



BTL-6000 RSWT PRO

&

BTL-6000 RSWT ELITE

USER'S MANUAL

CONTENTS

1	GENERAL INFORMATION	5
1.1	Intended Purpose	5
1.2	User Profile	5
1.3	Operating Environment	5
1.4	Patient Profile	5
1.5	Contraindication for Shockwave Treatment	5
1.6	Possible Side Effects of Shockwave Treatment	6
2	SAFETY PRECAUTION AND WARNINGS	7
3	SYMBOLS AND MARKINGS	11
4	INSTRUCTIONS FOR OPERATION	12
4.1	Front and Rear Panel of the Device	12
4.2	Applicator Magnum	13
4.3	Applicator Easy	13
4.3.1	Applicator Position in the Holder	14
4.3.2	Trolley for BTL-6000 SERIES	15
4.3.3	Trolley with RSWT Applicator arm	15
4.4	List of Standard and Optional Accessories	16
5	DEVICE INSTALLATION	17
6	BASIC DISPLAYS AND OPERATING OF THE DEVICE	18
6.1	Device Startup / Shutdown	18
6.1.1	Setting the Admin profile	18
6.2	Navigation Controls	19
6.2.1	Therapy Settings Screen	19
6.2.2	Start, Interruption and End of Therapy	21
6.3	Applicator Magnum Settings	23
6.3.1	Outer Ring Indication	23
6.3.2	Parameter Settings and Inner Ring Indication	23
6.4	Device Settings	24
6.4.1	Sound	24
6.4.2	Date & Time	24
6.4.3	Language	24
6.4.4	Unit	24
6.4.5	Home Screen	25
6.4.6	Power and Accounts	25
6.4.7	Sleep Settings	25
6.4.8	Therapy Settings	25
6.4.9	Applicators	26
7	TROUBLESHOOTING	27
8	MAINTENANCE AND SAFETY INSTRUCTIONS	29
8.1	Exterior Cleaning of the Device	29
8.2	Cleaning and Maintenance of Accessories which Come into Contact with the Patient	29
8.2.1	Applicator Easy	30
8.2.2	Applicator Magnum	30
8.3	Fuse Replacement	30



8.4	Plugging the Device into an Electrical Outlet	30
8.5	Transport and Storage	30
8.6	Maintenance Instructions	31
8.6.1	Regular Maintenance.....	31
8.6.2	Shock Transmitter Replacement	33
8.7	Technical Parameters.....	41
9	EMC INFORMATION.....	43
9.1	Essential Performance of the Device	45
9.2	Manufacturer.....	46



1 GENERAL INFORMATION

1.1 INTENDED PURPOSE

BTL-6000 RSWT is a non-invasive therapeutic device using acoustic waves in order to stimulate local biological response of the treated tissue. Biological response includes decrease of local pain sensation, muscle relaxation and increase of blood microcirculation resulting in local metabolism enhancement and local trophic improvement.

The BTL-6000 RSWT can be used to treat chronic tendinopathies, insertional pain, trigger points, arthrosis, arthritis, calcifications and chronic inflammations.

1.2 USER PROFILE

The device shall be used by medically educated personnel. The user shall be familiar with all safety precautions, operating procedures and maintenance instructions given in this User's Manual.

1.3 OPERATING ENVIRONMENT

The device is intended solely for professional use in medical facilities. The device is designed for indoor use only. Do not for use in a location where explosion or water intrusion hazards are present or in oxygen-rich, dusty or humid environment and not to be exposed to direct sunshine. The device is not intended for home-use.

1.4 PATIENT PROFILE

The device is intended for adults only excluding pregnant or breastfeeding women, otherwise the use of the device is not limited by gender or weight. The patient must not show any signs of contraindications determined for the device. The user should take into account a detailed patient's medical history and examine the patient thoroughly to determine whether or not the application of therapy is suitable for the patient.

1.5 CONTRAINDICATION FOR SHOCKWAVE TREATMENT



If contraindications are not respected, the physicians prescribing therapy and the centre or clinic where the procedure is performed are fully responsible for the treatment and the patient's safety.

Do not treat (or expose) patients if the following conditions are present:

- Blood disorders, coagulation problems or the use of anticoagulants
- Pregnancy
- Thrombosis
- Cancerous diseases
- Polyneuropathy
- Acute inflammation and/or infection
- Any unstable medical or psychiatric conditions

Treatment must not be applied:

- To certain tissues: the eyes and the surrounding area, the myocardium, the spinal cord, the gonads, the kidneys and the liver



- On areas of the body and organs with possible gas content
- On areas in proximity to large nerve bundles, blood vessels, head and neck
- On areas where the sterile barrier between the applicator and open wound cannot be achieved
- On body areas with sensory deficit
- On areas where any artificial implants such as cardiac pacemakers, implanted defibrillators or implanted neurostimulators are presented
- On areas in proximity to bone growth zone in children
- On areas where therapy using local corticosteroid was applied
- On areas of benign and malignant tissue growth

1.6 POSSIBLE SIDE EFFECTS OF SHOCKWAVE TREATMENT

- Erythema or swelling can temporarily occur in the treated area
- Loss of bodily sensation, mild pain or itching can temporarily occur in the treated area
- Hematoma
- Petechiae
- Skin damage after previous corticoid therapy

Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user and/or patient is established.

2 SAFETY PRECAUTION AND WARNINGS

	Read the User's Manual carefully and become familiar with all its safety requirements, operating procedures and maintenance instructions before using the device. Use the device and its accessories only in accordance with the User's Manual.
	Do not apply therapy over the head, neck, thorax, over the carotid sinus nerves particularly in patients with a known sensitivity to the carotid sinus reflex, spinal cord and testes.
	Do not apply over swollen, infected, or inflamed areas or skin eruptions, e.g. phlebitis, thrombophlebitis, varicose veins, etc.
	Do not apply over, or in proximity to, cancerous lesions.
	Caution is advised when applying therapy directly to an area with impaired arterial blood supply.
	Do not deliver therapy through clothing.
	Keep verbal contact with the patient during therapy. Never leave the patient unattended.
	Before starting therapy, always check the device and its accessories (such as cable, applicators, connectors) for mechanical, functional or other damage. In case of a defect or deviation from normal function, stop using the device immediately and contact a BTL service. Should any defects be present, do not use the device.
	Only the power supply adapter approved and supplied by the manufacturer, complying with the specifications listed in the Chapter Technical Parameters , may be connected to the device.
	Before starting therapy always check the unit has been correctly connected to the mains; the applicator cable is not cross-routed (which may cause damage in the internal wires).
	Before the start of therapy make sure that all set parameters comply with your requirements. Review therapy contraindications.
	If the device shows any defects or if there are any doubts concerning its correct and safe functioning, terminate therapy immediately. If the source of the concern can't be determined after a thorough study of the user's manual, then contact an authorized BTL service department immediately. If the device is not used in accordance with this manual or if it is used when the device exhibits functional differences from those stated in this manual, then BTL is not responsible for any damage to or caused by the device
	Modifications to the device and its accessories are prohibited. Do not try to open or remove the device protective covers or disassemble the device for any reason. There is a danger of electric shock and serious injury. All servicing must be carried out by an authorized BTL service center; otherwise BTL bears no responsibility for further operation of the device.
	Do not disassemble any covers and connect cables or devices to the USB connectors. They are for service purposes only!

	Never use the accessories' ports or other ports to plug in anything else but what the ports have been designed for. There is a serious risk of electric shock and serious damage to the device! The device is equipped with a protective system against connecting accessories other than those supplied by the manufacturer. The device does not function with accessories from other manufacturers.
	Do not place the applicator close to any part of the device during therapy.
	Protect the device against unauthorized use.
	The applicator can only be plugged in and unplugged when the device is turned off.
	The safety locks must be appropriately locked to secure the connector correctly. If the connector cannot be locked contact the service representative.
	To unplug applicator, release safety locks and pull out the connector. Never pull the applicator cable. Never disconnect the applicator during therapy.
	Use of accessories other than those specified in this manual which may lead to non-function or malfunction of the device. This does not apply to any parts provided by BTL as part of an authorized service. There is a serious risk of electric shock and serious damage to the device! The device is equipped with a protective system against connecting accessories other than those supplied by the manufacturer. The device does not function with accessories from other manufacturers.
	Use of a unit that indicates an Error may pose a risk of injury to the patient, user, or extensive internal damage to the system.
	The device may interfere with other electronic therapeutic devices. Never use another electronic device on the same patient when BTL-6000 RSWT Pro (BTL-6000 RSWT Elite) is being applied.
	The device should not be used adjacent to or stacked with other equipment.
	Never replace the transmitter if the device is not switched off.
	Never immerse the applicator in a vessel with water or other liquid.
	Applicator's applied parts must be well cleaned before to start the therapy. Always place the SWT gel provided by BTL in the treatment area.
	Start the therapy with a lower intensity. Gradually increase to the required value after assurance of patient tolerance.
	RSWT Applicator arm is intended for supporting the applicator throughout the therapy.

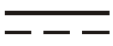
	The therapist must control the applicator throughout the whole therapy.
	To terminate operation, do not use the main power switch! Instead, press the start/stop button.
	Device displays messages concerning deviations or defects of the device and its accessories. If you are not sure what a message means, stop using the device and contact a BTL service.
	Change the tube+projectile system according to the device warning message. Do not use expired kit again. Change the silicon gasket together with the tube. Do not use old silicon gasket.
	Do not install the device in a place where is possible to be hit by falling objects.
	The mains to which the device will be connected must be installed and revised according to the current standards for electrical installations in healthcare facilities. Make sure voltage parameters of the power supply grid and device requirements match.
	Do not use a different type of fuse that the provided one in section 4.4.
	Transport, store and operate the device in the environment defined in Chapter 8.5. Do not operate the device if there is any danger of explosion or water intrusion into the device. The device cannot be in contact with flammable anesthetics or oxidizing gasses (O ₂ , N ₂ O, etc.). The device is not intended for exterior use!
	Do not place the device near other devices that produce strong electromagnetic fields (such as diathermy, X-ray, cell phones, and radiofrequency) in order to prevent mutual functionality influence. If this happens, move the device further away from the source of interference or contact an authorized BTL service center.
	Do not place the device in direct sunlight or near heat sources. It might lead to an excessive temperature increase and possible risk for the patient and the device. The device heats up during operation and therefore must not be located near direct heat sources. The device is cooled by forced air circulation. The cooling vents are located on the rear panel of the main unit. The vents must not be covered. When placing the device, leave at least 10 cm of free space behind the rear panel.
	Do not place any objects that produce heat or objects containing water or other liquids on the device.
	After moving the device from a cold to a warm environment, wait until the temperature equalizes before its connection to the mains (at least 2 hours).
	Keep the device out of reach of children.
	Do not place any objects on the device (including the applicator).
	Don't let the device unattended while it is switched on.



