# CRYOTHERAPY

# DEVICE USER'S MANUAL


## KRIOPOL R 30

*Bryza //*

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# INDEX



We reserve the right to make changes to the design that are not included in this manual if they do not affect the use characteristics of the device. The appearance of the device in the drawings and photographs may be slightly different than the appearance of the devices that are currently manufactured.

# 1. Meaning of the symbols

The symbols used in the device (data plate)

| Symbol | Description |
|---|---|
|  | Manufacturer |
|  | Note: before using the device, become familiar with the documentation. |
|  | Become familiar with the user's manual. |
|  | Type B electrical device |
|  | **Disposal of waste product**<br>**In the European Union**<br>The laws in force in the entire European Union, implemented in each member country, requires that all electrical and electronic equipment marked with this symbol be disposed off separately from other household waste. This also applies to electrical accessories, such as power supply cables. It is the user's duty to deliver waste equipment to a designated collection point for the purpose of recycling of waste electrical and electronic equipment. By ensuring proper disposal of waste equipment, you help protect the environment. When disposing off such waste products, please observe the guidelines of you local authorities and/or contact the manufacturer.<br>**Outside of the European Union**<br>In order to dispose of waste electrical and electronic equipment outside of the European Union, one must contact the local authorities and obtain information on the proper method of disposal. |

Symbols used in this user's manual

| | |
|---|---|
|  | Notes |
|  | The most important information on the use of the device. |
|  | Additional information |

# 2. Introduction

The use of low temperatures as a healing medium has been known for centuries but only the current technical knowledge has enabled a dynamic development of cryogenics and cryobiology and has formed the theoretical and technical foundations for the development of cryotherapy. In their works, such cryobiologists as Smith, Meryman, Levelock, Mazur, and others, explained the mechanism behind the impact of low temperatures on cells and tissues, which enabled using cryotherapy in clinical applications.

# 3. Intended use

**KRIOPOL R** *Bryza //* is the local cryotherapy unit designed for use by professional users.
Not fit for home applications.

Cold nitrogen vapor therapy using **KRIOPOL R** *Bryza //*.

Cryostimulation as a medical method that has been more and more commonly used in treatment of rheumatism and other diseases of the locomotor system, as well as injuries, swelling, burns, etc.
**KRIOMEDPOL Sp. z o.o.** has elaborated a simple and reliable device that enables effective and efficient use of cryostimulation and ensures full comfort and safety of the patient. A stream of nitrogen vapor produced with the device **KRIOPOL R** *Bryza //*, at the outlet of the nozzle installed on a flexible hose reaches the operating temperature (-160 °C) just about 30 seconds after the device is switched on. The stream flow rate is adjusted stepwise depending on the size of the surface to be cooled.
The pain-killing property of low temperatures enables full kinesytherapy of joints. At present, cryostimulation must not replace pharmacological treatment; however, with cryostimulation pharmaceutical treatment may be much less intensive. A reduction of pain makes the patients more active, improves his mental condition, and encourages them to do exercises that they could not do if the pain did not subside. An important aspect of cryostimulation is excellent tolerance of the procedure. In the case of patients treated using this method, the number of intra-articular steroid blocks was significantly reduced. The intra-articular administration of medicine involves the potential risk of damage to the cartilage, while non-invasive methods, such as local application of a stream of cold vapors provide an opportunity to completely eliminate the iatrogenic trauma to the tissue.
In some cases, cryostimulation enables avoiding operations of patients who had indications for synovectomy due to pathological growth of synovium. The cooling procedure causes intensive endogenous overheating of joints, up to a level where the initial temperature is exceeded by about 3-4 °C, which is maintained for up to 3-4 hours.

Low-temperature treatment results in:

- ❄ alleviation of pain;
- ❄ reduction in the activity of the inflammation process;
- ❄ lower muscle tension;
- ❄ reduced swelling;
- ❄ improvement of the clinical and functional condition, consisting in an increased range of movement of the cooled joints and an increased strength of the muscles;
- ❄ improved condition of burned tissues;
- ❄ a reduction in the time of recovery from injuries.

