DESIGNED, ENGINEERED AND MANUFACTURED SINCE 1980

MADE IN GERMANY

THRONUS T3 OPERATING CHAIR

USER GUIDE

BRUMABA

OPERATING TABLE SYSTEMS

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Thank you

With the BRUMABA Thronus T3, you have purchased a comfortable and versatile operating chair made of solid stainless steel, which was designed specifically for use in the operating room and adapts to any requirement of daily operating routine. Due to its segmented construction, the operating chair can be easily adapted to the figure and optimum working position of the surgeon.

Information on the user guide

This user guide enables safe and efficient handling of the operating chair. The user guide is part of the operating chair and must be kept in the immediate vicinity of the operating chair where it is readily accessible to staff at any time.

Before beginning any work, staff have to thoroughly read and anderstand the user guide. If you have any questions, you can contact the BRUMABA customer service. Prerequisite for safe operation is compliance with all the safety notes and instructions contained in this user guide.

Furthermore, the local health and safety regulations as well as general safety regulations for the area of application of the operating chair have to be observed.

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Customer service

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INTENDED USE

1. Intended use

The BRUMABA Thronus T3 may only be used for its intended purpose and in accordance with this user guide.

The operating chair can only be used for procedures, surgeries, treatment and examination of humans. The operating chair may only be used by the surgeon, doctor or therapist as seating with armrest for the treatment of patients. There is no body contact between the patient and the operating chair. The operating chair may only be used for the intended operating theatres, doctor's offices and treatment rooms.

The operating chair may only be used by persons with a maximum weight of 330 lbs (150 kg).

Only BRUMABA accessories may be used in combination with the operating chair.

The intended use also implies that all instructions in this user guide have to be adhered to. Any use beyond the intended use is regarded as misuse.

WARNING!

Danger in case of misuse!

- **Never use the operating chair for anything other than what is stated above.**
- **The operating chair may never be used by heavy persons.**
- **Only BRUMABA accessories may be used in combination with the operating chair.**

Misuse of the operating chair may lead to dangerous situations.

1.1. Expected service life

The expected service life of the products described in this user guide is of 10 years, provided that they are used according to the intended use and that the safety instructions, maintenance intervals and instructions for care are observed.

The product may only be used for more than 10 years if it is in safe condition. In this case, perform maintenance every 6 months.

Special demands placed on the product as a consequence of how the operator uses it may call for shorter maintenance intervals.

2. Safety
2.1. Symbols used in this user guide

Safety instructions

This user guide uses symbols to highlight safety instructions and warnings.
The signal words indicate the degree of risk.

DANGER!

**This combination of symbol and signal word indicates a dangerous situation.
Ignoring these warnings will lead to serious injury or even death.**

WARNING!

**This combination of symbol and signal word indicates a dangerous situation.
Ignoring these warnings may cause serious injury or even death.**

CAUTION!

**This combination of symbol and signal word indicates a dangerous situation.
Ignoring these warnings may cause slight injury or impairment.**

NOTE

This signal word indicates a passage in the text that contains important information, but is not associated with a dangerous situation.

Safety notes in instructions

Some safety notes refer to specific, individual actions. They are embedded in the respective instructions to avoid interrupting the flow of reading while carrying out that particular set of actions. The signal words described above are used.

Example:

➲1. Loosen the screw.

➲2. **CAUTION! Risk of entrapment in the lid!**
Close the lid carefully.

➲3. Tighten the screw.

Tips and recommendations

ⓘ This symbol highlights useful tips and recommendations as well as information for efficient, error-free operation.

2.2. Staff requirements

WARNING!

Danger of injury when used by staff with a lack of qualifications!

- **All tasks may only be performed by qualified staff.**
- **Keep unqualified staff away from the operating chair.**

If unqualified staff performs tasks on the operating chair or are in the danger zone of the operating chair, this leads to dangers that may result in severe injury and significant material damage.

In this user guide, the qualifications of staff for different areas of use are stated as follows:

Trained medical specialist staff
Trained medical specialist staff are trained for the special tasks they perform. Trained medical specialist staff know the content of all terms, guidelines and standards that apply to the safe use of the device and can implement the requirements stated in these.

Furthermore, medical specialist staff can safely perform the tasks due to the briefing with this user guide and the medical specialist training and experience. The staff is also able to recognise, assess and avoid possible dangers to themselves or patients.

In addition, the medical specialist staff of BRUMABA or a dealer authorized by BRUMABA are trained for the use of the operating chair. The contents of this training also comprise the functions and the accessories of the operating chair.

Medical specialist staff have the necessary knowledge about each area of use of the device and conscientiously adhere to all sanitary regulations for medically used rooms and the usage of medical products.

Manufacturer or authorized service technician
Certain tasks may only be performed by BRUMABA specialist staff or a service technician that has been authorized by BRUMABA. Other staff is not allowed to perform these tasks. Contact our customer service for the performance of these tasks as they arise.

Only persons that can be expected to perform the tasks reliably are allowed as staff. Persons with impaired ability to react, for example due to drugs, alcohol or medication, are not authorized.

Attend to the valid local regulations relating to age and profession when selecting staff.

Unauthorized persons

WARNING!

Danger to life for patients and unauthorized persons due to hazards in the danger and working zone!

- **All tasks may only be performed by qualified staff.**
- **Keep insufficiently qualified persons away from the working zone.**

Insufficiently qualified persons cannot assess the risks that might result from the handling of the device and expose themselves and others to the danger of severe or fatal injuries.

2.3. Residual risk

The operating chair has been constructed in accordance with state-of-the-art technology and complies with the current safety requirements. However, risks remain that require cautious actions. The remaining risks and the resulting behaviour and measures are listed below.

2.3.1. Dangers caused by electric current

Lead-acid batteries

WARNING!

Danger of injury when lead batteries are handled incorrectly!

- **Only use the mains cable and charger included in the delivery to charge the battery.**
- **Use this battery only for the operating chair.**
- **Do not short out the contacts (positive and negative pole) of the battery.**
- **Never expose the battery to moisture or humidity.**
  Never use or charge a damp or moist battery.
- **Avoid all contact with leaking battery fluid. In case of contact, see a doctor immediately.**

Incorrectly handling the built-in batteries poses a danger of explosion or leaking of harmful fluids. The fluid can cause severe burns upon contact with the skin, severe poisoning when swallowed and blindness upon contact with the eyes.

NOTE

Wrong ambient temperatures and cutting off the power supply while charging can reduce the battery's service life!

- **Do not connect the battery to a socket that is not connected to a power supply overnight.**
- **Do not disconnect the charger until the battery has been fully charged.**
- **Make sure the right ambient conditions are guaranteed when storing the battery or using the operating chair (Chapter 10.2 on page 36).**

The battery service life depends on the ambient temperature and the number of charging cycles. The warmer the room in which the battery is stored or the operating chair is used, the shorter the battery service life. With every connection of the charger to the power supply, a new charging cycle starts regardless of whether the battery has been charged completely in the previous charging cycle or not.

