, internal (I.P.S)
- three batteries, 12 V/10 Ah

Power supply, external
- 230 V~, 50 Hz

Power input
- max. 1.2 A at 230 V

Power plug
- earthing plug with double earthing system,
  3 m connecting cable
## Technical data

### Classification

<table>
<thead>
<tr>
<th>Protection class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Device with internal power supply I.P.S</td>
</tr>
</tbody>
</table>

### Degree of protection against electric shock

- User part type B
- Patient leakage current as per CF according to EN 60601-1

### Degree of protection against water penetration

- IP X4 in mains operation IP X2

### Degree of protection when used in proximity to inflammable mixtures

- Class AP in battery operation. In mains operation, the operating table can only be used in areas at risk of explosion if the sequence of steps described in this user manual is followed exactly.

### Mode of operation

- Continuous running with intermittent loading (DBAB)
  - 2 min ON, 8 min OFF

### Charging devices

**4 544 122 / 4 544 123**

<table>
<thead>
<tr>
<th>Operating voltage</th>
<th>230 V, 50/60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power consumption with control unit</td>
<td>max. 4 VA</td>
</tr>
<tr>
<td>Oscillator frequency</td>
<td>about 30 kHz</td>
</tr>
<tr>
<td>Fuse protection</td>
<td>miniature fuse 32 mAT</td>
</tr>
<tr>
<td>Battery charging current</td>
<td>12 … 18 mA</td>
</tr>
</tbody>
</table>

**4 544 139**

<table>
<thead>
<tr>
<th>Operating voltage</th>
<th>24 V AC, 50/60 Hz, 24 V DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power consumption with control unit</td>
<td>max. 3,5 VA with AC, max. 2 W with DC</td>
</tr>
<tr>
<td>Oscillator frequency</td>
<td>about 30 kHz</td>
</tr>
<tr>
<td>Fuse protection</td>
<td>miniature fuse 250 mAT</td>
</tr>
<tr>
<td>Battery charging current</td>
<td>12 … 18 mA</td>
</tr>
</tbody>
</table>

### Classification

<table>
<thead>
<tr>
<th>Protection class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td></td>
</tr>
</tbody>
</table>

### Degree of protection against water penetration

- IP X4

### Degree of protection when used in proximity to inflammable mixtures

- no AP safety regulations

### Mode of operation

- continuous operation
9.4 Fitments and operating table components

- Head section, simple ........................................ 4 549 104
- Head section, double joint ............................... 4 549 105
- Head section one hand operation, Comfort ........ 4 549 151
- Head section double joint, Comfort .................... 4 549 152
- Head section 530, double joint ......................... 4 549 601
- Support adapter for head positioning ................. 4 544 785
- Upper back section ........................................ 4 549 101
- Table top segment 130 .................................. 4 549 339
- Shoulder adapter ........................................... 4 544 103
- Ophthalmology adapter .................................. 4 549 127
- Ophthalmology adapter special receptacle ........ 4 549 176
- Motorised basic holder ................................... 4 549 525
- Seat section extension JUPITER, motor-driven .... 4 544 102
- Seat section extension JUPITER/MARS ................. 4 549 106
- Seat section extension TITAN ......................... 1 268 088
- Orthobank adapter ......................................... 4 544 156
- Leg section two-piece .................................... 4 544 109
- Leg section two-piece, simple ......................... 4 544 110
- Leg section two-piece, long ............................. 4 544 153
- Leg section two-piece .................................... 4 549 184
- Leg section short, two-piece ......................... 4 549 185
- Leg section short, one-piece .......................... 4 549 186
- Leg section four-piece .................................. 4 549 188
- Leg section two-piece, spreadable .................... 4 549 189
- Leg section light one-piece ............................ 1 244 485
- Pad for leg section light one-piece ................... 1 245 386
- OR adapter TITAN .......................................... 1 259 051

CAUTION!
The maximum loading capacity of the standard rail and the coupling point must not be exceeded!

CAUTION!
Danger of collisions!
Take care of all attached accessories when adjusting the position of any part of the table.
## Troubleshooting