***Indications***

- ❄ Rheumatoid arthritis (RA)
- ❄ Rheumatc disease
- ❄ Psoriatic arthritis
- ❄ Ankylosing spondylitis (AS)
- ❄ Gout
- ❄ Spastic paresis
- ❄ Fibromyalgia
- ❄ Tendon and ligament rupturing
- ❄ Joint and muscle contractures
- ❄ Overstrained muscles
- ❄ Primary and secondary osteoporosis - complex regional pain syndromes (CRPS)
- ❄ Bruising and consequence (pain, swelling, effusioins)
- ❄ Fresh skin burns
- ❄ Biological regeneration

***Head and neck***

- ❄ Headaches
- ❄ Cervical spine neuralgia
- ❄ Torticollis
- ❄ Cervical intervertebral discs

***Shoulder***

- ❄ Dislocated shoulder
- ❄ Shoulder impingement syndrome

***Elbow***

- ❄ Enthesopathies
- ❄ Stiffness caused by articular olecranon fractures

***Spine***

- ❄ Post-surgical spinal conditions
- ❄ Lumbar intervertebral discs
- ❄ Sciatica
- ❄ Acute low back pain syndrome


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***Knee***

- Patellofemoral pain syndrome
- After reconstruction of anterior cruciate ligaments
- Chondromalacia patella
- Removal of the medial meniscus
- Knee joint sprain
- Dislocation of the patella

***Lower leg and foot***

- Gastrocnemius muscle bruising
- Achilles tendon inflammation
- Ankle sprain
- Calcaneal spur

***Contraindications***

Patients with peripheral circulatory failure with the resulting trophic skin and subcutaneous tissue changes and local frost-bites.

**NOTE**

The procedures involving cooling of a given surface of a patient's body must be performed with visual control and particular attention must be paid to the color of the skin as by holding the nozzle in a given location for too long may cause local "whitening" of the epidermis. If this happens, the "excess cold" must be removed by placing one's hand onto the "whitened epidermis" for a few seconds. The general rule is that first one must cool the body parts with the thickest muscle tissue and then those with little muscle tissue.

## 4. Use of the device

Before using the **KRIOPOL R** *Bryza //* device, one must become familiar with the safety rules for working with liquid nitrogen (section 7 of this manual).

### *Filling the tank with liquid nitrogen*

In order to fill the tank with liquid nitrogen:

Using the power switch (2 on Fig. 3), cut off the power supply;

- Pull out the handpiece supply tube from the socket (2 on Fig. 4) – note the connection safeguard – remove the blue ring fixture, then pull out the handpiece supply plug,
- Unscrew the supply line nut (6 on Fig. 4) and take the supply line (3 on Fig. 4) off the handpiece,

- unscrew the clamp knob (4 on Fig. 1) and take it off the head;
- take out the head from the tank
- fill the tank with liquid nitrogen,
  - Make sure you do not spill liquid nitrogen onto the tank. A particularly sensitive part is the protruding element covered with a plastic cap. If liquid nitrogen is spilled on it, the tank may become damaged. Defects of this type are not covered by the warranty.
- check if the seal is located in the head socket,
  - Insert the heater to te tank gradually and carefully, to avoid excessive discharge of nitrogen vapors; do not bend over the tank, to avoid formation of liquid nitrogen as a result of inserting the handpiece too fast,
  - Make sure that the handpiece is flush with the upper edge of the tank neck,
- Apply the clamp and turn the knob until the handpiece is immobilized. Stop turning the knob at that point and do not go as far as possible.
- Install the supply line and affix the supply line mounting nut (4 on Fig. 4),
- put the handpiece supply tube to the socket (2 on Fig. 4), paying attention to plug orientation. White spots are positioned on the plug and socket, which should be positioned opposite each other so that the plug can be pushed through pilot components. Push the plug properly and tighten the blue mounting ring.

## *Preparation of the device for operation*

In order to prepare the device for operation:

- put the power cable plug in the socket (1 on Fig. 3) on the control panel,
- connect the device to the 115 V AC power supply network using a socket with a grounding bolt.

## *Starting the device*

In order to start the device:

- switch on the power switch (2 on Fig. 3) or activate the device from its standby mode using the button (1 on Fig. 2) if the power switch is in the ON position. The control panel will display three zeros in the procedure time window.
- If any cooling activation button (2 on Fig. 2) is pressed, an appropriate digit will be displayed in the power window (6 on Fig. 2) and the procedure clock will be started. **4** means that

the device is working with the highest power. The time necessary to cool down the supply line at this setting is about 30 s. Once "white" vapor appears at the outlet of the supply line, the operating temperature has been reached. At the **4** setting, the consumption of nitrogen is the highest and is equal to about 0,16 kg/min.