NOTE

Letting the battery fully discharge reduces the battery life cycle!

- **Always check the battery level after switching on.**
- **Charge the battery as soon as the yellow LED lights up.**

When the battery is completely discharged, the service life decreases or the battery gets damaged.

Residual electrostatic potentials

WARNING!

Danger to life and of fire due to residual electrostatic potentials!

- **Only use the operating chair on a conductive floor or with a connected potential equalisation.**
- **Do not use the operating chair in rooms in which easily flammable materials, such as disinfectant, are stored.**

Friction from the patient on the operating chair can lead to the build-up of electrostatic potentials which can ignite flammable material.

Interference with other equipment

WARNING!

Danger due to high-frequency surgery devices, defibrillators and defibrillator monitors!

- **Follow the manufacturer's instructions for the device.**

2.3.2. Dangers caused by a lack of hygiene

Risk of infection

WARNING!

Risk of injury when there is a lack of hygiene and disinfection!

- **Clean and disinfect the operating chair prior to each use.**
- **Replace damaged padding immediately.**
- **If you work with drapes, you still need to clean and disinfect the operating chair at least once a day.**
- **Use each drape only once.**
- **Use a fresh drape for every treatment, surgery or procedure.**
- **Observe all local requirements for hygiene and disinfection.**

There is an increased risk of infection from exposure to parts that have not been cleaned or disinfected.

Burns

WARNING!

Danger due to excessive use of disinfectants, cleaning agents and care products!

- **Rinse off any residual disinfectants, cleaning agents and care products with clear water regularly.**

Excessive residual disinfectants, cleaning agents and care products on the padding can lead to burns on the user.

Danger of material damage on the operating chair

NOTE

Danger of material damage on the operating chair due to a lack of hygiene!

- **Clean the operating chair immediately after each use.**

A lack of cleaning and disinfecting the operating chair can lead to corrosion and damage of the plastic parts and padding.

2.3.3. Danger due to moving the operating chair

Rolling away of the operating chair

WARNING!

Danger if the operating chair rolls away when the brake is not activated!

- **While each treatment, surgery, procedure or examination, make sure that the brake is activated and that the operating chair does not move any more.**

If the brake is not activated, the operating chair can accidentally roll away. This can lead to injuries to the user.

Tightening spaces

WARNING!

Danger of injury due to crushing and entrapment in tightening spaces!

- **Do not touch moving components or parts during use.**
- **Make sure that no persons or their body parts are ander the operating chair while it is in use**
- **Make sure that no body parts are on the operating chair while it is in use and especially when components are adjusted.**
- **Be careful when changing the position, so that patients, users or others are not crushed.**
- **Pay attention to the overview of the danger areas listed ander "Areas with risk of crushing or entrapment" on page 17.**

When moving the operating chair, the user or patient can be crushed or entrapped in tightening spaces. This can lead to severe injuries.

Collision

WARNING!

Danger of injury due to collision!

- **Make sure that the moving parts of the operating chair can be moved**
- **freely and that they cannot collide with accessories, near devices, chairs or other objects when moved.**
- **Attach accessories in a way that the movability of the operating chair is not impaired.**
- **Position the operating table in a way that the movability of the operating chair is not impaired.**

CAUTION!

Danger of injury and material damage due to collision!

- **Move the operating chair slowly and carefully.**
- **Do not roll over any objects with the operating chair.**
- **Make sure that the operating chair does not collide with persons.**
- **Make sure that the operating chair does not collide with operating daybeds, door frames or walls.**

When the operating chair collides with persons, objects or obstacles, this can lead to injuries and material damage.

Accessories

WARNING!

Observe warnings and instructions in the user guide of the accessories!

WARNING!

Danger of injury from accessories of other manufacturers!

- **Only BRUMABA accessories may be used in combination with the operating chair.**

Using accessories of other manufacturers can lead to injuries.

2.3.4. General risks on site

Pools of fluid

CAUTION!

Danger of slipping on leaked fluids!

- **Immediately wipe up leaked fluids with suitable means.**
- **Wear non-slip shoes.**

Slipping on fluids in the area of the operating chair can lead to severe injuries.

Adhesive strips, adhesive tape, plasters

NOTE

Material damage to padding by applying adhesive strips, plasters etc.!

- **Do not apply any adhesive strips, adhesive tape, plasters, etc. to the padding.**

The adhesive in the strips, tape, plasters, etc. reacts with the synthetic leather of the padding and damages it.

2.4. Responsibility of the operator

Operator

The operator is the person who uses the operating chair for industrial or commercial purposes or gives it to a third party for use and has the product responsibility for the protection of the user, staff or third party during use.

Operator obligations

The device is used in the medical sector. The operator of the device is therefore subject to the legal obligations concerning occupational and patient safety. Aside from the safety instructions in this user guide, the relevant safety regulations, industrial safety regulations and environmental legislation for the field of use of the operating chair have to be adhered to. Furthermore, the operator is responsible for making sure that the operating chair is in a technically perfect condition.

The following applies: The operator must have all safety devices checked regularly to make sure they are complete and fully functional.

2.5. Personal protective equipment

Personal protection equipment serves for the protection of persons from the impairment of safety and health at the workplace.

Staff must wear personal protection equipment while performing work at and with the operating chair. This is noted separately in individual sections in this user guide.

Personal protection equipment

Personal protection equipment is the following:

Chemical-resistant safety gloves
Chemical resistant safety gloves serve the protection of hands from aggressive chemicals such as disinfectants.

Protective gloves
Protective gloves serve the protection of hands from abrasions, punctures or more profound injuries as well as from contact with hot surfaces.

2.6. Spare parts

Wrong spare parts

WARNING!

Danger of injury due to the use of wrong spare parts!

- **Only use original spare parts from BRUMABA or spare parts authorized by BRUMABA.**
- **In case of uncertainties, please contact the BRUMABA customer service.**

The use of wrong or defective spare parts can lead to dangers to the staff and to damage, incorrect functioning or total failure.

Ordering spare parts

Spare parts can be ordered from the BRUMABA customer service.
↳"Customer service" on page 35

2.7. Environmental protection

NOTE

Danger due to wrong handling of environmentally hazardous substances!

- **Always follow the instructions below for the handling and disposal of environmentally hazardous substances.**
- **If environmentally hazardous substances are accidentally released into the environment, take immediate action. In case of doubt, contact the responsible local authority about the damage and ask about suitable action that should be taken.**

Incorrect handling and especially incorrect disposal of hazardous substances can cause severe damage to the environment.

The following environmentally hazardous substances are used:

Batteries

Batteries contain toxic heavy metals. They are subject to the hazardous waste regulations and have to be taken to municipal recycling facilities or be disposed of by a specialist.