The device has applied parts of the B

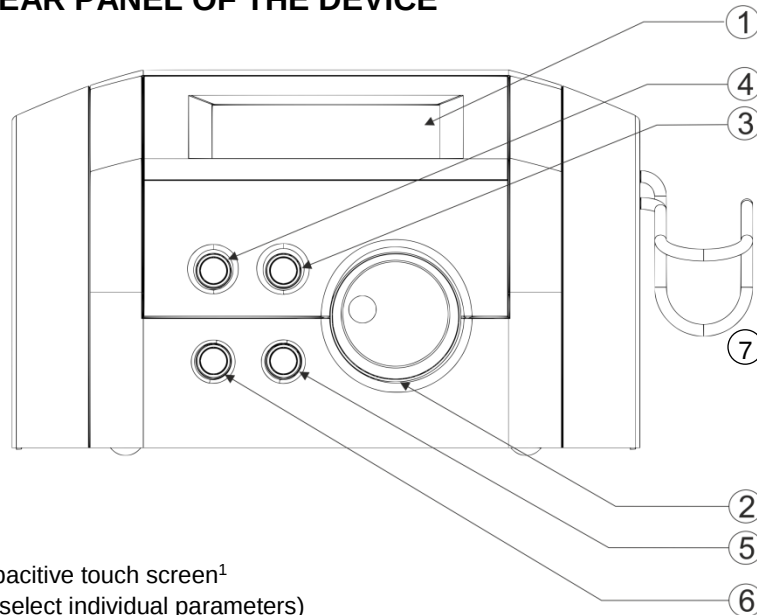
- The device and its accessories must be used in compliance with this manual.
- The device does not contain any components, except for the fuse, parts containing in the sets of shockwave transmitters, and RSWT or SWT exchangeable kit which can be replaced by the user. Do not remove the cover from the control unit. All repairs must be done by an authorized BTL service.
- If it is necessary to discard the device, the device must be disposed in a way common for electric and electronic equipment. The lithium battery must be removed. The removed battery must be disposed according to local hazardous waste disposal requirements. Do not place the device in municipal waste containers. The device itself does not contain any toxic materials which could harm the environment when disposed of ecologically.

3 SYMBOLS AND MARKINGS

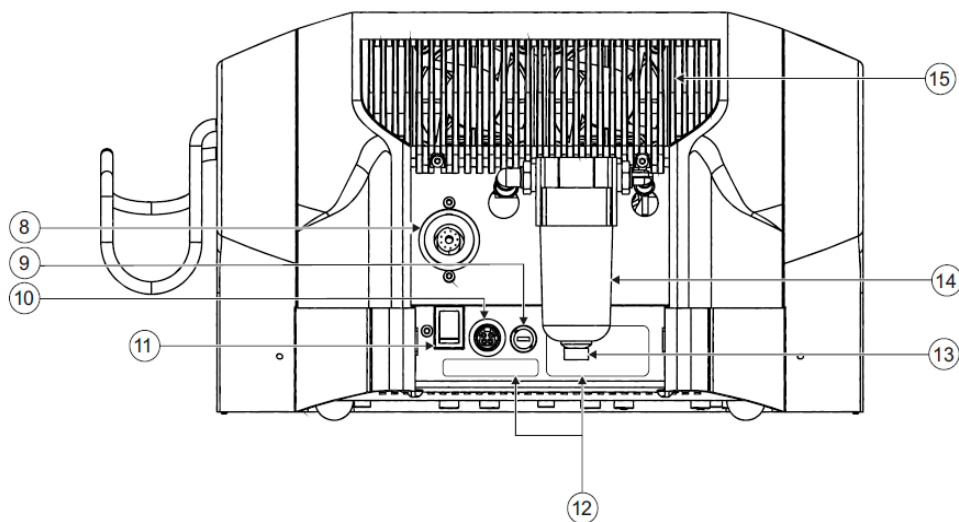
	Warning
	Caution
	Type B applied part
	Follow instructions for use (user's manual)
	Waste electrical and electronic equipment
	Name and address of the manufacturer
	Date of manufacture
	Serial number
	Batch code
	Catalogue number
	Class II equipment
IP22	For power supply adapter Protected against solid foreign objects of 12,5 mm Ø and greater / Protection against dripping water when tilted at 15°
	Upper limit of working temperature +31 °C
	Equipment is suitable for direct current only
	Indoor use only
	Medical device
	Authorized representative in the European Community
	CE mark

4 INSTRUCTIONS FOR OPERATION

4.1 FRONT AND REAR PANEL OF THE DEVICE



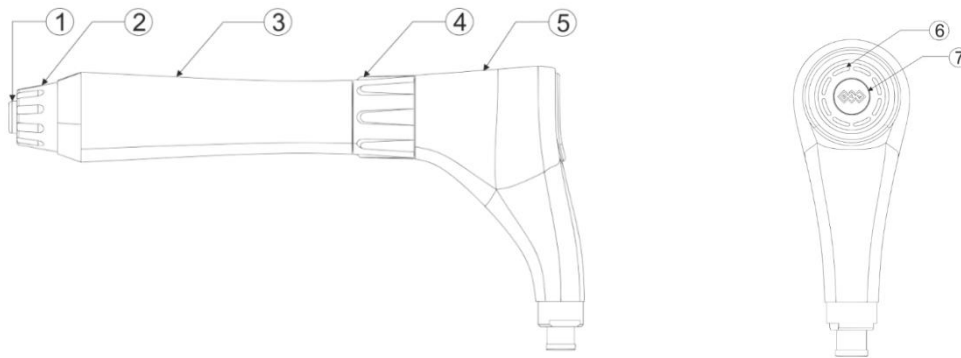
1. display with capacitive touch screen¹
2. select knob (to select individual parameters)
3. enter button
4. esc button
5. start/stop button (to start and stop therapy)
6. on/off button (aureole light in blue or white, when the control unit is "on")
7. applicator holder



8. connector for shockwave applicator
9. fuse of control unit
10. connector for power cable
11. power on/off switch
12. type label – contains type of the device, manufacturer and safety and warning signs
13. screw for draw the water
14. vessel for collecting condensed water
15. venting grid

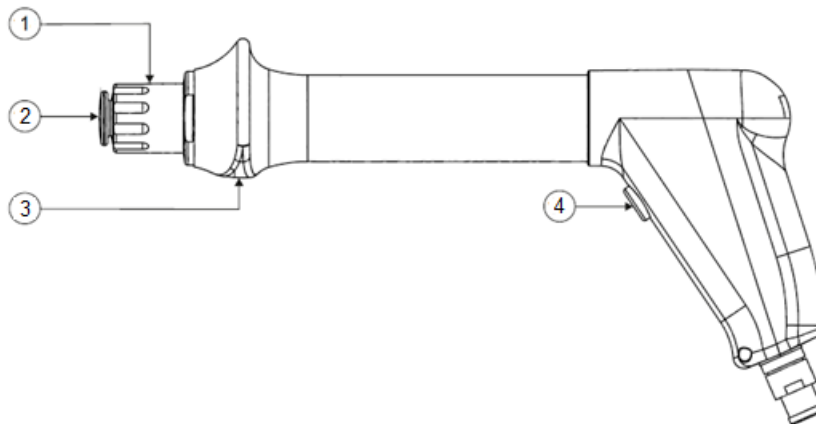
¹ BTL-6000 RSWT Pro – 5.7" capacitive touch display, BTL-6000 RSWT Elite – 8.4" capacitive touch display

4.2 APPLICATOR MAGNUM



1. shock transmitter of the applicator – applied part
2. screw cap of the applicator
3. hand rest of the applicator
4. encoder for parameter adjustment
5. handle
6. parameter value and status indications
7. start / stop button

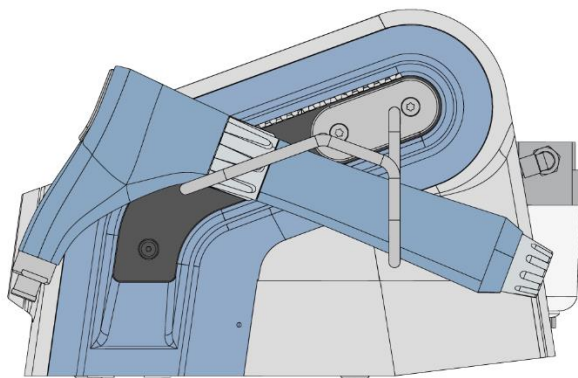
4.3 APPLICATOR EASY



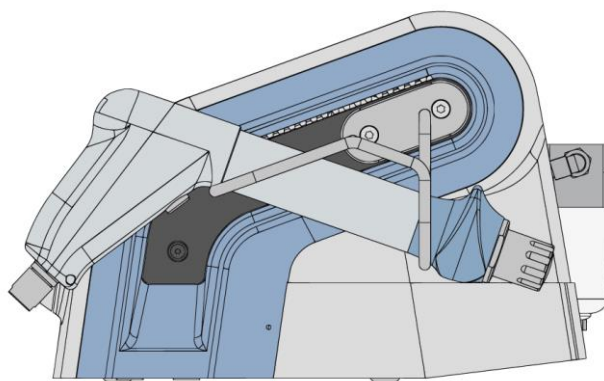
1. shock transmitter screw cap of the applicator
2. shock transmitter of the applicator – Applied part
3. hand rest of the applicator
4. start / stop button

4.3.1 APPLICATOR POSITION IN THE HOLDER

When the device is not used, place the applicator in the applicator holder as is shown on the picture below:



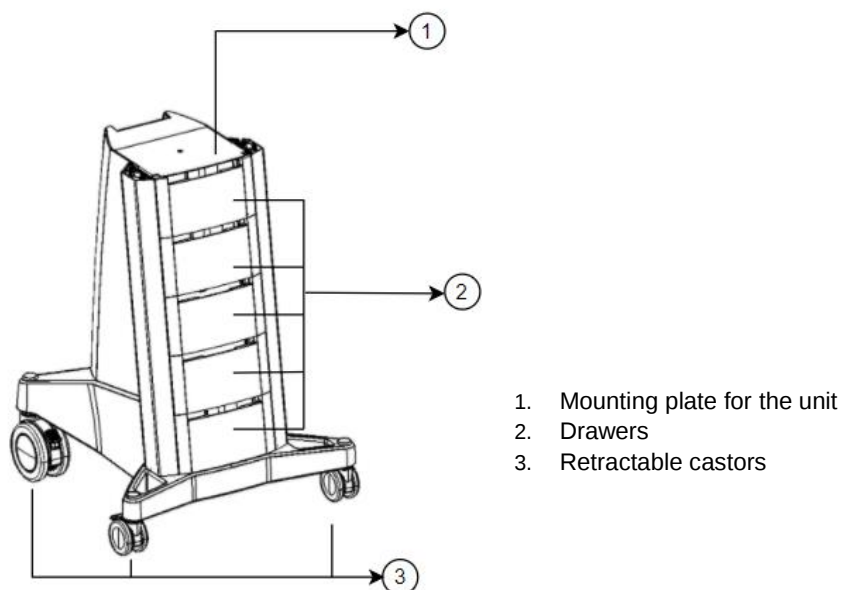
Applicator Magnum



Applicator Easy

4.3.2 TROLLEY FOR BTL-6000 SERIES

The trolley is intended for movement and placement of BTL-6000 RSWT Pro and BTL-6000 RSWT Elite. The trolley is equipped with drawers and retractable castors.