- Using the buttons (2 on Fig. 2), one can adjust the power of the device; the settings shown in the power window (6 on Fig. 2) will change as appropriate to **4, 3, 2, 1, A, 1P, 2P**
- The consumption of nitrogen at the different settings is equal to:
  - setting 4 - approx. 0,16 kg/min.;
  - setting 3 - approx. 0,128 kg/min.;
  - setting 2 - approx. 0,096 kg/min.;
  - setting 1 - approx. 0,064 kg/min.
  - For range **A** (cryoacupuncture): approx. 0,032kg/min
- For ranges **1 P** and **2 P** (Pulse modes), nitrogen consumption is at approx. 50% of the maximum.
- Resetting of the clock (4 on Fig. 2) - the button can be used to reset the clock so that it starts measuring the time from zero. This option enables measuring the actual time of the procedure.
- When the heater is no longer immersed in nitrogen, the nitrogen level sensor fixed to the heater indicates lack of nitrogen, switches off the heater power supply system, and activates an audio signal.
- Sleep mode is indicated by dimming the displays, with a moving line on the power display. The device will switch to sleep mode automatically after more than 5 min. idle time. For longer idle periods, use the mains switch (2 on Fig. 3).
- Use the timer reset button (4 on Fig. 2) to set the treatment duration. Press this button in standby mode (zeros lit on the treatment time display) to set the treatment time, from 30 seconds to the maximum of 5 minutes 30 seconds, in 30-second steps. Press Stop (3 on Fig. 2) at any time to delete your time setting. Start up the cooling unit (2 on Fig. 2) to launch the timer. You can reset the timer data at any time, using the timer reset button (4 on Fig. 2); the clock will start counting the time forward. As soon as the 0:00 setting is reached, the device will stop the cooling automatically.
- If you experience any irregularities in the device operation, restart the device. If the error still occurs, contact your service representative.

## *Operation of the device*

During operation of the device, liquid nitrogen is consumed and its quantity in the tank decreases. Information on the quantity of nitrogen in displayed in the **NITROGEN QUANTITY** field. The display field has the form of a line with 20 light diodes. This is an indication only, as the device may continue in service until the nitrogen run-out alarm system is activated.

The only system message is one on the lack of nitrogen in the tank.

After the signal indicating an empty nitrogen tank is activated, the heater switches off automatically, which prevents thermal damage of the heater. In such an event, the control panel must be switched off and the tank must be filled with nitrogen.

Besides losses of nitrogen directly due to the use of the device, some nitrogen is lost due to its evaporation from the tank.

Tank parameters:

| | |
|---|---|
| Tank | YDS 30 |
| Tank capacity (liters) | 31,5 |
| Tank capacity (kg) | 25,2 |
| Evaporation loss without heater inserted (kg/24h) | 0,10 |
| Evaporation loss with heater inserted (kg/24h) | 0,50 |

## NOTE

The device is not pressurized and therefore not fitted with a safety valve. Nitrogen vapors must be allowed to continuously evaporate through the supply line opening. The supply line nozzle must not be clogged or blocked under any circumstances. It is not allowed to block a full liquid nitrogen tank with a tight fitting plug. Use the plug supplied with the device, so as to ensure pressure equalization.

One must handle the heater with care so as to avoid its mechanical damage.

The supply line is sensitive to mechanical damage and must not be used to move the device or bent suddenly. If the supply line does not work or becomes damaged, the manufacturer must be contacted.

In case of damage to the vacuum insulation of the tank causes the upper part of its outer surface to become covered with intensive frost and the content of the tank will evaporate quickly.

# 5. Storage and maintenance

The device should be stored in dry premises at temperatures of +10 °C to +45 °C and should be protected from acids and other caustic substances. The device must be kept clean. After use, the device must be cleaned to remove any contamination.

For prolonged idle times, cover the device, close the tank with the delivered plug, and hang the handpiece away, using the handle provided for this purpose.

During each filling of the tank, it is recommended to remove the nut fixing the supply line to the head. If the connection is dirty, it must be cleaned.