Alternatively, the batteries can be given back to BRUMABA for disposal.

Electrical components

Electrical components can contain toxic substances. They must not reach the environment. Disposal must be carried out by a waste disposal specialist.

3. Danger area
3.1. Areas with risk of crushing or entrapment

Between the release lever and edge protection plate of the padding and below the ball joint there is a risk of crushing or entrapment.

Fig. 1: Danger area

When adjusting the height of the armrests, there is danger of entrapment between the lever of the height adjustment tube and the guide tube.

Fig. 2: Danger area

Between the backrest padding and the backrest rod there is danger of entrapment.

Fig. 3: Danger area

At the telescopic lifting column, during downward movement there is a danger area.

Fig. 4: Danger area

When adjusting the inclination of the backrest, there is danger of entrapment between the backrest adjustment handle and the support column head.

Fig. 5: Danger area

When attaching accessories, additional areas of entrapment can be created.

4. Description of functions
4.1. Overview

Fig. 6: Overview

1	On/off switch	8	Exchange battery
2	Operating state LEDs	9	Seat section
3	Memory button	10	Surgical armrest
4	Height adjustment UP	11	Back section
5	Brake button	12	Seat section tilting
6	Functional state LEDs	13	Back section tilting
7	Height adjustment DOWN	14	Attachment paddle

4.2. Undercarriage

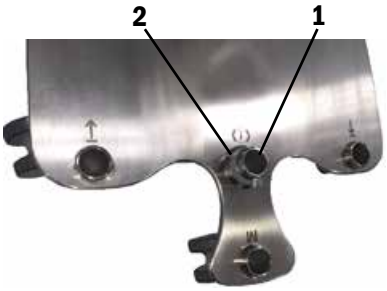


Fig. 6: Undercarriage with brake button (2) and brake LEDs (1)

Smooth-running thanks to five steering castors with dual tread. A central brake with foot release of five steering castors ensures optimum steadiness and high stability. To lock the brake, step on the brake button (Fig. 6/1) with your foot to activate the brake function. An acoustic signal is emitted and the brake LEDs (Fig. 6/2) flash for five seconds. Step on the brake button again to activate the brake function. The brake status LEDs (Fig. 6/2) light up red continuously. Step on the brake button again to activate the brake function. The brake status LEDs (Fig. 6/2) light up red continuously.

To release the brake, step on the brake button to activate the brake function. An acoustic signal is emitted and the function LEDs (Fig. 6/2) flash for five seconds. If you step on it again, the brakes are released and the brake LEDs light up green continuously.

4.3. Activation/deactivation

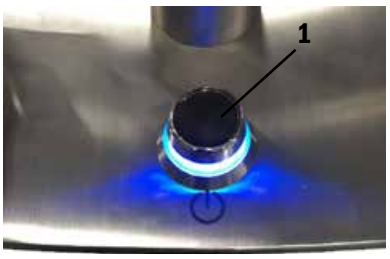


Fig. 7: Brake button

Once the battery is fully charged, the battery level LED (Fig. 8/1) on the charger (Fig. 11/3) flashes green (for a description of how to charge the battery, see page 21) and the battery can be inserted into the Thronus T3 (see page 20). Now the chair can be put into operation. Push the on/off button (Fig. 7/2). The operating state LEDs (4) indicate that the chair is ready for operation now. The LEDs also serve for monitoring the charge status of the battery.

Fig. 8: LED

Operating state LEDs (Fig. 8/1):

LEDs light up blue:	Battery charged completely. The device is ready for operation.
LEDs light up orange:	The battery should be charged soon. The chair can still be used. Two acoustic signals sound every 60 seconds.
LEDs light up red:	Charge the battery immediately. The chair will switch off soon. Six acoustic signals sound every 30 seconds.

4.4. Battery and battery charger
4.4.1. Battery maintenance

The battery is not fully charged on delivery. For this reason, please completely charge the BRUMABA Thronus T3 as described in this chapter before putting it into operation.

The 12V DC lead batteries used by BRUMABA have no notable memory effect and can be recharged as desired. A fully charged battery has a capacity which allows operation for 3 – 5 days depending on the type of usage. The battery life always depends on the treatment, maintenance and environmental conditions. On average, the battery lifetime is between 3 and 4 years. It can, however, be significantly higher depending on treatment, maintenance and type of usage.

4.4.2. Battery exchange

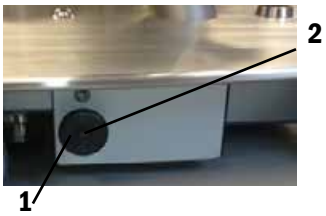


Fig. 9: battery level LED (1) wirh on/off button (2)

A lead battery may not be totally discharged. Therefore, always pay attention to the battery level LED (2) on the base plate.
If the battery capacity drops to 20% or less, two acoustic signals sound every 60 seconds and the ready LED (Fig. 9/1) lights up yellow. In this case, connect the battery to the battery charger with the charging plug in order to charge the battery.
↳ Chapter 4.4.3. "Battery charger" on page 21

After operation of the BRUMABA Thronus T3, please turn it off using the on/off button (Fig. 9/2). This saves energy and prevents a total discharge of the battery. When leaving the operating chair overnight, over the weekend or during holidays, or if it is not used for several days, please ensure that the BRUMABA Thronus T3 is switched off and the battery is fully charged. This will extend the battery service life.

If the battery capacity is quickly decreasing after some time (battery is empty despite the fact that it was fully charged the day before), the battery should be replaced soon. In this case, please order a new battery from BRUMABA. You will get a new battery, suitably packaged and at a special price. You can send the defective battery back in this packaging.

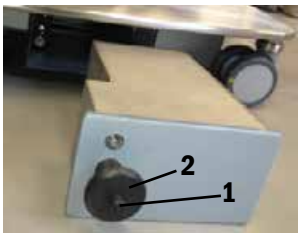


Fig. 10: Battery exchange

Exchanging the battery of the BRUMABA Thronus T3 is quick and easy. Switch off the BRUMABA Thronus T3, hold the battery at the knob (Fig. 10/2) and push the bolt (Fig. 10/1). Now, you can easily pull the old battery out of the battery compartment and insert the new one. To insert it, push the new battery into the battery compartment as far as it will go. The bolt will come out of the knob again.

4.4.3. Battery charger

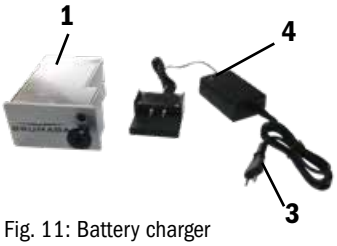


Fig. 11: Battery charger

The external battery charger (Fig. 11/3) controls the charging of the batteries and visualises the current charge state with colour indications (please refer to the explanation of the charge cycle).

In order to avoid overheating, the battery charger should be unplugged after fully charging the battery.