4.3.3 TROLLEY WITH RSWT APPLICATOR ARM

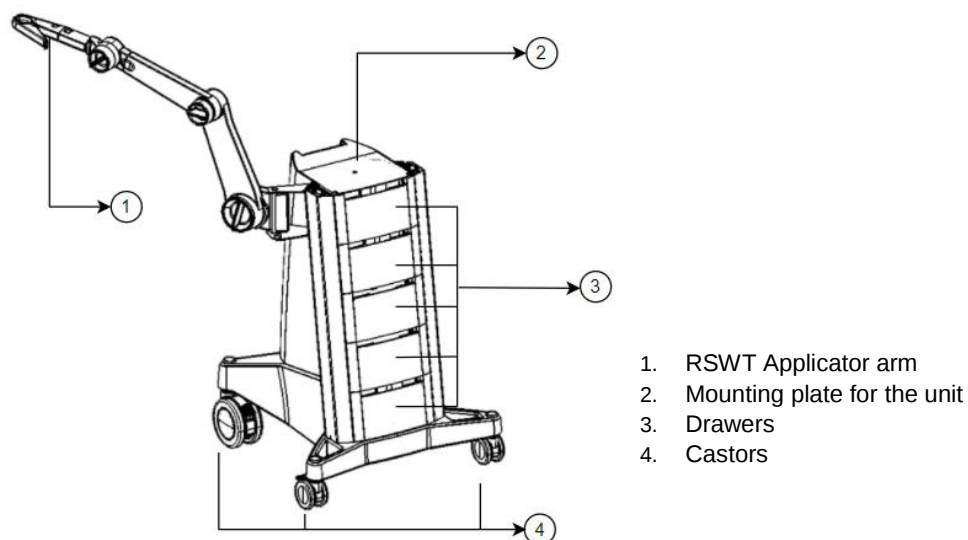
The trolley with RSWT Applicator arm is intended for movement and placement of BTL-6000 RSWT Pro and BTL-6000 RSWT Elite, and for supporting the applicator during the therapy.



RSWT Applicator arm is intended for supporting the applicator throughout the therapy.



The therapist must control the applicator throughout the whole therapy.



4.4 LIST OF STANDARD AND OPTIONAL ACCESSORIES



The device is not designed for use with other accessories or other medical equipment other than those stated in this manual.

Standard accessories:

- 1x Applicator Magnum with 15 mm multifocused shock transmitter
- 1x multifocused shock transmitter Ø 9 mm
- 1x focused shock transmitter Ø 15 mm
- 1x set of spare O-rings Ø 13 mm (7 pcs)
- 1x set of spare O-rings Ø 11mm (7 pcs)
- 1x applicator holder
- 1x gel 300 ml
- 1x power adapter
- 1x power cord
- 1x universal wrench
- 1x brush
- 1x magnetic stick
- 1x spare fuse 1xT10AH/250 V
- 1x user's manual

Optional accessories:

- Applicator Easy
- 20 mm vibrating transmitter
- 36 mm vibrating transmitter
- 15 mm multifocused titanium transmitter
- 9 mm multifocused trigger transmitter
- 20 mm titanium transmitter with sanitary cover
- 20 mm transmitter with sanitary cover
- Set of sanitary covers 20 mm (100 pcs)
- RSWT exchangeable kit²
- SWT exchangeable kit³
- Transportation case for BTL-6000
- Gel 300 ml
- Trolley for BTL-6000 SERIES
- RSWT Applicator arm

² compatible with Applicator Magnum

³ compatible with Applicator Easy



5 DEVICE INSTALLATION

Always inspect the packaging for damage. If the packaging is damaged, do not proceed with assembly and set-up and return the device to the distributor. Keep the original box and packaging to ensure safe future transport of the device.



After moving the device from a cold environment into a warm one, do not plug it into the power source until the device has had to equilibrate to room temperature (minimum 2 hours).



Always position the device out of direct sunlight. During operation, the control unit gets warm, so it must not be positioned near direct heat sources. The device is self-cooled by forced air circulation. The cooling vents are located on the rear panel and on the bottom. Do not cover or block these vents. Allow a minimum of 10 cm clearance behind the rear panel. Do not place the device on a soft surface (such as a towel) which may obstruct air flow to the bottom cooling vents.

Unpack the device and place it on a stable horizontal surface which is suitable for its weight.



Do not put any heat-producing devices or objects containing water or other liquid on the device. Do not place the device close to appliances producing strong electromagnetic, electric or magnetic field (diathermy, X-rays, etc.), otherwise it could be undesirably influenced.



Do not place the device in dusty environment.

For any questions you may have, please contact a BTL service.

6 BASIC DISPLAYS AND OPERATING OF THE DEVICE

The device comes with preinstalled software and the necessary hardware to run this software. There is no need from the user perspective to change either the hardware or software. If there are any new versions of the software released in the future then BTL service personnel will handle the upgrading of the software if required.



Make sure the marking on the applicator connector's end and applicator connector are pointing against each other and also that they are touching.



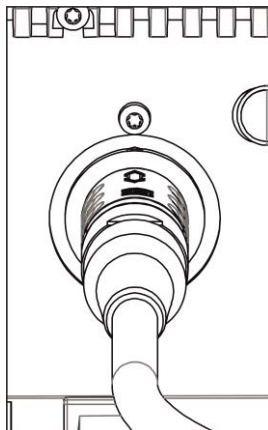
When disconnecting the connector take the indented part of the applicator connector's end in your fingers and pull slowly towards you to disconnect the connector carefully. Before disconnecting the connector make sure the device is switched off by mains switch on the rear panel of the device and the power cord is unplugged from the mains.



Do not turn the entire connected connector by force; otherwise there is a risk of damage to the device!

6.1 DEVICE STARTUP / SHUTDOWN

1. First connect the device in mains by means of the supplied power supply adapter, which you will connect to the connector on the rear panel of the device and to a 100 V - 240 V mains socket. The device detects the voltage automatically. Plug the device directly in the mains; do not use extension cords with multiple sockets or multi-socket adaptors.
2. Connect the applicator to the connector on the rear panel (8) so the arrow is on top:



3. Switch the mains switch on the rear panel to position "I".
4. Press the **on/off** button on the front panel⁴.
5. Turn off the device by pressing the **on/off** button.

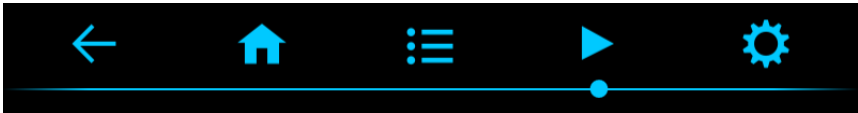
6.1.1 SETTING THE ADMIN PROFILE

After the very first turn-on of the device, the user will be asked for setting the Admin profile including setting the password as protection against unauthorized access.

The device prompts for username and password and allows access only after successful authentication of the user credentials.

⁴ After switching the device on, the device will run a self-diagnostic of its internal circuits and its functions for about 10 to 15 seconds. If any fault is detected, the control unit will lock itself into a "secure" mode. If this situation occurs, please contact your authorized BTL service.

6.2 NAVIGATION CONTROLS

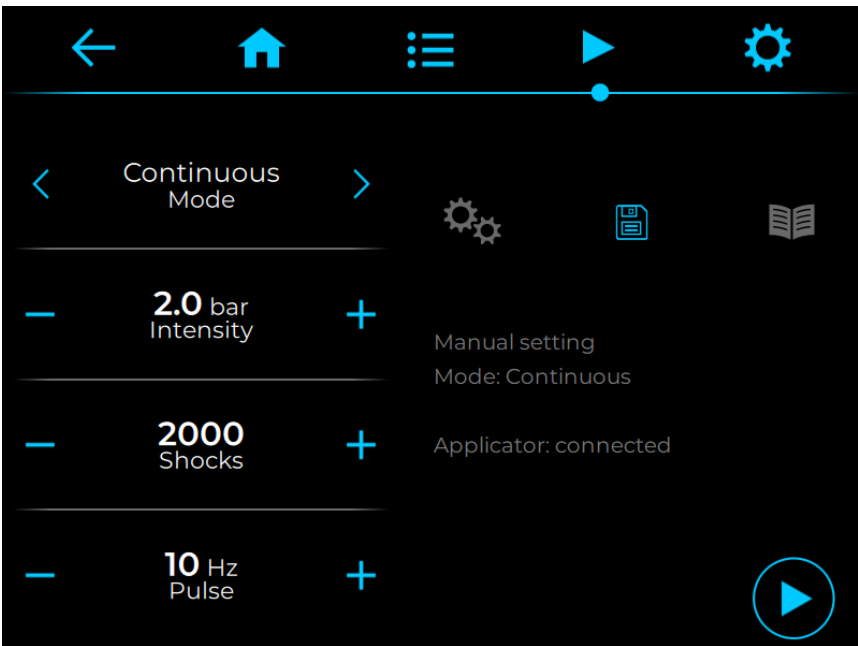


The top part of the touch screen contains a navigation toolbar:

	BACK	displays the previous screen
	HOME	enables returning back to screen, which is configured as Home (reconfigurable by user)
	LIST	displays the list of available preset protocols and allows to edit it allows quick access to favorite protocols allows quick access for choosing the preset protocols for specific body area
	THERAPY	displays the therapy settings screen
	SETTINGS	enables setting of the device functions

6.2.1 THERAPY SETTINGS SCREEN

After pressing the **Therapy** button from the navigation toolbar, the device displays therapy parameters screen, from where the full range of therapy parameters can be set and the therapy can be started immediately.



- Mode** – user can choose to work in different therapy modes
- Intensity** – pressing + or - allows the user to set need pressure
- Shocks** – pressing + or - allows the user to set the need numbers of shocks
- Pulse** – allows the user to set the frequency of shocks

	Allows the user to edit the advanced therapy parameters.
---	--



	Save button allows the user to save the current therapy setting. The therapy is saved as user-defined therapeutic protocol.
	Displays detailed information about preset protocols.
	Start therapy button - the device enters in therapy mode and after pressing the trigger button on the applicator the therapy starts.
	Pause therapy button.
	Stop therapy button.

6.2.1.1 Mode

The device supports different therapy modes, which can be changed by pressing **Mode** button.