### *Cleaning method*

The surface of the device can be cleaned with any surfactants that do not contain abrasive elements, e.g. dish washing liquids, glass cleaning products, etc.

It is forbidden to use agents that react with aluminum.

After the surface of the device is cleaned, it must be wiped with a dry and soft flannel cloth.

### *Disinfection*

This device does not require disinfection; however, if disinfection is mandatory under certain internal procedures, use a disinfecting solution listed among disinfectants designed for use at healthcare facilities, approved by the National Institute of Public Health Institute - National Institute of Hygiene during the period from 1996-07-01 to 2011-04-30.

# 6. Transport

The cryotherapy device **KRIOPOL R** *Bryza //* must be transported with proper care. During transport (e.g. with a full tank), one must take out the head and take off the tank from the transport platform.

The tank must always be transported in a vertical position and strong shocks must be avoided. Failure to observe these rules may lead to damage of the tank.

During transport, the device must be protected from bad weather and strong shocks.

# 7. Instruction for safe handling of liquid nitrogen when filling the tank

1. General information

   Nitrogen is a non-toxic, colorless, and odorless neutral gas. Cold gas is heavier than air which causes nitrogen vapors to spread on the ground. In a gaseous state, nitrogen is transported in pressure cylinders and in liquid state - in cryogenic tanks. The boiling temperature of liquid nitrogen is -196°C (77.3 K). 710 dm3 of gaseous nitrogen can be produced by evaporation and heating to room temperature from 1 dm3 of liquid nitrogen.

2. Hazards present when using liquid nitrogen
   - ❄ A textile that comes into contact with liquid nitrogen or cold nitrogen vapors becomes damaged.
   - ❄ Evaporation of liquid nitrogen in a closed container causes an increase in the pressure and an explosion risk.
   - ❄ Supplying even small quantities of heat to a tank with liquid nitrogen may cause its sudden escape.
   - ❄ Quick evaporation of large quantities of liquid nitrogen in a non-ventilated room causes oxygen to be displaced or the composition of the air to be different, which may in turn lead to dizziness or loss of conscience.

3. General instruction for handling liquid nitrogen.
   - ❄ When handling liquid nitrogen, all activities must be performed by at least two persons in a well-ventilated room equipped with a water tap.
   - ❄ All activities during which liquid nitrogen may be spilled must be performed in protective clothing and protective glasses or a face mask. Objects cooled with liquid nitrogen must be handled with special grips or thick leather gloves.
   - ❄ One must not allow liquid nitrogen or thick nitrogen vapors to come in contact with the body or the eyes. Cold vapors may easily cause loss of vision. One must not breathe in vapors of liquid nitrogen due to the risk of damage to the lungs; if the technological process requires it, a breathing mask must be used.
   - ❄ Cryogenic tanks for liquid nitrogen must be used only in accordance with their intended use.
   - ❄ Non-cooled tanks must be filled with liquid nitrogen slowly and very carefully. A full tank must be moved by at least 2 persons.
   - ❄ Only pressure tanks equipped with safety valves may be closed tightly.
   - ❄ One must not immerse warm objects in liquid nitrogen quickly, unless the technological process requires it. In such a case, the person performing the work must be protected with protective clothing and a face mask.
   - ❄ Due to the risk of contact with liquid oxygen, one must be very careful and use proper fire protection measures; in particular,

pollution with oils and greases, etc., must be avoided.
- ❄ During transport, tanks must be protected against tipping over.
- ❄ It is absolutely forbidden to smoke or use open fire in all rooms with liquid nitrogen

4. First aid
   - ❄ If one's body comes in contact with liquid nitrogen or a surface whose temperature is equal to that of liquid nitrogen, it is necessary to:
     - ➢ prevent further contact with the cryogenic liquid or the cooled surface;
     - ➢ immediately rinse the part of the body that came in contact with liquid nitrogen with a large quantity of cold water.

**NOTE**

The temperature of the water used for rinsing must not exceed +44 °C and the frozen body parts must not be rubbed.

- ❄ In the event of dizziness or loss of conscience due to lack of oxygen displaced in the room due to the large quantities of evaporated liquid nitrogen, it is necessary to:
  - ➢ take the victim out into fresh air;
  - ➢ in the event of loss of conscience, perform artificial respiration and call a doctor immediately.