In case of a malfunction, inform service.

The power socket should be easily accessible. In case of an operational error, remove the plug from the socket immediately.

All service or maintenance work should only be carried out by qualified BRUMABA service personnel or technicians certified by BRUMABA.

The charger has a fuse protecting it from short-circuiting and overloading. The battery charger was tested in accordance with IEC 60601-1 and found to comply with the requirements for medical electrical equipment, so that it can be used in hospital environments and practices. The charger may not be used in the vicinity of flammable anaesthesia gas.

Charging the battery:

1. Remove the battery (Fig. 11/1) from the BRUMABA Thronus T3.
2. Connect the charging plug (Fig. 11/2) to the battery (Fig. 11/1).
3. Put the power plug (Fig. 11/4) of the battery charger in the plug socket.
   The battery charger will charge automatically.
4. Once the charging cycle is done (the battery level LED (Fig. 12) flashes green) you must unplug the power plug (Fig. 11/4).

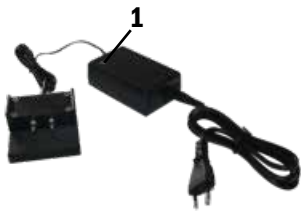


Fig. 12: Battery charger with battery level LED (1)

Charging cycle, battery level LED (Fig. 12/1):

LED lights up red:	Boost charge The charging current is set to maximum.
LED lights up orange:	Charging almost complete The battery capacity is between 80% and 95%.
LED lights up green:	Charging cycle completed The battery is fully charged.

4.5. Height adjustment

With the motor height adjustment of the BRUMABA Thronus T3 from 555 to 830 mm, you can set your optimum working position at any time. It is controlled by foot, using the push buttons on the sides. You can either set the desired position manually or using the memory function.

4.5.1. Manual adjustment

Fig. 13: Height adjustment

To activate the respective function, briefly press the right or left foot control button.
An acoustic signal is emitted and the function LEDs (Fig. 13/1) flash for five seconds (blue).
Then, again:

Press the right push button (Fig. 13/3): Up
Press the left push button (Fig. 13/2): Down

4.5.2. Memory function

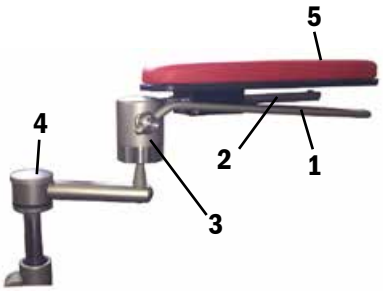
Fig. 14: Memory button (1)

You can store two different positions for the "up" (Fig. 13/1) and "down"(Fig. 13/2) push buttons. If a memory position is already occupied, the old position is deleted and the new one saved in the memory.

Saving a position:
➲1. Adjust the desired position manually.
➲2. Keep the memory button "M" (Fig. 14/1) depressed and at the same time press the push button "up" (Fig. 13/1) or "down"(Fig. 13/2) until an acoustic signal sounds. Saving of the memory position is additionally indicated by the function LED (Fig. 14/2) flashing blue.

Calling up a position:
➲1. Briefly press the button "M" (Fig. 14/1) .
➲2. The function LED (Fig. 14/2) flashes green for 10 seconds.
➲3. Then, press the button "up" (Fig. 13/2) or "down" (Fig. 13/3).
➔ The chair will move in the former position.
When the position is reached, a beep sounds.
➲4. In the event a wrong foot control button is pressed accidentally, movement can be stopped by pressing any button.

4.6. Surgical armrests



1. Ball joint hinge release lever
2. Linear guide for armrest padding length adjustment
3. Ball joint hinge
4. Self-aligning swivel joint
5. Edge protection plate

Fig. 15: Surgical armrests

4.6.1. Height adjustment

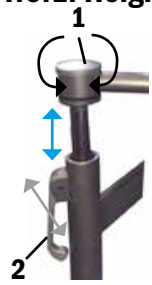


Fig. 16: Height adjustment

The continuous height adjustment has a travel of 110 mm. Downwards adjustment of the armrest is locked. To adjust the armrest height, release the clamping lever (Fig. 16/2) and re-engage it after adjustment.

4.6.2. Swivel joint

Swivelling the armrest around the rear joint (Fig. 16/1) is self-locking and can be done without releasing the clamping lever.

4.6.3. Ball joint hinge

With the ball joint hinge (Fig. 15/3) three-dimensional angle adjustment is possible. By pulling the lever (Fig. 16/2) upwards, the ball joint is released and the armrest can be positioned. Caution – do not press the lever (Fig. 16/2) down!

4.6.4. Linear guide

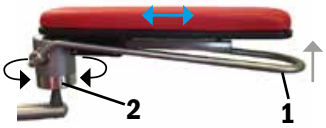


Fig. 17: Armrest

The armrest padding (Fig. 17) can be pushed forwards and backwards without using any release (blue arrow). It has a travel of 110 mm. The padding can be easily removed by pulling it off.

4.6.5. Adjustment of the seat and back section

Fig. 18: Adjustment of the seat and back section

The backrest (Fig. 18/1) and the seat section (Fig. 18/2) of the BRUMABA Thronus T3 can be tilted smoothly. To do so, pull the corresponding lever below the seat section (left lever (Fig. 18/3) backrest, right lever Fig. 18/4) seat section) and, with light pressure, tilt the respective component into the desired position. The height of the back section can be adjusted using the clamping lever (Fig. 18/5) on the rear side. To do so, turn the handle upwards and set the required position. Then, fasten the position by closing the handle downwards.

5. Cleaning the operating chair
5.1. Safety instructions for cleaning the operating chair

Insufficient hygiene

WARNING!

Risk of injury in case of insufficient hygiene and disinfection!

- **Clean and disinfect the operating chair prior to each use.**
- **Replace damaged padding immediately.**
- **If you work with drapes, you still need to clean and disinfect the operating chair at least once a day.**
- **Use each drape only once.**
- **Use a fresh drape for every treatment, surgery or procedure.**
- **Observe all local requirements for hygiene and disinfection.**

There is an increased risk of infection from exposure to parts that have not been cleaned or disinfected.

Cleaning and disinfecting agents

WARNING!

Danger due to excessive use of disinfectants, cleaning agents and care products!

- **Regularly rinse off any residual disinfectant, cleaning agents and care products with clear water.**

Excessive residual disinfectants, cleaning agents and care products on the padding can lead to burns on the user.

CAUTION!

Danger to the skin due to exposure to cleaning agents, disinfectants and care products!

- **Always wear chemical resistant safety gloves for cleaning, disinfection and care of the operating chair.**

Overexposure to cleaning agents, disinfectants and care products can cause irritation to the skin.

NOTE

Material damage due to wrong cleaning agent or too high concentration!