6.2.1.1.1 Continuous

This mode enables the user to create single section therapy consisting of adjustable intensity, frequency and number of shocks. In this mode all parameters are adjustable even during running therapy.

6.2.1.1.2 Intensity Gradient

This mode enables automated change of both intensity and frequency.

6.2.1.1.3 Sequences

This mode enables creating therapy sequence by setting intensity, frequency and number of shocks of each section in the sequence. The sequence can consist of up to 99 sections. During running therapy intensity is adjustable.

6.2.1.1.4 Single Shocks

This mode enables the user to activate only one shock by one press of the trigger button.

6.2.1.2 Setting the Intensity

The intensity (power) of the shockwave therapy can be set on the therapy parameters screen, even during the course of therapy. After pressing the intensity button it is possible to set the intensity pressing + or -, by the select knob or through the encoder of the applicator. The intensity can be set:

- Between 1.5 and 4 Bar for BTL-6000 RSWT Pro. The intensity can be changed in 0.1 Bar increments.
- Between 1.5 and 6 Bar for BTL-6000 RSWT Elite. The intensity can be changed in 0.1 Bar increments.

6.2.1.3 Setting the Number of Shocks

The total number of shocks for therapy can be set by the screen of the therapy parameters, even during the course of therapy. The number can be set either by pressing the + or – of button labelled number of shocks, or for quick selection, turn the select knob of the device, or knob of the applicator. Two times pressing the button number of shocks gives additional options to the user. It can be selected one of the predefined values up to 9000 or can be entered manually from the numeric keyboard the exact number of shots.

6.2.1.4 Setting the Frequency

BTL-6000 RSWT PRO & BTL-6000 RSWT ELITE supports range of different frequencies which can be set by pressing the **Pulse** button. After pressing the frequency button it is possible to set the frequency by + or -, by the select knob or through the encoder on the applicator. For relation between maximal frequency and intensity, see the table below. The frequency can be set:

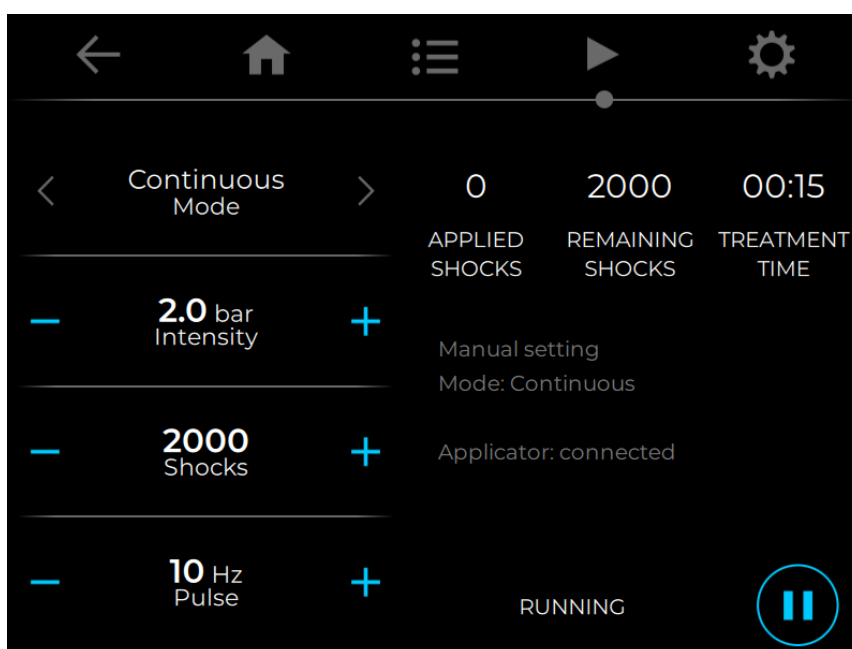
- Between 1 and 15 Hz for BTL-6000 RSWT Pro. The frequency can be changed in 1 Hz increments.
- Between 1 and 22 Hz for BTL-6000 RSWT Elite. The frequency can be changed in 1 Hz increments. On the maximum intensity of 6 Bar, the maximum possible value of the frequency is 10 Hz (see the table below).

Frequency [Hz]	Intensity [Bar]
10	from 6.0 to 5.1
11 - 22	from 5.0 to 1.5

6.2.2 START, INTERRUPTION AND END OF THERAPY

To start the therapy after selecting one of the preset protocols or after setting the therapy parameters on the **MANUAL** screen, press the **Start therapy** button on the touch screen or **start/stop** button on the front panel. The therapy can only be started if the manual screen is displayed. Once the **Start therapy** button on the touch screen or **start/stop** button on the front panel is pressed, the device is ready to start delivering shocks. Press the trigger button on the applicator and shocks will start to be delivered from the applicator.

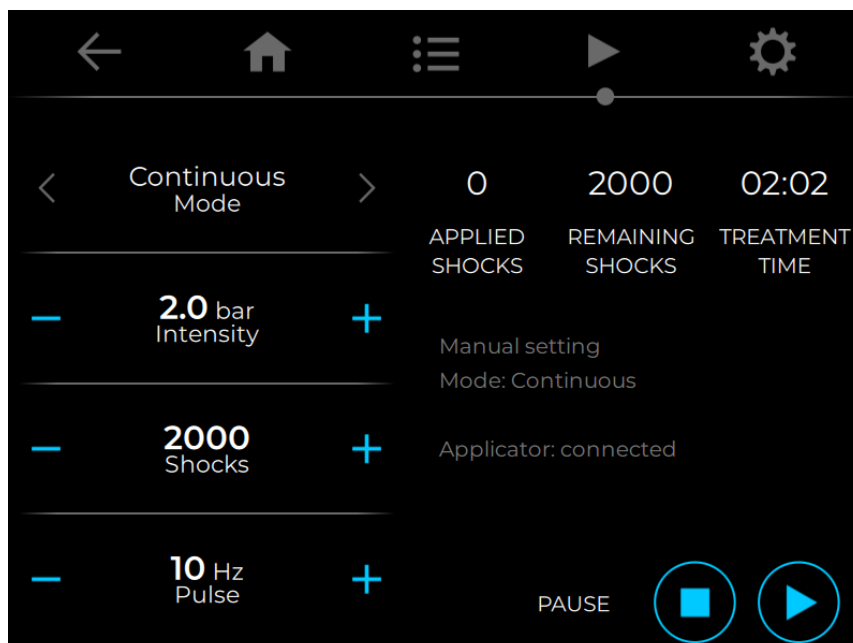
When the therapy starts on the display is visualized the information of the number of applied shocks, remaining shocks, and treatment time.



The operator can pause the therapy by pressing **Pause therapy** button at any time.

After pressing the **Pause therapy** button the device enter in pause mode, and operator have two possibilities:

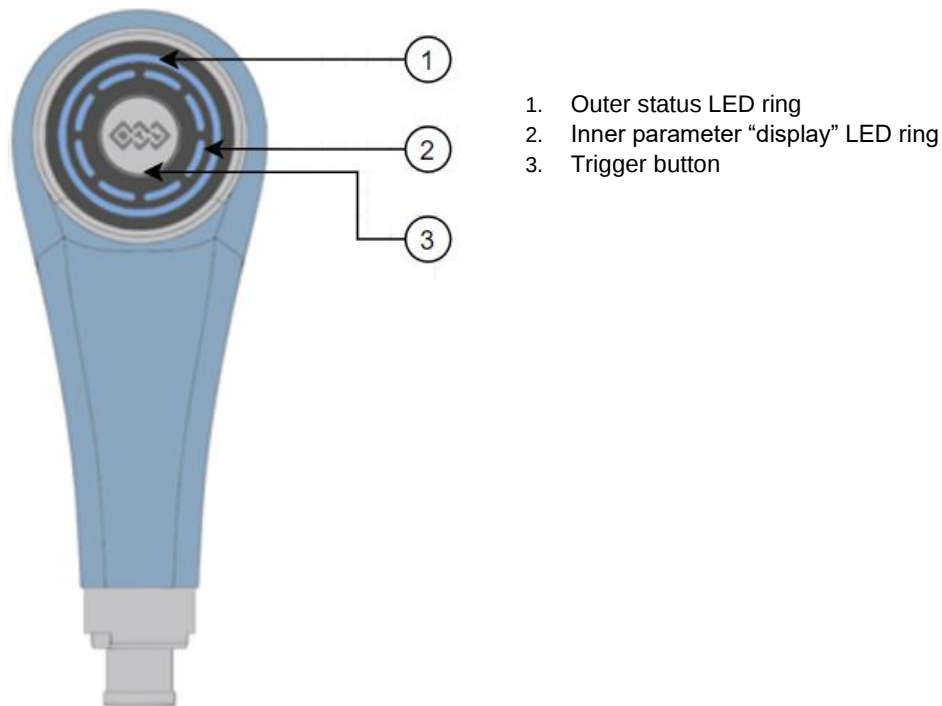
1. continue the therapy – by pressing the **Start therapy** button or **start/stop** button on the front panel
2. cancel the therapy – by pressing the **Stop therapy** button or **esc** button on the front panel.



6.3 APPLICATOR MAGNUM SETTINGS

The applicator is equipped with a light parameter indication which serves as a tool for parameters checking and adjusting.

Adjustment encoder allows comfortable changing of the selected parameter by rotation. The therapy parameters can be changed during the therapy if it is allowed from the device menu.



6.3.1 OUTER RING INDICATION

- When the device is OFF both rings are in OFF state.
- When the device is in ready mode the ring is blinking.
- When the device is in therapy mode the ring shine.

6.3.2 PARAMETER SETTINGS AND INNER RING INDICATION

6.3.2.1 Intensity Setting and Indication

When the selected parameter for adjustment from main unit is **Intensity**, the user is able to change it from the applicator's encoder. The increasing of the intensity will switch on the diodes.

6.3.2.2 Shocks Setting and Indication

Both of the devices BTL-6000 RSWT PRO & BTL-6000 RSWT ELITE support adding up to 9999 shocks. When the selected parameter for adjustment from the main unit is **Shocks**, the user is able to change them from the applicator's encoder. One step of the encoder rotated to the right side will increase the shocks with 100. One step of the encoder rotated to the left side will decrease the number of shocks with 100. No matter how many shocks will be set, all 8 internal segments will glow. During the therapy, they will be evenly extinguished one by one until the end of the therapy.

6.3.2.3 Frequency Setting and Indication

When the selected parameter for adjustment from main unit is **Frequency**, the user is able to change it from the applicator's encoder. The increasing of the frequency will switch on the diodes.

6.3.2.4 Trigger Button

When the parameters are set pressing the trigger button will activate the therapy. In single mode one pressing means 1 shot. In the continual mode one pressing of the button will start the therapy and second pressing will pause the therapy. The therapy automatically will stop when the shocks become to 0.