## 8. Technical data

| | |
|---|---|
| Cooling agent | liquid nitrogen |
| Nitrogen vapor stream temperature | -160 °C |
| Time needed to achieve the full cooling power (from the time the heater is switched on) | approx. 30 sec. |
| Maximum power consumption | 500W |
| Supply voltage | 115V |
| Frequency | 60 Hz |
| Protection class and type | I, B |
| Classification (93/42/EEC) | IIa |
| Protection class (IEC 60529) | IP20 |

The device is designed for continuous use.

## 9. Principles of operation and design

The tank (5 on Fig. 1) is filled with liquid nitrogen. As soon as cooling is enabled, the handpiece of the device will be energized to a specific power rating. Liquid nitrogen starts to evaporate rapidly. The pressure difference between the tank and the ambient air causes nitrogen vapors to flow out

of the tank through the supply line (1 on Fig. 1). Nitrogen vapors at a temperature of -160°C are discharged at the end of the supply line.

The structural frame of the device is a mobile frame (6 on Fig. 1), fitted with a nitrogen weight measurement system in the tank. The system is connected to the control panel (3 on Fig. 1) via the scale coupling (4 on Fig. 3). The liquid nitrogen tank is mounted in an upright position on the weighing device, installed in the mobile frame (5 on Fig. 1). A handpiece is installed inside the tank, with the supply line screwed to it (1 on Fig. 1).

For the device to operate properly, the tube terminated with a plug and running from the mobile frame, as well as the tube terminated with a plug and running from the handpiece located on the nitrogen tank must be connected.

The control panel (3 on Fig. 1) is affixed to the mobile frame (6 on Fig. 1) with two nuts.

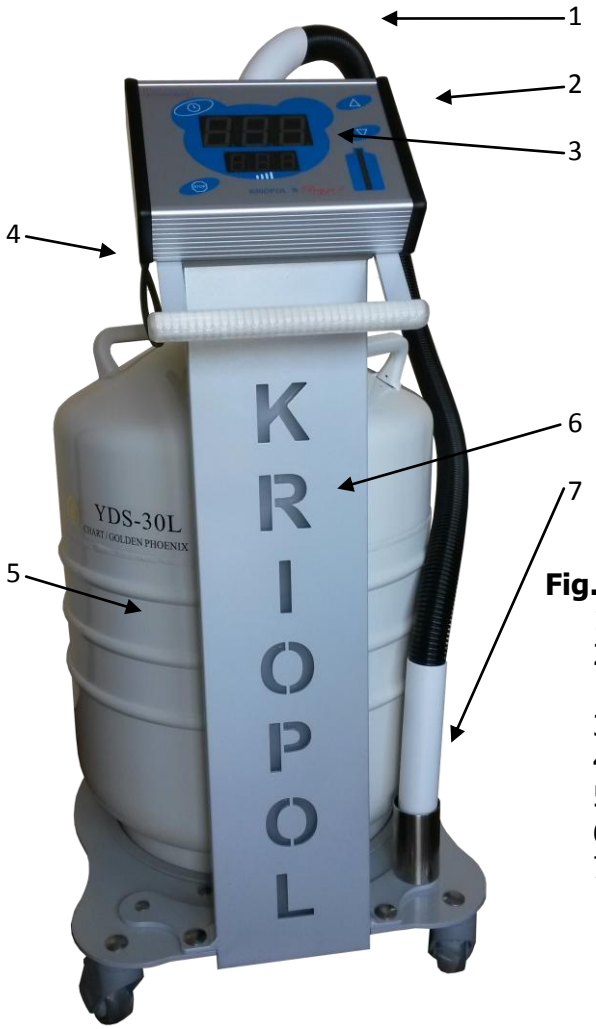


**Fig. 1** Unit overview
1. Supply line
2. Handpiece (behind the panel)
3. Control panel
4. Handpiece supply tube
5. Liquid nitrogen tank
6. Mobile frame
7. Supply line handpiece grip