- **Never use any cleaning agents or disinfectants with an alcohol content of more than 30%.**
- **Never expose the surfaces to any cleaning agent or disinfectants for more than 30 seconds.**
- **Never use any cleaning agents or disinfectants based on halogen releasing compaunds, strong organic acids or oxygen releasing compaunds.**
- **Never use any cleaning agents or disinfectants containing solvents, thinners, benzine or acetone.**
- **Never use iodophor or caustic soda for cleaning or disinfection.**
- **Never use any cleaning agents or disinfectants containing chloride or halides.**
- **Avoid any contact between aldehydic and aminic products! Clean before using aldehyde-based disinfectants for the first time (in particular if aminic products were used before)! In case of non-compliance, it may not be possible to remove the residues.**
- **Only use cleaning agents and disinfectants in the concentrations specified by the manufacturer.**

Use of wrong cleaning agents and disinfectants or to too high concentrations can damage the padding and the operating chair.

Material damage due to contact corrosion!

NOTE

- **Wait until the disinfectant has dried completely**

If the padding is reattached immediately, the cleaning agent or disinfectant on its lower side can't dry. This may lead to contact corrosion.

Cleaning procedure

Material damage due to faulty cleaning!

NOTE

- **Never clean the operating chair in an automatic washing system.**
- **Never use steam or water at a temperature of over 150.8 °F (66 °C) for cleaning.**
- **Never use any high-pressure cleaners or similar systems.**

Faulty cleaning and disinfection can damage the operating chair or padding.

5.2. Cleaning agents, disinfectants and care products

Only disinfectants with the following combinations of active substances are suitable for disinfecting the operating chair:

- Aldehydes
- Quaternary ammonium compoands
- Guanidine derivatives

Active substance group	Active substances
Aldehydes	2-ethyl-1-hexanal, formaldehyde, glutaraldehyde, glyoxal, o-phthaldialdehyde, succinaldehyde
Quaternary ammonium compaunds	Alkyl-didecyl-poly-oxethyl ammonium propionate, alkyl dimethyl-alkyl benzyl-ammonium chloride, alkyl-dimethylethyl-ammonium chloride, alkyl-dimethyl-ethyl benzyl-ammonium chloride, benzalkonium propionate, benzalkonium chloride (alkyl-dimethyl-benzyl ammonium chloride, coco-dimethyl-benzyl ammonium chloride, lauryl-dimethyl benzyl ammonium chloride, myristyl dimethyl-benzyl ammonium chloride), benzethonium chloride, benzyl-di-hydroxyethyl-coco alkyl ammonium chloride, dialkyl-dimethyl-ammonium chloride (didecyl-dimethyl ammonium chloride), didecyl-methyloxy ethyl ammonium propionate, mecetronium ethyl sulphate, methyl benzethonium chloride, n-Octyl-dimethyl- benzyl-ammonium chloride
Guanidine derivatives	Alkyl biguanide, chlorhexidine gluconate, coco propylene diamine guanidinium diacetate, oligomeric biguanide, polyhexamethylene-biguanide hydrochloride (oligodiimino-imido-carbonyl-imino hexamethylene, polyhexanide)

CLEANING THE OPERATING CHAIR

Cleaning agents, disinfectants and care products available from BRUMABA

The following agents for cleaning, disinfection and care of the operating chair can be ordered from BRUMABA:

Use	Product description	Article number
Synthetic leather (care of the padding)	Ferrari Easy Clean – synthetic leather cleaner	V.000002
Synthetic leather (repair of the padding)	PVC cold-welding agent	V.000014
Stainless steel (care)	Cromodur 0.5 l – stainless steel cleaner	V.000011
Stainless steel (cleaning)	Intensive cleaner 0.5 l	V.000012
Surfaces of the operating chair (removal of heavy soiling)	Universal grinding cleaner	fine: V.000015 medium: V.000016
Padding (disinfection)	Multistar high concentration 1 l	V.000008
Padding and stainless steel surfaces (disinfection)	Bacillol 30 Foam 0,75 l	V.000085

Additional recommended products

The following additional products were tested in the specified concentration and are recommended by BRUMABA:

Product	Manufacturer	Tested concentration
Descocid	Antiseptica	2,0 %
Kohrsolin FF	Bode Chemie	0,5 %
Mikrobac forte	Bode Chemie	0,5 % and 2,0 %
Mikrobac extra	Bode Chemie	0,5 % and 2,5 %
Hexaquart Plus	Braun Medical AG	1,5 %
Melsitt	Braun Medical AG	3,0 %
Quatohex	Braun Medical AG	5,0 %
D103 (Ferrari cleaning agent)	DiverseyLever	5,0 % and 100 %
Incidin Extra N	Henkel	5,0 %
Incidin Plus	Henkel	1,0 %
Incidur	Henkel	3,0 %
Köhler spray disinfection	Köhler Neckarsulm	100 %
Medichem wiping disinfecting agent	Medichem	0,5 %
Dodenal neu	Merck Wien	0,5 %
Quartamon Med	Schülke & Mayr	7,5 %
Sagroplus Forte	Schülke & Mayr	0,5 %
Terralin	Schülke & Mayr	0,5 %
TPH 5225	Schülke & Mayr	0,5 %
Uniclean	Unident SA	100 %

Cleaning agents for paddings (no disinfection)

Product	Manufacturer	Tested concentration
Eskaphor HD6	Haug Chemie	50 %
Tege-Planenreiniger	Heine/Weizen	100 %
TASKI Frost, Selfon Frost	DiverseyLever	100 %
TASKI Mela	DiverseyLever	100 %
TASKI R50 Concentrated	DiverseyLever	0,25 %
Autoshampoo Steinet 320	Steinfels Cleaning Sys.	4,8 %
Steinet 670	Steinfels Cleaning Sys.	100 %

5.3. Removing and attaching the padding of the armrest

Removing the padding

Staff: Trained medical specialist staff

➲ 1. Switch off the operating chair.
↳Chapter 4.3. "Activation/deactivation" on page 19

➲ 2. The padding is fixed to the plastic boards with snap-in buttons and matching holes.

Carefully pull the individual pads upwards to take them off.

Due to the structure of the pins, which help to avoid accidental removal of the padding, more force than usual may be necessary.

Attaching the padding

NOTE

Material damage due to contact corrosion!

- **Wait until the disinfectant has dried completely.**

If the padding is reattached immediately, the cleaning agent or disinfectant on its lower side can't dry. This may lead to contact corrosion.

Staff: Trained medical specialist staff

➲ 1. Put the padding on the plastic board (see Chapter 4.6 Surgical armrests).
➲ 2. Put one of the snap-in buttons into the hole in the edge protection plate.
➲ 3. ut the second snap-in button into the hole in the edge protection plate.
➲ 4. Push the armrest padding down until you can hear the snap-in button snap into the hole in the edge protection plate.