6.4 DEVICE SETTINGS

Press the SETTINGS button on the touch screen to browse through the following menus of function settings and information:

- Sound
- Date & Time
- Language
- Unit
- Home screen
- Power and Accounts
- Sleep settings
- Therapy settings
- Applicators

6.4.1 SOUND

Use this option to:

- change sound volume
- to enable/disable the touch sound

6.4.2 DATE & TIME

Use this function to set the time and date.

6.4.3 LANGUAGE

This function allows the user to select the language of the displayed text. English is set by default.

6.4.4 UNIT

In the unit submenu, view information and/or change settings for the following parameters:

- Firmware
- Hardware
- Network settings
- Keys
- Last events
- Service functions
- Service
- Total number of shocks

6.4.4.1 Firmware

Displays software packages and version number.

6.4.4.2 Hardware

Displays device hardware, applicator's hardware and serial numbers.



6.4.4.3 Network Settings

Displays information about network setup and its parameters.

6.4.4.4 Keys

Security code for remote access. Not applicable for the standard use.

6.4.4.5 Last Events

Displays list of the device's last events.

6.4.4.6 Service Functions

This option is intended for servicing the device.

- Enter unlock code
- Enter HW key
- Update firmware
- Export logs
- Restore default settings
- Factory reset
- Device statistics
- Open source licenses

6.4.4.7 Service

Use this function to access servicing mode. It can only be used by an authorized service center.

6.4.4.8 Total Number of Shocks

Displays a total number of generated shocks by the device.

6.4.5 HOME SCREEN

This option enables to setting the type of the screen after HOME button is pressed.

6.4.6 POWER AND ACCOUNTS

This menu allows checking or changing of power and accounts settings.

- Shut down – pressing the Shut down button the device will display the window with confirmation (V) or rejection (X) of shutting down.
- Sleep – pressing the Sleep button the device will turn into sleeping mode. The display is OFF and the on/off button is blinking in orange.
- Sign out – pressing the Sign out button the device display Login screen and enables log in different user.
- Change password – allows setting or changing the password required to work with the device.
- User accounts – pressing the User accounts button will display all user's names and types and enables managing them.

6.4.7 SLEEP SETTINGS

This menu allows setting of the screensaver and sleep intervals.

6.4.8 THERAPY SETTINGS

This menu allows checking or changing of therapy settings.

- Adjustable parameters during therapy – this option allows to enable/disable the function of adjusting the therapeutic parameters via applicator's encoder during running therapy.
- Pause between sections – this option allows enable/disable the pauses between sections.



6.4.9 APPLICATORS

This menu contains information about a number of generated shocks as well as the guide for changing the applicator shell or tube and enables to reset the shock counter.

- Information – contains detailed information about the applicator.
- Shocks counter – this option enables the user to check a number of generated shocks of the applicator and shell or tube.
- Applicator kit replacement guide – enables start of replacement procedure of the shell or tube and reset the number of applied shocks.



7 TROUBLESHOOTING

The device is designed with user and patient safety in mind. During each start-up, the device carries out self-diagnostics of the internal circuits and functions. If there is any unacceptable deviation, the device will display message **error**. If the problem persists after device restart (turn the device off and on using the main switch), call an authorized BTL service center.

The following table serves as a guideline to solve some common problems that may occur during the operation of the device.

Problem	Possible reason and solution
Device does not start.	Check the power cord and the power cord connector. Switch the main switch to ON position ("I").
Main switch is on position I but the orange light guide of ON/OFF button didn't light and device does not start .	Switch the main switch in O position Disconnect the power cord from the mains Check the fuse, if is interrupted change it with the spare one. Connect the device and turn the main switch in position I If the problem persists contact a BTL service.
Display error message after turning on the device.	The device did not pass self-diagnostics. Check that the applicator is connected properly and restart the unit. If problem persists, contact a BTL service.
The touch screen does not work properly	Contact a BTL service.
Therapy stopped unexpectedly due to main unit overheating.	Ensure that all air vents of the device are free. Ensure that the recommended parameters of the therapy and device operating conditions are not exceeded.
Error during applicator calibration.	Turn off the device. Check that the applicator is properly connected. Remove the applicator connector. Make sure the connector mark of the applicator matches the connector mark of the main module Turn on the device.
Applicators were disconnected from the main unit while in operation.	Switch the device off and reconnect applicators.
Applicators were connected to the main unit while in operation.	Restart the device.
The intensity sensation is lower than usual.	Clean the applicator's shell for applicator 844-APEA-M ⁵ Clean the tube for projectile for applicator 844-APELPR-M ⁶ Change the transmitter O-rings if they are smashed If problem persists, contact a BTL service.
Missing the shocks during therapy running.	Clean the applicator's shell for applicator 844-APEA-M Clean the tube for projectile for applicator 844-APELPR-M If problem persists, contact a BTL service.
Therapy cannot be started.	Check that all accessories are properly connected. If the problem persists after the device restart, follow the instructions and contact a BTL service.
Control buttons or Encoder wheel are partially or completely unresponsive.	Contact a BTL service.
For Applicator 844-APELPR-M only	
The applicator knob cannot be rotated.	Contact a BTL service.

⁵ =Applicator Easy

⁶ =Applicator Magnum



The therapy parameters cannot be set by rotating the knob.	Restart device, if the problem persists contact a BTL service.
One or both of LED rings are off during the therapy.	Restart device, if the problem exist call your BTL service center.
Part of the outer LED ring is off.	Contact a BTL service.
One or few segments from internal ring not work.	Contact a BTL service.



8 MAINTENANCE AND SAFETY INSTRUCTIONS

The recommended intervals for inspection of the device are 24 months after installation, subsequently each 12 months. The intervals may differ according to the local regulations. The inspection shall be performed according to procedure authorized by BTL.



Do not use the device if it is damaged! Before each use, check that the device and its accessories (especially cables) are not mechanically or otherwise damaged. Do not immerse it in any liquid. To keep the device clean, do not store or use it in extremely dusty environment for a long time.

8.1 EXTERIOR CLEANING OF THE DEVICE

Use a soft cloth slightly moistened with water or with a 2% detergent solution to clean the exterior of the BTL-6000 RSWT Pro and BTL-6000 RSWT Elite devices and its parts. Clean the device once per week.



Never use cleaning agents containing alcohol, ammonia, benzene, thinners, etc. Never use abrasive cleaning materials which will scratch the device's surfaces. No parts of the device require sterilization. Care should be given to prevent water or other liquids from getting inside the device.

8.2 CLEANING AND MAINTENANCE OF ACCESSORIES WHICH COME INTO CONTACT WITH THE PATIENT

Clean and disinfect after each client using approved cleaning agents. For example, Sekusept, Bacilol, and Incidur Spray can be used. For the cables of accessories, use Incidur Spray and the alike.



Do not use solvents!!!

The exterior surface of the shock transmitter and the cap can be washed with warm water or cleaned with soft cloth. However, to completely remove all of the contact gel from the shock transmitter and the cap, it will be necessary to unscrew the shock transmitter and clean it.

Use the transmitter nut wrench to unscrew the nut of shock transmitter. Clean accurately the nut and transmitter until no gel remains on its surfaces (including internal surface of the nut).

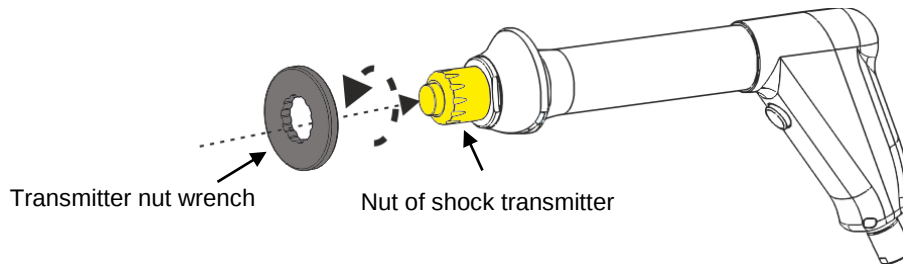


Before to screwing back to the applicator ensure that the nut and transmitter are absolutely dry. It is not allowed to have water drops or gel on them.

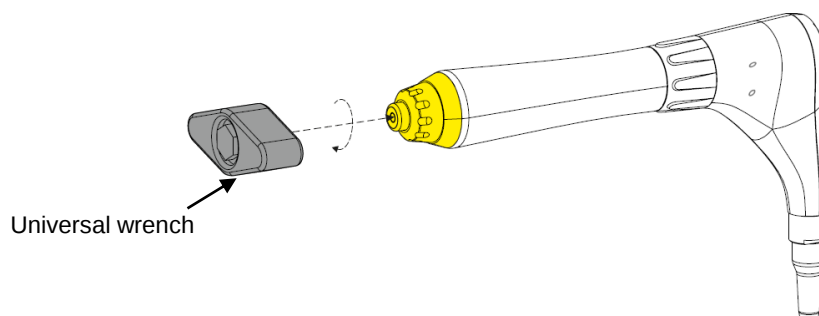


Tighten the nut of the shock transmitter until it stops turning. The not well screwed nut will lead to damage the internal components of the applicator!

8.2.1 APPLICATOR EASY



8.2.2 APPLICATOR MAGNUM



8.3 FUSE REPLACEMENT

The fuse is placed in the round black boxes on the rear panel. During replacement, check the correctness of the fuse being inserted. This action should only be done by a person acquainted with this procedure!

Before replacement, make sure that the main power switch of the device is in the "0" position and the adapter is unplugged from the unit. Turn the segment of the fuse box to the left using a flathead screwdriver or coin in the slot to remove the fuse. Insert a new fuse and turn it to the right.



Do not use fuses other than those stated above the fuse box!

8.4 PLUGGING THE DEVICE INTO AN ELECTRICAL OUTLET

The device is equipped with automatic voltage detection, so it can be used for voltages within the 100-240V.