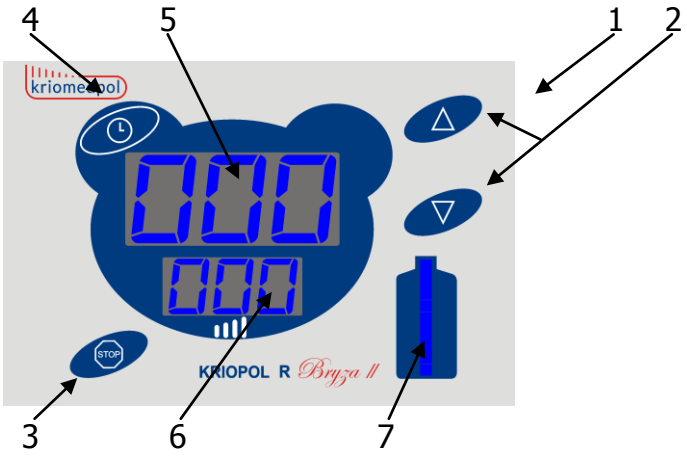


**Fig. 2** Control panel (front)
1. Main switch (on the back of panel)
2. Cooling and power adjustment switch
3. STOP switch
4. Clock resetting
5. Procedure duration display
6. Cooling power display
7. Nitrogen quantity display

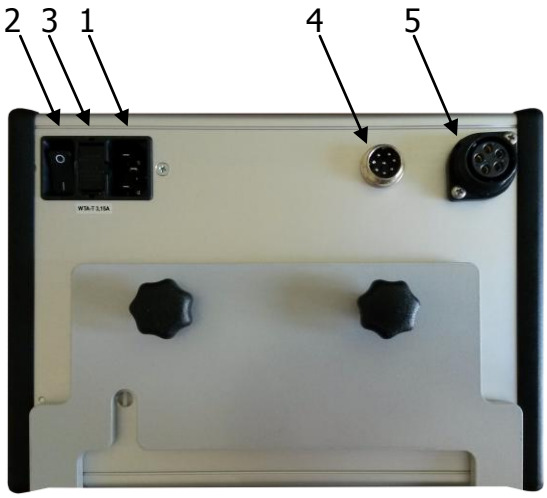


**Fig. 3** Back board of the control panel
1. Power supply cable socket
2. Power switch
3. Fuses 2 x T6,3L250V
4. Socket for connecting the nitrogen quantity measurement system
5. Handpiece connection socket

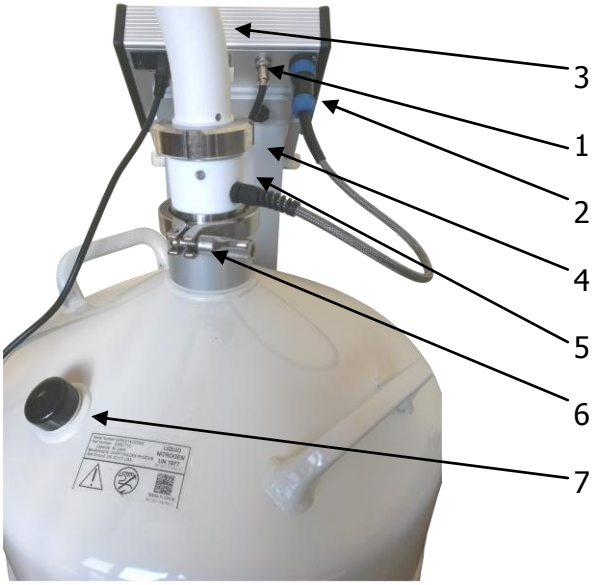


**Fig. 4** Handpiece and rear part of the control panel
1. Weighing system connection
2. Handpiece connection
3. Supply line
4. Supply line mounting nut
5. Handpiece
6. Handpiece clamp
7. Vacuum pumping valve cover

## 10. Adjusting the scales

The scales are factory-calibrated and do not require the user's intervention during normal use.

If the scales need to be calibrated, this can be done in two stages:

- Calibration of the high indication - it can be performed immediately after the tank has been completely filled.
- Calibration of the low indication - it can be performed when the no-nitrogen detector was tripped in the device. This is the right moment to adjust this setting.

To calibrate, shut down the device, then switch it on and at the same time press the timer reset key (4 on Fig. 2).

The main display will then show the direct reading of the weighing unit transducer, and the power display will show the preset value of the device for top or bottom setting of the weighing unit. The nitrogen level display indicates the actual setting.