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Cure</th>
</tr>
</thead>
<tbody>
<tr>
<td>No response to key press</td>
<td>Device not switched on</td>
<td>Press ON [2.18] key on the column</td>
</tr>
<tr>
<td>Device cannot be switched on</td>
<td>Batteries flat</td>
<td>Operate device from mains, recharge batteries</td>
</tr>
<tr>
<td>No response on column keypad</td>
<td>ON key not also pressed (Two-key operation)</td>
<td>Press the ON [2.18] key and the desired function key simultaneously</td>
</tr>
<tr>
<td>No movement on key press, only acoustic error signal</td>
<td>Function is not possible at the moment or is not permitted</td>
<td></td>
</tr>
<tr>
<td>No response to key press, [2.23] indicator flashing</td>
<td>Batteries flat</td>
<td>Operate device from mains and recharge batteries</td>
</tr>
<tr>
<td>Device cannot be charged, indicator [2.24] not lit</td>
<td>The charge process will only start 5 minutes after the last keystroke. Control electronics or mains fuse are defective when the indicator does not light at that time.</td>
<td>Call service</td>
</tr>
<tr>
<td>Leg sections cannot be moved far enough downwards</td>
<td>Longitudinal displacement too far to the head end</td>
<td>Move longitudinal displacement towards foot end</td>
</tr>
<tr>
<td>Back section cannot be moved far enough down</td>
<td>Longitudinal displacement too far to the foot end</td>
<td>Move longitudinal displacement towards head end</td>
</tr>
<tr>
<td>Leg and back sections do not stop at zero on the way up</td>
<td>OK, they should only stop when coming down</td>
<td></td>
</tr>
<tr>
<td>Beeps during table top travel</td>
<td>Sensor error</td>
<td>Call service</td>
</tr>
<tr>
<td>Beeping during zero positioning when leg sections move toward each other</td>
<td>Possible risk of collision, if leg sections are crossed over (warning signal)</td>
<td>OK (no error)</td>
</tr>
<tr>
<td>In the upper position, the leg and back sections are not set into horizontal positions with the ZERO POSITION key</td>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>Table top functions do not allow movement or only in “zero” direction. MALFUNCTION indicator flashing.</td>
<td>Error in motor positioning</td>
<td>press either the ZERO POSITION key, or the corresponding function key to travel over the zero reference point; for longitudinal movement, first move the leg and back plates to the positive range</td>
</tr>
<tr>
<td>Trendelenburg not available to 40°</td>
<td>Tilt setting too great</td>
<td>Reduce tilting</td>
</tr>
<tr>
<td>Tilting not available to 25°</td>
<td>Trendelenburg setting too great</td>
<td>Reduce Trendelenburg</td>
</tr>
</tbody>
</table>
### Troubleshooting

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Cure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating table cannot be jacked down</td>
<td>Tilt not in horizontal position (&lt; 5°)</td>
<td>Set tilt to horizontal position</td>
</tr>
<tr>
<td>Tilt cannot be readjusted to more than 5° when the operating table is jacked up.</td>
<td>OK - tilt is locked in travel mode for safety reasons</td>
<td>Jack up the operating table</td>
</tr>
<tr>
<td>Operating table travelling drive does not work by cable remote control</td>
<td>Mains cable connected to operating table</td>
<td>Disconnect the operating table from the mains supply</td>
</tr>
<tr>
<td>Operating table travelling drive does not work by IR remote control</td>
<td>OK - for safety reasons, the travelling drive can only be selected via the cable remote control</td>
<td>Use cable remote control</td>
</tr>
</tbody>
</table>
11 Service and Maintenance

For service work and repairs, please contact:
TRUMPF Medizin Systeme GmbH, Service.

Phone +49 3671 586-172
+49 3671 586-176
Telefax +49 3671 586-175

The operating table must be serviced once per year.

We only permit our products to be maintained and serviced by trained service personnel.

Using TRUMPF Medizin Systeme service experts will ensure that our products will give you many years of consistent, reliable service.

We recommend that you take out a service contract with TRUMPF Medizin Systeme GmbH!

12 Scrap disposal

Components must always be disposed of in a way that protects the environment, that is it must be done in accordance with the currently valid legal regulations.

Metals
Dispose of as scrap metal, sorted according to type.

Plastics
Dispose of through a plastic recycling scheme.

Electrical- and Electronic Parts
Dispose of according to the materials concerned:
- Cabling materials Scrap metal
- Circuit boards Electronic scrap
- Batteries Lead scrap
Overview: TITAN operating table

Components of TITAN, material number 4 544 260

1. Operating tabletop
1.1. Lower back section
1.2. Seat section
1.3. Coupling point leg section:
   double bar, wide
   Potential connector pin
1.4. Leg section joint
1.5. Standard rail, seat section
1.6. Seat section joint
1.7. Standard rail, lower back section
1.8. Back section joint
1.9. Coupling point, upper back section:
   double bar, narrow
1.10. OR support adapter
1.11. Connector socket for electrical accessories

2. Column keypad
3. Connecting socket for cable remote control
4. Running gear
4.1. Potential connector pin
4.2. Connection socket for supply voltage
4.3. Jack
4.4. Freely swivelling castors
4.5. Castor for directional travel and traction drive
4.6. EMERGENCY RELEASE crank
4.7. Battery compartment cover