5.4. Removing blood and plaster stains

Staff: Trained medical specialist staff

Protection equipment: Chemical-resistant safety gloves

➲ 1. Switch off the operating chair .
↳ "4.3. Activation/deactivation" on page 19

➲ 2. Remove the battery pack from the device.

➲ 3. Remove the padding.
↳ "5.3. Removing and attaching the padding" on page 27

➲ 4. Remove blood and plaster stains with cold water and soft soap.

Alternatively: Apply 5 % acetic acid solution/white wine vinegar to a cloth and use it to remove the stains.

➲ 5. Wipe any remaining soft soap or acetic acid solution off with a damp cloth.

➲ 6. For cleaning of padding and stainless steel surfaces, see
↳"5.5. Cleaning, disinfection, care" on page 29 and for disinfection, see
↳"5.5. Disinfecting padding and stainless steel surfaces" on page 30

5.5. Cleaning, disinfection, care

Clean the padding and stainless steel surfaces

NOTE

Material damage when using wrong cleaning agents!

- **Clean with a mild all-purpose cleaner.**
- **As an alternative, you can also use the products recommended by BRUMABA in the concentration specified.**
  ↳Chapter "Cleaning agents, disinfectants and care products" on page 26

Material damage in case of incorrect use of the cleaning agent!

- **Observe the instructions of the cleaning agent manufacturer.**

Cleaning	Padding	Stainless steel surfaces
Using what?	Mild all-purpose cleaner	Mild all-purpose cleaner or stainless steel cleaner
When?	Before each use of the operating chair and before disinfection.	Before each use of the operating chair and before disinfection.
How?	1. Switch off the operating chair.	1. Switch off the operating chair.
	2. Remove the battery pack.	2. Remove the battery pack.
	3. Remove the padding. ↳"Remove padding" on page 27	3. Remove the padding. ↳"Remove padding" on page 27
	4. If the product is heavily soiled, clean ↳ "Removing blood and plaster stains" on page 28	4. If the product is heavily soiled, clean ↳ "Removing blood and plaster stains" on page 28
	5. Apply the cleaning agent.	5. Apply the cleaning agent.
	6. Clean with a lint-free cloth.	6. Clean with a lint-free cloth.
	7. Remove the cleaning agent completely with a damp cloth.	7. Remove the cleaning agent completely with a damp cloth.
	8. Wipe the padding dry with a dry, lint-free cloth.	8. Wipe the padding dry with a dry, lint-free cloth.
After-wards?	Disinfect the padding.	Disinfect the stainless steel surfaces.

CLEANING THE OPERATING CHAIR

Disinfection of padding and stainless steel surfaces

NOTE

Material damage when using wrong disinfectants!

- **Only use surface disinfectants based on the following combinations of active substances**
  - **– Quaternary ammonium compaunds**
  - **– Guanidine derivatives**
  - **– Aldehydes**
- **For more information, see: ↳"Suitable disinfectants" on page 26**
- **When in doubt, contact the BRUMABA customer service.**

Material damage in case of incorrect use of the disinfectant!

- **Observe the instructions of the disinfectant manufacturer.**

Disinfecting	Padding	Stainless steel surfaces
Before?	Clean the padding. ↳ "Cleaning of padding and stainless steel surfaces" on page 29	Clean the stainless steel surfaces. ↳ "Cleaning of padding and stainless steel surfaces" on page 29
Using what?	Disinfectant	Disinfectant
When?	After cleaning and before each use of the operating chair.	After cleaning and before each use of the operating chair.
How?	1. Clean the operating chair.	1. Clean the operating chair.
	2. Apply disinfectant.	2. Apply disinfectant.
	3. Using a damp cloth, remove the disinfectant completely.	3. Using a damp cloth, remove the disinfectant completely.
	4. Wipe the padding dry with a dry, lint-free cloth.	4. Wipe the stainless steel surfaces dry with a dry, lint-free cloth.
	5. Wait until the disinfectant has dried completely.	5. Wait until the disinfectant has dried completely.
Afterwards?	Reattach the padding. ↳ "Reattach the padding" on page 27	

Care of padding and stainless steel surfaces

NOTE

Material damage in case of incorrect use of the care product!

- **Observe the instructions of the care product manufacturer.**

Care	Padding	Stainless steel surfaces
Using what?	Synthetic leather cleaner e.g. Ferrari Easy Clean	Stainless steel cleaner e. g. Chromodur
When?	Once or twice a month	Once or twice a month
How?	1. Cleaning the operating chair. "Cleaning of padding and stainless steel surfaces" on page 29	1. Cleaning the operating chair. "Cleaning of padding and stainless steel surfaces" on page 29
	2. Disinfecting the operating chair. "Disinfection of padding and stainless steel surfaces" on page 29	2. Disinfecting the operating chair. "Disinfection of padding and stainless steel surfaces" on page 29
	3. Wash the padding with clear water. Residues from cleaning agents and disinfectants are removed.	3. Wash the stainless steel surfaces with clear water. Residues from cleaning agents and disinfect-ants are removed.
	4. Wait until the padding has dried completely.	4. Wipe the stainless steel surfac-es dry with a dry, lint-free cloth.
	5. Use the synthetic leather cleaner Ferrari Easy Clean.	5. Edelstahlpflegemittel Chromodur anwenden.
	6. Wait until the care products has dried completely.	6. Warten, bis das Desinfektions-mittel vollständig getrocknet ist.
Afterwards?	Disinfect the padding. "Disinfecting the padding and stainless steel surfaces" on page 30	Disinfect stainless steel surfaces. "Disinfecting the padding and stainless steel surfaces" on page 30

6. Maintenance
6.1. Safety instructions for maintenance

Secure against being switched on again

WARNING!

Danger to life due to unauthorized switching on!
- **Switch off the operating chair before starting work.**
- **Remove the battery as well.**

Unauthorized switching on of the power supply during maintenance can lead to severe injuries or death of the people in the danger area.

Environmental protection

Please note the following instructions regarding maintenance:
- At all lubricating points that are lubricated by hand, remove the leaking, used or excess grease and dispose of it in accordance with the local regulations.

6.2. Maintenance plan

In the following sections, maintenance which is necessary for optimal and flawless operation of the operating chair is described.

If increased wear is identified during regular checks, shorten the required maintenance intervals to match the actual signs of wear. In case you have questions regarding maintenance work and intervals, please contact the BRUMABA customer service.