**Fig. 5** Bottom setting adjustment (current value: 350, stored value: 320).

When the 7 bottom LEDs are lit, the power display will show the value memorized for weighing unit minimum, and the current value confirmed with STOP (3 on Fig. 2) will be the minimum weight.

Use the UP and DOWN buttons (2 on Fig. 2) to switch between display and min/max settings.

The 6 LEDs lit on the nitrogen level display indicate that the power display shows the stored value of maximum weight. Press STOP (3 on Fig. 2) to set the current value as the maximum weight.


**Fig. 6** Top setting adjustment (current value: 775, stored value: 680).

After setting the bottom reading, you can switch to setting the top value and vice versa. Press the timer reset button (4 on Fig. 2) to return to normal operation.

# 11. Electromagnetic compatibility (EMC)

## Electromagnetic emission testing criteria

| Test | Conformity | Environment |
|---|---|---|
| RF emissions<br>PN-EN 55011:2012<br>(CISPR 11) | Group 1 | RF emissions are only generated through internal operations of the device. The level is extremely low and should not cause any disruption to adjacent electronic equipment. |
| RF emissions<br>PN-EN 55011:2012<br>(CISPR 11) | Class A | |
| Current harmonics<br>PN-EN 61000-3-2:2014 | Class A | The device can operate in public electricity networks. |
| Voltage fluctuations and flicker<br>PN-EN 61000-3-3:2013 | Conformity | |

## Electromagnetic immunity testing criteria

| Test | Standard PN-EN 60601 | Conformity | Environment |
|---|---|---|---|
| Electrostatic discharge (ESD) | 2kV, 4kV, 6kV contact<br>2kV, 4kV, 8kV air | 6kV contact<br>8kV air | Floor should be finished with wood, concrete or ceramic tiles. For synthetic floors, relative humidity should be at least 30%. |
| Fast transient and burst | 2kV power<br>1kV signal terminals | 2kV power<br>No signal terminals | Power mains should be rated according to typical values for a commercial or hospital environment. |
| Surge susceptibility | 0.5kV, 1kV, 2kV power to earth<br>0.5, 1kV between power lines | 2kV power to earth<br>1kV between power lines | Power mains should be rated according to typical values for a commercial or hospital environment. |
| Voltage dips and interruptions | <5% $U_T$ for 0.5 cycle<br>40% $U_T$ for 5 cycles<br>70% $U_T$ for 25 cycles<br><5% $U_T$ for 5s cycle | 0% $U_T$ for 0.5 cycle<br>40% $U_T$ for 5 cycles<br>70% $U_T$ for 25 cycles<br>0% $U_T$ for 5s cycle | Power mains should be rated according to typical values for a commercial or hospital environment. If uninterrupted service is required, the device should be powered through an external uninterrupted power supply unit |
| Mains frequency magnetic field immunity | 3 A/m > 3s | 3 A/m > 3s | Mains magnetic field immunity is adequate for operating in typical commercial or hospital environment.<br>In case of any disruption of service, make sure that the magnetic fields present at the given location does not exceed this |

| | | | |
|---|---|---|---|
| | | | value. |

| Test | Standard PN-EN 61000 | Conformity | Environment |
|---|---|---|---|
| Conducted disturbances induced by radio frequency | 3 $V_{RMS}$ 0.15MHz to 80MHz | 3 $V_{RMS}$ 0.15MHz to 80MHz | Portable radio communication equipment should not be positioned closer to any part of the product, including the power cord, than the recommended separation distance determined on the basis of the RF transmitter frequency<br><br>Recommended separation distance:<br><br>$d=1.2\sqrt{P}$<br><br>$d=1.2\sqrt{P}$<br>for 80MHz to 800MHz<br><br>$d=2.3\sqrt{P}$<br>for 800HHz to 2.5GHz<br><br>d – distance, meters<br>P – maximum transmitter power [W] declared by device manufacturer |
| Radio frequency electromagnetic field | 3 V/m 80 MHz to 2500MHz | 3 V/m 80 MHz to 2500MHz | RF signal strength generated from fixed equipment and measured at the device operation site* should be less than the reference level** across any frequency range.<br><br>Disruptions may be caused by equipment marked with the following symbol:<br>  |

Remarks:

- ✓ $U_T$ - rated supply voltage of the device
- ✓ For radio transmitters operating across the wavelength range, the peak frequency formula is applied.
- ✓ Recommended distance may not ensure disruption-free service in any circumstances. Electromagnetic wave propagation depends on reflection against objects and people.
- ✓ * RF field strength generated by such fixed equipment as cell phone base station, radio and TV stations, amateur radio station cannot be precisely determined theoretically. Appropriate measurements need to be taken in order to determine the actual field strength. If the measured values exceed the reference level, the device

should be observed for potential disruption, and it may be necessary to consider moving the device to a location with lower disruption levels.