8.5 TRANSPORT AND STORAGE

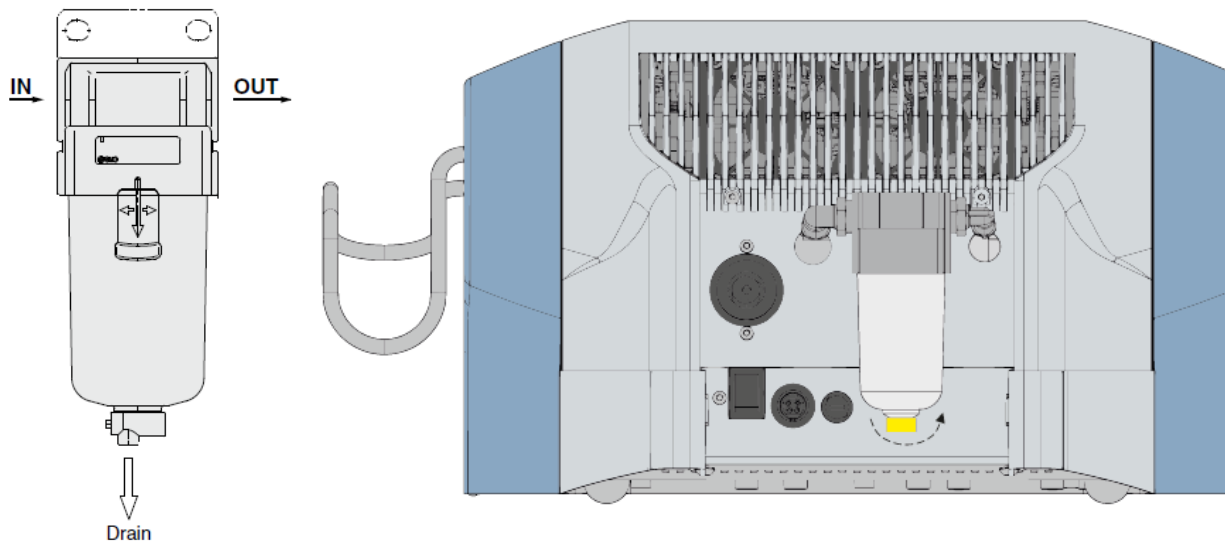
Keep the shipping container and all packaging materials. Transport the unit in original box to ensure maximum protection. Unplug the main power cable and all accessory cables. Take care to avoid shocks or jarring movements to the device during transport. This device should only be transported and stored under the conditions defined in the chapter Technical Parameters.

8.6 MAINTENANCE INSTRUCTIONS

8.6.1 REGULAR MAINTENANCE

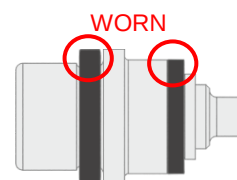
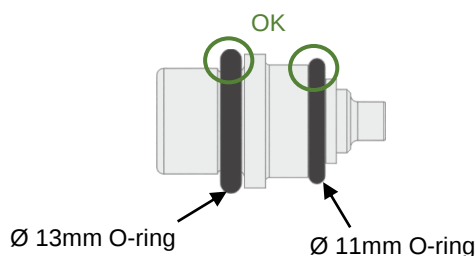
At the end of each working day, the amount of condensate in the vessel on the rear side of the device should be checked. If not empty, remove all the collected condensate and clean the vessel. Additionally, the device automatically prompts you after 100,000 shot pulses the device to pour out the condensate from the vessel.

To release the vessel for condensate, unscrew the yellow draining guide by turning to the left. After pouring the condensate out screw the draining guide back into closed position tightly.



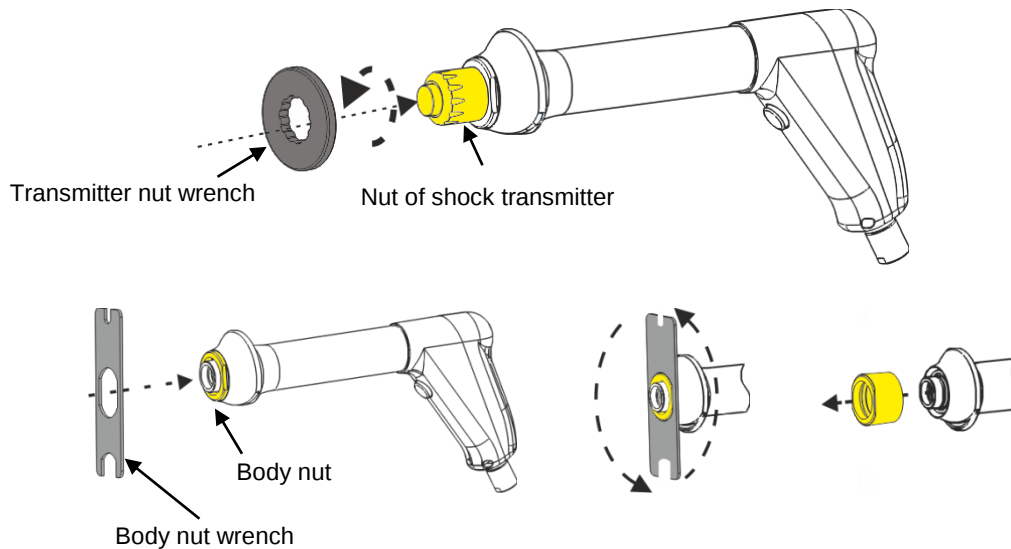
Pay attention during condensate drain. Place a cup under the condensate drain to avoid getting wet on the table, floor or near appliances.

Once per month check condition of shock transmitter's O-rings. If their outer surface is worn and flattened, they have to be exchanged by the spare ones included in accessories. This will ensure correct transmission of the shock energy and prevent the contact gel from penetration inside the applicator and damage it. Latest together with the applicator kit replacement the O-rings should be exchanged.



8.6.1.1 Applicator Easy

At the end of each working day unscrew nut of the shock transmitter (by transmitter nut wrench) and body nut (by body nut wrench), rinse them in a clear water to remove all residues of contact gel. Clean the nut as well and remove impurities and residues of contact gel from the gap between applicator's grip and front part of the case. This procedure prevents threads of both nuts from stiffen, what may make unscrewing of the nuts and changing of shock transmitter or case difficult or impossible.



8.6.1.2 Applicator Magnum

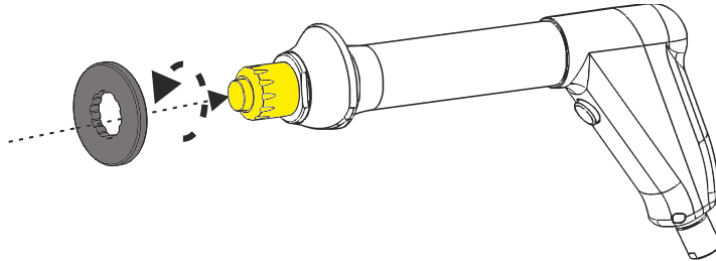
At the end of each working day unscrew nut of the shock transmitter (by universal wrench) and shell (by universal wrench), for details see chapter 8.6.2.2. Rinse the shock transmitter in clear water to remove all residues of contact gel. Clean the nut as well and remove impurities and residues of contact gel from the gap between applicator's grip and front part of the case. This procedure prevents threads of both nuts from stiffen, what may make unscrewing of the nuts and changing of shock transmitter difficult or impossible.

8.6.2 SHOCK TRANSMITTER REPLACEMENT

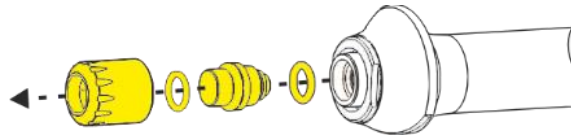
The shock transmitter can be replaced as necessary. Three shock transmitters are included as part of the standard accessories.

8.6.2.1 Applicator Easy Transmitter Replacement Procedure

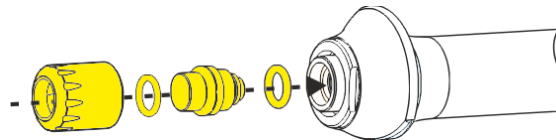
1. Use the transmitter nut wrench (included in the box with applicator) to unscrew the nut of the shock transmitter.



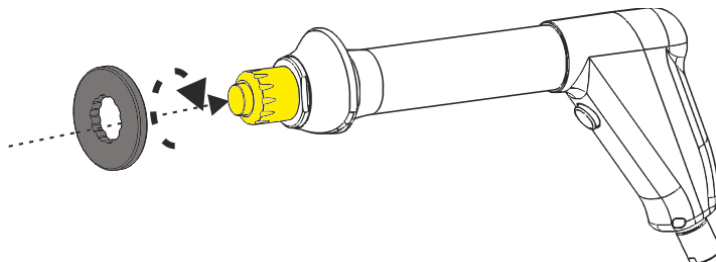
2. Take the shock transmitter together with both O-rings out from the applicator.



3. Insert the selected shock transmitter to the applicator including mounted O-rings.



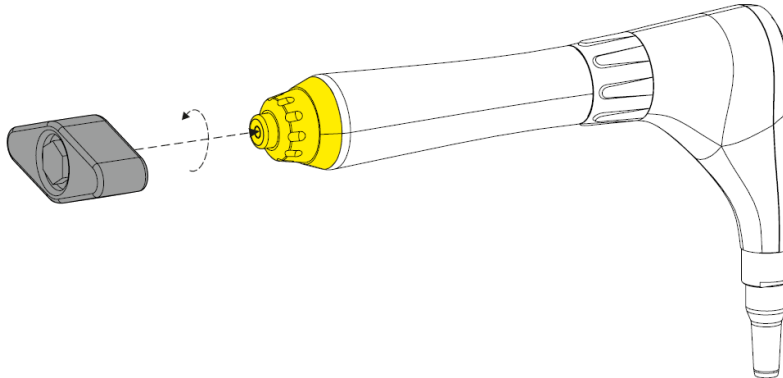
4. Put the nut back in place and **tighten it firmly** using the transmitter nut wrench.



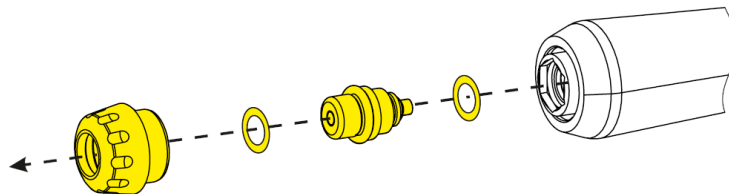
If the nut is not **TIGHTENED PROPERLY**, the projectile may get jammed after mere few thousand shocks!

8.6.2.2 Applicator Magnum Transmitter Replacement Procedure

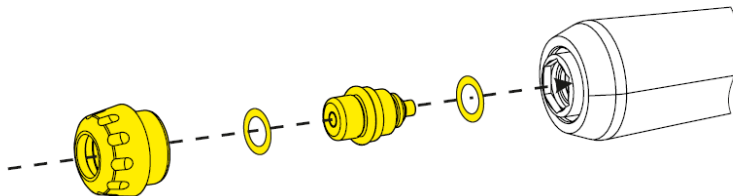
1. Use the universal wrench (included in the box with applicator) to unscrew the nut of the shock transmitter.



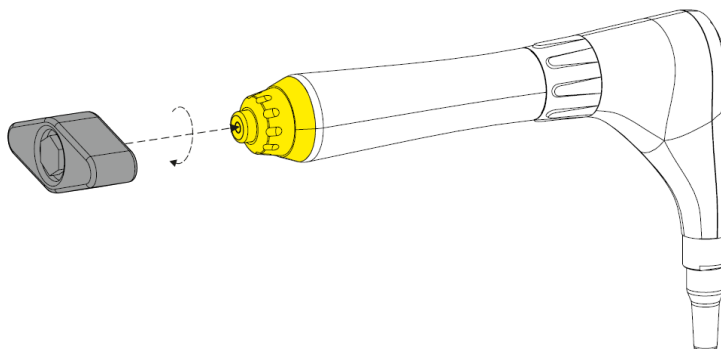
2. Take the shock transmitter together with both O-rings out from the applicator.