Interval	Maintenance task	Staff
Daily	Check whether the castors run easily and check the brake for functionality and wear.	Trained medical specialist staff, manufacturer or authorized service technician.
	Check padding for damage and replace damaged padding immediately.	Trained medical specialist staff, manufacturer or authorized service technician.
	Check armrest for functionality and firm hold.	Trained medical specialist staff, manufacturer or authorized service technician.
	Check the brake for damage and deterioration.	Trained medical specialist staff, manufacturer or authorized service technician.
Once or twice a month	Clean the padding and stainless steel surfaces with a suitable care product. ↳ "Cleaning of padding and stainless steel surfaces" on page 31	Trained medical specialist staff, manufacturer or authorized service technician.
Every six months	Remove debris from the lifting column and ball joints, visual inspection.	Manufacturer or authorized service technician.
Annually	Perform safety checks and maintenance.	Manufacturer or authorized service technician.
As necessary	Charging the battery.	Trained medical specialist staff, manufacturer or authorized service technician.

6.3. Remove debris from the lifting column and ball

Staff: Manufacturer or authorized service technician
Protection equipment: chemical-resistant safety gloves
Material: thinner or alcohol approved for the surgical area

CAUTION!

- ➲ 1. Raise the operating chair to its highest position.
- ➲ 2. Switch off the operating chair see "Activation/deactivation" on page 19 and remove the battery
- ➲ 3. **CAUTION! Danger to the skin due to exposure to thinner!** Wear chemical-resistant safety gloves.
- ➲ 4. Dampen a cloth with thinner or alcohol.
- ➲ 5. Remove debris from the lifting column and the ball joint hinges with the cloth.

6.4. Technical safety checks

Electrical

Periodic technical safety checks for the BRUMABA Thronus T3:
The following checks must be carried out on the BRUMABA Thronus T3 every 12 months by persons who are capable of conducting such technical safety checks by virtue of their training, knowledge and practical experience and who are not subject to taking instructions with regard to this task of conducting safety checks.

- Conduct functional check in accordance with user guide.
- Visual inspection of the power supply unit and the plug for damage (charging plug).
- Check of the strain reliefs.
- Check of the internal cable ducts for damage.
- Device leakage current IDEV according to DIN VDE 0751-1:2001-10 5.3.2.2.
- Insulation resistance RINS according to DIN VDE 0751-1:2001-10 5.3.3.
- The technical safety checks are to be logged in the device inventory and the test results must be documented.

Mechanical

- Visual check of the sections for deformation and/or wear: (base plate, castors, column, seat support, protection case, bowden cables, main hinge, armrests, accessories).
- Functionality check of the undercarriage and the brake.
- Check that all screws are tight.
- Check the joints and locking mechanisms for correct functionality and ease of movement.
- Check the braking unit, the brake cables and springs for functionality and wear.
- Check all padding for damage and functionality.
- Check safety relevant labels for readability.
- Check the device and accessories for damage impairing the function and mechanical damage.

If the device is not fit for operation or is damaged in any way, it must be repaired.

Customer service

In the unlikely event that your BRUMABA Thronus T3 does not function correctly, please contact our customer service.

As each of the BRUMABA Thronus T3 components can be replaced separately, we can guarantee you that you will only have a minimum of additional expenditure.

6.5. After Maintenance

Staff: Trained medical specialist staff
For disinfection of the operating chair
↳Chapter 5.2 "Cleaning, disinfection, care" on page 25

7. Environmentally friendly disposal

ElektroG

The BRUMABA Thronus T3 is designed for a service life of approximately ten years. However, this depends on how it is used, maintained and serviced.

In general, it is not possible to determine a definite service life and it may be possible to use the BRUMABA Thronus T3 for significantly longer, provided it still meets the legal requirements and regulations. In Germany, the disposal of different materials is regulated by various laws and regulations which are based on the Waste Management Act. As the Waste Management Act and the relevant regulations are subject to federal state regulation, it is not possible to make general statements regarding the disposal of our products after use. Information regarding the disposal process in your individual case may be obtained from the specialist waste disposal company responsible. Please feel free to consult us should you require further information.

BatterieG

Furthermore, you may need to comply with internal regulations for disposal, which in some cases may exceed the standards required by the law. In such cases, please contact your hygiene specialist. The BRUMABA Thronus T3 may also be disposed of by BRUMABA or a company contracted by BRUMABA. The costs of dismantling, transport and disposal are borne by the customer. The BRUMABA Thronus T3 must be thoroughly cleaned and disinfected prior to collection, otherwise BRUMABA may refuse to collect it.

BRUMABAs EAR registration number is:
WEEE Reg. No. DE 83987463

Battery

Defective batteries will always be exchanged by BRUMABA (for a fee). The defective battery must be sent back to BRUMABA. Should you choose to dispose of the battery yourself, please contact the waste disposal company responsible.

8. Customer service

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E-mail: info@brumaba.de
Internet: www.brumaba.com

9. Warranty

The warranty period is two years from delivery. The padding and battery as well as mechanical damage are not covered under the warranty.

10. Technical data
10.1. Weight and dimensions

Specification	Value
Adjustable height (all dimensions incl. padding)	555 – 830mm
Total length	700mm
Total width	600mm
Net weight	70kg
Max. load	150kg

Electrical data of the battery charger

Specification	Value
Rated voltage	90 – 264 V AC
Rated frequency	47 – 63 Hz
Rated current	2,2 A
Max. power consumption	0,9 A
Protection class/degree of protection	Device with integrated power supply/IP X4

Electrical data of the Thronus T3

Specification	Value
Rated voltage	12V DC
Battery capacity	7,2 Ah
Operating time with fully charged batter	approx. 4 – 7 days (depending on the type of usage)
Operating mode	Operating time 25% (continuous operation 2 of 8 Min.)

10.2. Ambient conditions

Ambient conditions (operation)

Specification	Value
Temperature	+10°C to +40°C
Relative humidity	30% to 75%
Atmospheric pressure	800 hPa to 1060 hPa

Ambient conditions (storage & transport)

Specification	Value
Temperature	+20°C to +60°C
Relative humidity	30% to 93%
Atmospheric pressure	800 hPa to 1060 hPa

10.3. Nameplate

The nameplate is on the telescopic column between the battery pack or power supply and the control system casings. It includes the following information:

- Contact information of the manufacturere
- Type
- Connection values
- Maximum load
- Country of manufacture
- Year of manufacture
- CE marking

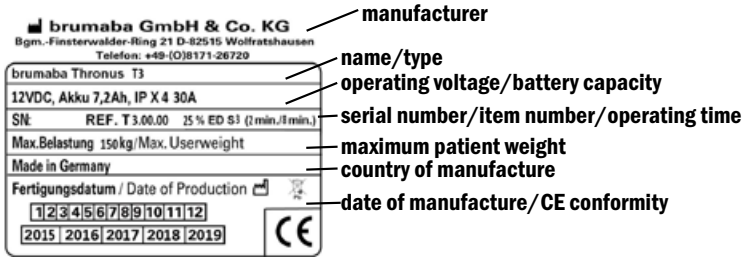

Fig. 19: Nameplate

The abbreviations and symbols on the nameplate mean the following:

Symbol/abbreviation	Meaning
	This symbol marks the address of the manufacturer of the product on the nameplate.
SN	Serial number
REF.	Serial number
Protection class I IP X4	Device is protected against spray water
ED 20% (I=2min/0=8min)	Duty cycle is 20 % of the cycle duration. That means that the device can be used for about 2 minutes under output voltage and then has to pause for about 8 minutes.
	Type B application part. This application part complies with the requirements established by standard of ensuring protection against electric shock, considering, in particular, the permissible patient leakage and auxiliary current. Caution! Type B application parts are not suitable to be used directly on the heart.
	This symbol means that you must observe the user guide.
	This symbol marks the manufacturing date of the operating chair.
	This symbol means that the operating chair or its parts may not be disposed of with the household waste.
	This symbol means that you must consider the accompanying documentation included in the delivery.