- ✓ ** Above the 0.15MHz to 80MHz frequency range, field strength should be less than 3V/m

## 12. Conditions of repairs

All repairs, both during and after the warranty period must be performed by the manufacturer of the device, i.e. **KRIOMEDPOL Sp. z o.o.**
The manufacturer allows the user to replace the external fuses.

In order to replace a defective fuse, one must:

- ❄ shut down the device using the power switch (2 of fig. 3)
- ❄ pull the power plug from the socket
- ❄ disconnect the panel's supply cable - device connection (1 on Fig. 3)
- ❄ disconnect the head plug (5 on Fig. 3)
- ❄ disconnect the scales system plug (4 on Fig. 3)
- ❄ disconnect the panel from the transport frame
- ❄ using a flat-blade screwdriver, lift the fuse cover and take it out (2 on Fig. 3)
- ❄ take out the defective fuse or fuses from its socket
- ❄ replace the defective fuse with a new one.

Once the fuse has been replaced, perform all the above-mentioned steps in a reverse order.

In most cases, fuses burn when the head or the control panel of the device become defective. If any irregularities are observed, please contact the service department.

## Shipping the device to a maintenance service representative

Before you ship your device to a service representative for an inspection or repair, if necessary, please contact us by phone at 48 22 733 19 04 or via e-mail at serwis@kriomedpol.pl
In case of an inspection check, please ship the control panel, the handpiece and the machine passport.
If the supply line needs to be shipped to service as well, please detach it from the handpiece through unscrewing.
In any case, please provide a brief description of the fault and the contact information to the person in charge of the device (for any further inquiry or arrangement on the repair terms).
The user of the device is responsible for securing the device properly and for any damage that may occur in transport to the service location.

**NOTE**
Only new T6,3L250V A fuses can be used. Attempts to repair fuses or to use fuses of characteristics different than the rated ones may lead to a serious defect of the device.

**"WARNING:** In order to avoid the risk of electric shock, the device can be connected only to electrical systems with protective earthing."

**"WARNING**: No modifications of the device are allowed."

**"WARNING:** No modifications of the device are allowed without the manufacturer's permission."

**"WARNING:** If the device has been modified, appropriate inspections and tests must be performed in order to ensure continued safe use of the device."

**"WARNING:** The device can be operated only by persons who have been trained by persons authorized by **KRIOMEDPOL Sp. z o.o.**"

**"WARNING:** The device must be connected to electrical system sockets in locations where it is possible to take out the power plug immediately and easily."

**"WARNING:** Quick evaporation of large quantities of liquid nitrogen in a non-ventilated room causes oxygen to be displaced or the composition of the air to be different, which may in turn lead to dizziness or loss of conscience."

**"WARNING:** Avoid using the device near other equipment. If this is necessary, observe all devices carefully to make sure they operate properly."

**"WARNING:** Use of a different supply tube than the one included in the scope of delivery may cause excessive electromagnetic emissions or reduced immunity to disturbances or interference, causing service interruptions."

**"WARNING:** Portable radio equipment (including antennas and wires) should be used at least 30cm away from any part of this device, including its supply tube."

# 13. Disposal

On 31 December 2014, **KRIOMEDPOL Sp. z o.o.** signed a contract for recycling of its waste products with Biosystem Elektrorecykling (business register (KRS)) no. 0000256584.

It is the user's duty to deliver waste equipment to a designated collection point for the purpose of recycling of waste electrical and electronic equipment.

By ensuring proper disposal of waste equipment, you help protect the environment.

When disposing of the device, one must observe the guidelines of local authorities or contact the manufacturer.

All waste elements of the device must be brought to appropriate waste electrical and electronic equipment collection point or the procedure to follow must be agreed with **KRIOMEDPOL Sp. z o.o.**


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