3. Insert the selected shock transmitter to the applicator including mounted O-rings



4. Put the nut back in place and **tighten it firmly** using the transmitter nut wrench



If the nut is not **TIGHTENED PROPERLY**, the projectile may get jammed after mere few thousand shocks!

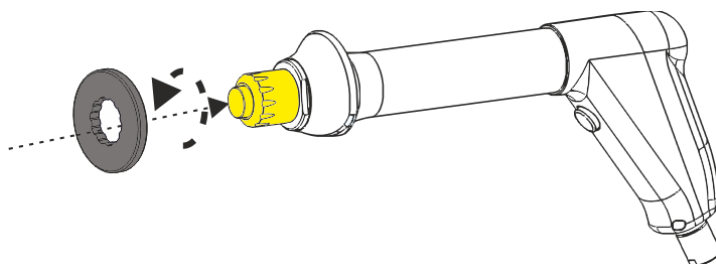
8.6.2.3 Applicator Easy Shell Cleaning

In case the shocks from the applicator are not regular, it is possible to clean the applicator shell by cleaning brush to restore its functionality. The cleaning brush is supplied with the applicator and as well with SWT exchangeable kit.

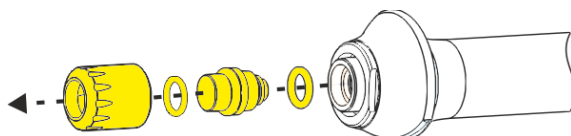


Do not use damaged applicators! There is a risk of injury to the operating staff or the client.

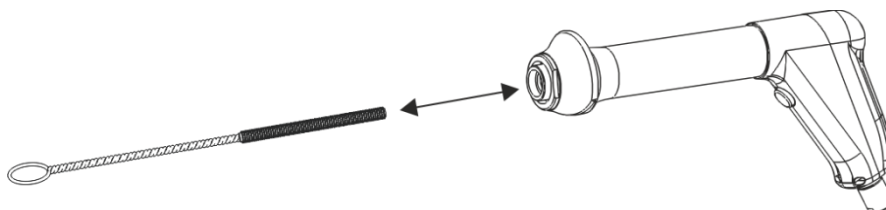
1. Use the transmitter nut wrench (included in the box with applicator) to unscrew the nut of the shock transmitter.



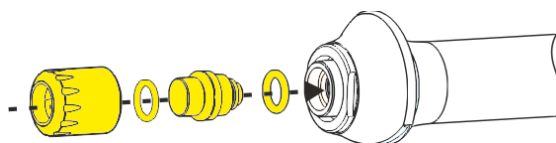
2. Take the shock transmitter together with both O-rings out from the applicator.



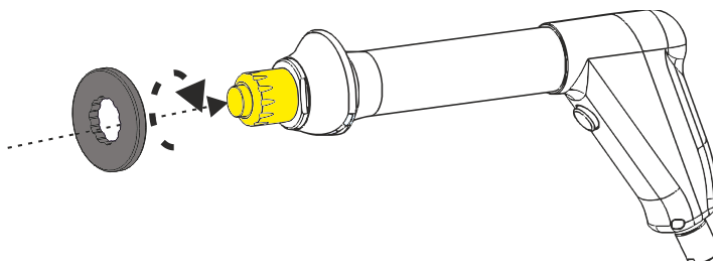
3. Insert the brush into the shell, move it back and forth several times and make sure it reaches the end of the shell.



4. Insert the shock transmitter to the applicator including mounted O-rings.



5. Put the nut back in place and **tighten it firmly** using the transmitter nut wrench.



If the nut is not **TIGHTENED PROPERLY**, the projectile may get jammed after mere few thousand shocks!

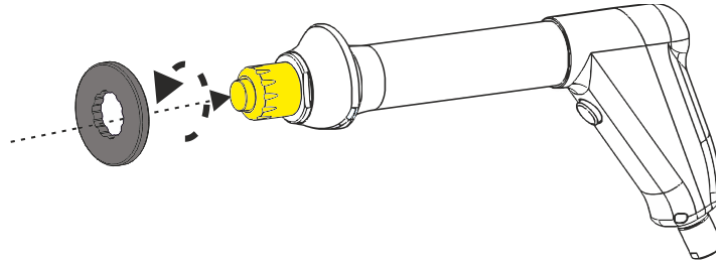
8.6.2.4 Applicator Easy Shell Replacement

If after some time the applicator stops working correctly, it is possible to try to clean the shell or replace it by the new one from the SWT exchangeable kit.

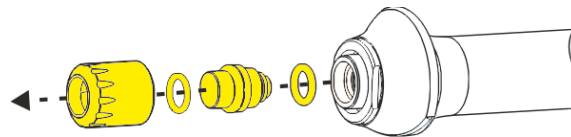


Do not use damaged applicators! There is a risk of injury to the operating staff or the client.

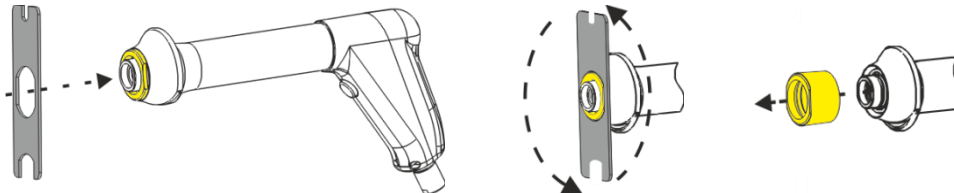
1. First start the **Applicator kit replacement guide (MENU/APPLICATORS)** and follow the instructions on the screen. Use the transmitter nut wrench (included in the box with applicator) to unscrew the nut of the shock transmitter.



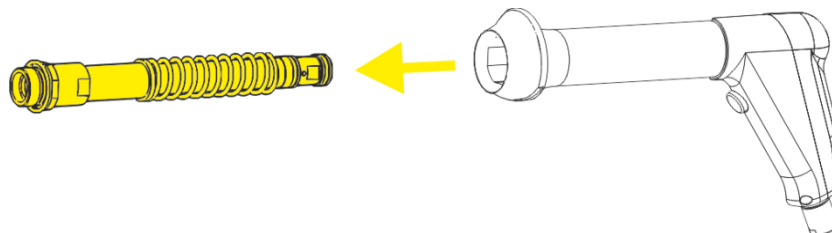
2. Take the shock transmitter together with both O-rings out from the applicator.



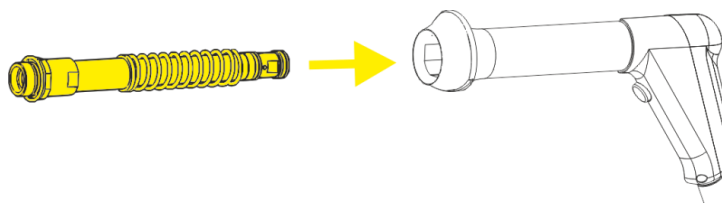
3. Use the body nut wrench (included in the box with applicator) to unscrew the body nut.



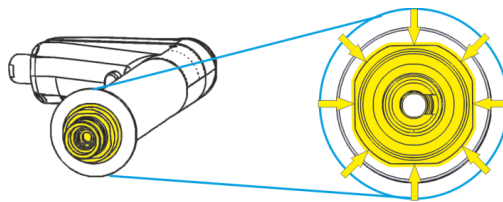
4. Pull the old shell out from the applicator case.



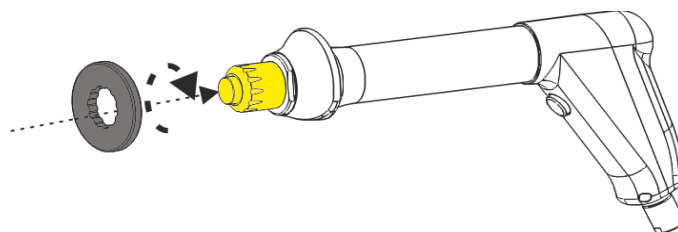
5. Take the new shell from its plastic covering.
6. Carefully insert the new shell "as is" into the case of the applicator in the direction as shown in the picture. Do not touch the rear part behind the spring, as it is coated with a thin layer of lubricant from the factory.



7. The front cover of the shell must be set to the position shown in the picture and pushed inside flush with the outer edge of the applicator case (push the shell slightly into the applicator case). The replaced shell has to move freely (spring)!



8. After inserting the new shell, firmly screw the body nut back in place using the body nut wrench.
9. During the replacement of the applicator shell we also recommend replacing the O-rings on the shock transmitter of the applicator. Spare O-rings are included in the accessories.
10. Insert the shock transmitter to the applicator including the new O-rings. Put the nut back in place and **tighten it firmly** using the transmitter nut wrench.



If the nut is not **TIGHTENED PROPERLY**, the projectile may get jammed after mere few thousand shocks!

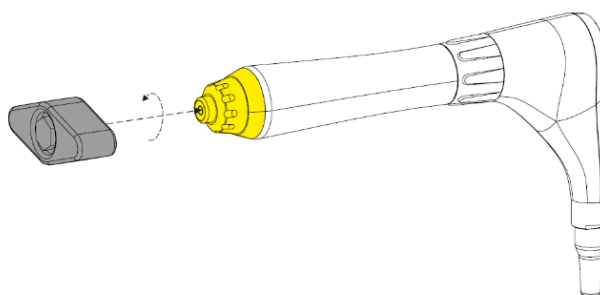
11. Connect the applicator back to BTL-6000 RSWT PRO or BTL-6000 RSWT ELITE and finish the installation of the new shell according to the instructions of the Applicator kit replacement guide. The finishing of the installation will reset the counter of shocks (i.e. set it to zero).



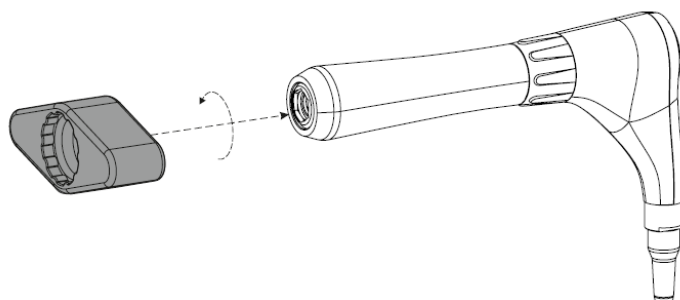
The warranty does not cover the damages caused by improper installation!!