10.4. FDA – Establishment Registration

The FDA establishment registration number of BRUMABA Ltd is: 3005607354

11. Errors

Device status LED flashes red (Fig. 20): Height potentiometer error

Fig. 20: Error LED status

12. Accessories

Foot control platforms

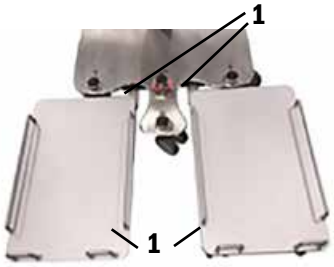

Fig. 21: Foot control platforms

For attachment, tilt the platforms (Fig. 21/1) upwards by approx. 60°. Then, put the flange (Fig. 22/3) into the mounting bracket (Fig. 21/2). Subsequently, tilt the platform downwards to complete its attachment. Removal is done in reverse order.

Function

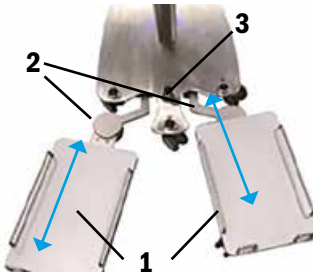

Fig. 22: Positioning the platforms

The platforms (Fig. 22/1) can be tilted around the joint (Fig. 22/2) and adjusted in length this way (blue arrow), you can set the foot control to an optimum position. Thanks to the possibility of swivelling to the side, you can get very close to the operating table and patient.

EMV Data

Radio Interference Emission Testing			
Test	k_p	*Expanded Uncertainty*	*Note*
Conducted Voltage Emission			
9 kHz to 150 kHz (50Ω/50µH AMN)	2	± 3.8 dB	1
150 kHz to 30 MHz (50Ω/50µH AMN)	2	± 3.4 dB	1
100 kHz to 200 MHz (50Ω/5µH AMN)	2	± 3.6 dB	1
Discontinuous Conducted Emission			
9 kHz to 150 kHz (50Ω/50µH AMN)	2	± 3.8 dB	1
150 kHz to 30 MHz (50Ω/50µH AMN)	2	± 3.4 dB	1
Conducted Current Emission			
9 kHz to 200 MHz	2	± 3.5 dB	1
Magnetic Fieldstrength			
9 kHz to 30 MHz (with loop antenna)	2	± 3.9 dB	1
9 kHz to 30 MHz (large-loop antenna 2 m)	2	± 3.5 dB	1
Radiated Emission			
Test distance 1 m (ALSE)			
9 kHz to 150 kHz	2	± 4.6 dB	1
150 kHz to 30 MHz	2	± 4.1 dB	1
30 MHz to 200 MHz	2	± 5.2 dB	1
200 MHz to 2 GHz	2	± 4.4 dB	1
2 GHz to 3 GHz	2	± 4.6 dB	1
Test distance 3 m			
30 MHz to 300 MHz	2	± 4.9 dB	1
300 MHz to 1 GHz	2	± 5.0 dB	1
1 GHz to 6 GHz	2	± 4.6 dB	1
Test distance 10 m			
30 MHz to 300 MHz	2	± 4.9 dB	1
300 MHz to 1 GHz	2	± 4.9 dB	1

Radio Interference Emission Testing (continued)			
Test	k_p	*Expanded Uncertainty*	*Note*
Radio Interference Power			
30 MHz to 300 MHz	2	± 3.5 dB	1
Harmonic Current Emissions			4
Voltage Changes, Voltage Fluctuations and Flicker			4

Immunity Testing			
Test	k_p	*Expanded Uncertainty*	*Note*
Electrostatic Discharges			4
Radiated RF-Field			
Pre-calibrated field level	2	+32.2 / -24.3 %	5
Dynamic feedback field level	2.05	+21.2 / -17.5 %	3
Electrical Fast Transients (EFT) / Bursts			4
Surges			4
Conducted Disturbances, induced by RF-Fields			
via CDN	2	+15.1 / -13.1 %	6
via EM clamp	2	+42.6 / -29.9 %	6
via current clamp	2	+43.9 / -30.5 %	6
Power Frequency Magnetic Field	2	+20.7 / -17.1 %	2
Pulse Magnetic Field			4
Voltage Dips, Short Interruptions and Voltage Variations			4
Oscillatory Waves			4
Conducted Low Frequency Disturbances			
Voltage setting	2	± 0.9 %	2
Frequency setting	2	± 0.1 %	2
Electrical Transient Transmission in Road Vehicles			4

Emission Tests

EN 60601-1-2:2007 // EN 60601-1-2:2015 IEC 60601-1-2:2014				
Standard	☒ CISPR 11	☐ CISPR 14-1	☐ CISPR 32	☐ ISO 7137
Classification	☐ Class A	☒ Class B	☒ Group 1	☐ Group 2

Section(s)	*Test performed*	*Page*	*Test Result*
6.1 // 7	Mains terminal disturbance voltage 150 kHz - 30 MHz	---	Not applicable
6.1 // 7	Electromagnetic radiation disturbance 30 MHz - 1 GHz	22	Test passed
6.1 // 7	Harmonics	---	Not applicable
6.1 // 7	Flicker	---	Not applicable

EN/IEC 61000-3-2:2014			
Section(s)	*Test performed*	*Page*	*Test Result*
7	Harmonics	---	Not applicable
EN/IEC 61000-3-3:2013			
Section(s)	*Test performed*	*Page*	*Test Result*
5	Flicker	---	Not applicable

Immunity Tests

EN 60601-1-2:2007 // EN 60601-1-2:2015 IEC 60601-1-2:2014			
Section(s)	*Test performed*	*Page*	*Test Result*
6.2 // 8	Electrostatic discharge (ESD)	27	Test passed
6.2 // 8	Electromagnetic field	34	Test passed
6.2 // 8	Burst	---	Not applicable
6.2 // 8	Surge	---	Not applicable
6.2 // 8	Conducted RF	---	Not applicable
6.2 // 8	Power frequency magnetic field	---	Not applicable
6.2 // 8	Voltage dip and short interruptions	---	Not applicable

BRUMABA
OPERATING TABLE SYSTEMS

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