8.6.2.5 Applicator Magnum Tube Cleaning/Replacement

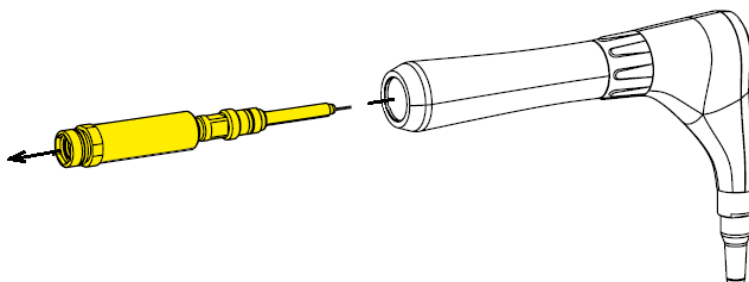
1. Use the universal wrench (included in the box with applicator) to unscrew the nut of the shock transmitter.



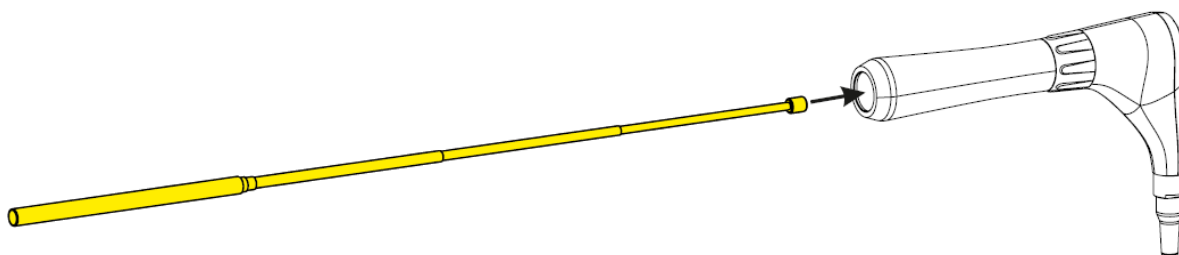
2. Use the universal wrench to unscrew the shell.



3. Pull the shell out from the applicator.



4. Use the magnetic stick to take out the projectile from the applicator.

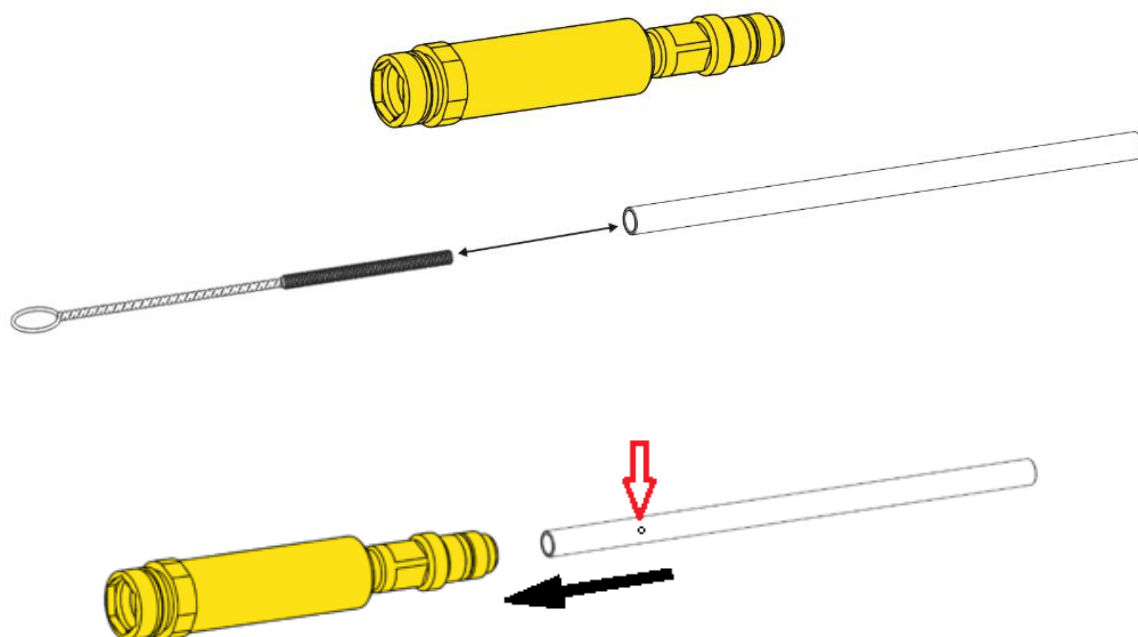


In case of tube replacement do not forget the projectile inside of the applicator. The applicator cannot work with two projectiles.

5. Pull out the tube out of the shell.



6. Clean the tube with the brush or replace the tube by the new one.

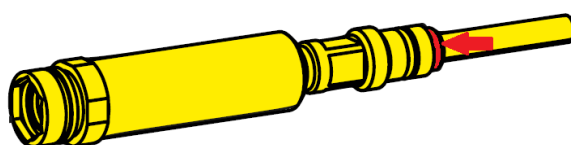


Always install the tube into the shell with the hole in the front of the shell. If the position is wrong the applicator will not perform the therapy!

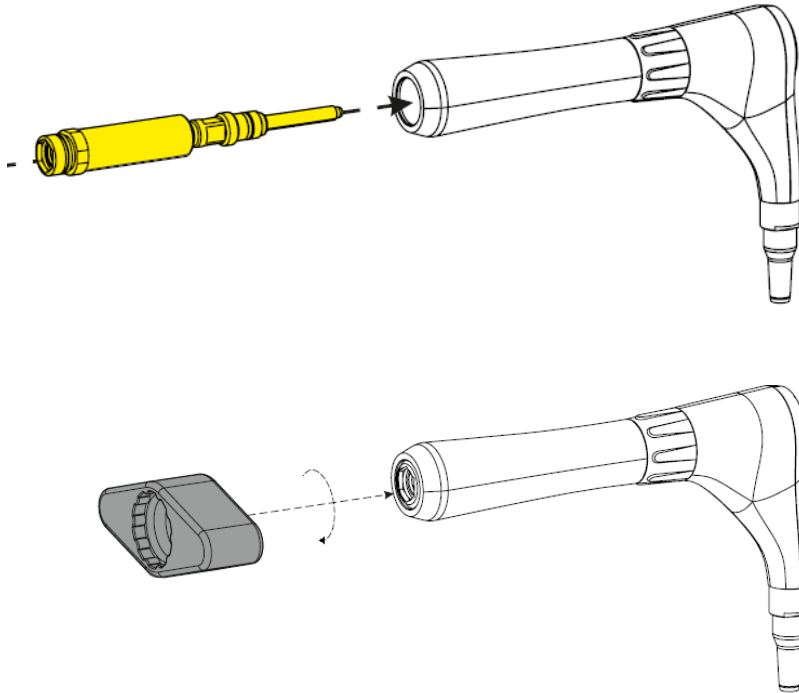


Do not use the same silicon gasket in case of tube replacement.

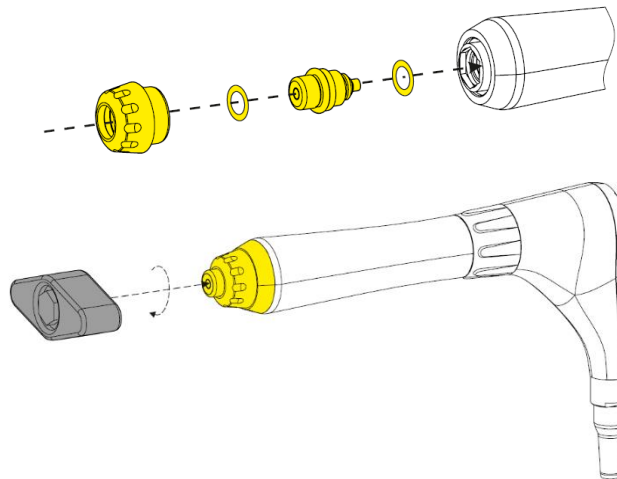
7. Pull back the tube into the shell.
8. Pull projectile (**in case of tube replacement pull the new one**) into the tube.
9. Make sure that the silicon gasket is well pressed to the shell.



10. Screw the shell into the applicator.



11. Insert the shock transmitter to the applicator including the new O-rings. Put the nut back in place and **tighten it firmly** using the universal wrench.



12. Connect the applicator back to BTL-6000 RSWT Pro or BTL-6000 RSWT Elite and finish the installation of the new tube according to the instructions of the Applicator kit replacement guide. The finishing of the installation will reset the counter of shocks (i.e. set it to zero).



If the nut is not **TIGHTENED PROPERLY**, the projectile may get jammed after mere few thousand shocks!



The warranty does not cover the damages caused by improper installation!

8.7 TECHNICAL PARAMETERS

Name	BTL-6000 RSWT	
Model	BTL-6000 RSWT Pro	BTL-6000 RSWT Elite
Operating conditions		
Operation environment	The device must only be operated in a professional healthcare facility	
Ambient temperature	+10 °C to +31 °C	
Relative humidity	30 % to 75 %	
Atmospheric pressure	700 hPa to 1060 hPa	
Position	Horizontal on legs	
Type of operation	Permanent	
Transport and storage conditions		
Ambient temperature	-10 °C to +55 °C	
Relative humidity	10 % to 85 %	
Atmospheric pressure	650 hPa to 1100 hPa	
Position of the main unit	Horizontal	
Position of the compressor	Horizontal	
Other conditions	Transport only in the original container	
External power adaptor specifications		
Safety grade	Medical	
Electrical protection class	II According IEC 60601-1	
Input voltage	~100 V to 240 V	
Input current	2.5 - 1.3A	
Input frequency	50 / 60 Hz	
Output voltage	DC 24 V	
Output current	Maximum 9.2 A	
Output power	Maximum 221 W	
Type of operation	Permanent	
Dimensions (w x h x d)	210 mm x 85 mm x 46 mm	
Weight	1.1 kg	
Covering grade according to EN 60 529	IP22	
Manufacturer	MEAN WELL	
Model	GSM220B24	
Ordering No	GSM220B24 -R7B	
Fuse	1xT10AH/250 V, tube safety fuse 5 x 20 mm,	
Power switch	On the back of device, positions 0 (off) and I (on). To disconnect from the mains, unplug the male plug of the power supply adapter from the mains socket outlet.	
Devise mass properties		
Weight: main unit	max 7.0 kg	
Main unit dimensions (w x h x d)	320 mm x 190 mm x 280 mm	
Applicator type	844-APEA-M ⁷	844-APELPR-M ⁸
Weight: applicator	max. 1.1 kg	max. 0.7 kg
Applicator: dimensions (w x h x d)	40mm x 280mm x 140mm	49mm x 133mm x 268mm
IP Code	IP 20	
Display elements	BTL-6000 RSWT Pro	BTL-6000 RSWT Elite
Control panel	5.7" display with capacitive touch screen	8.4" display with capacitive touch screen

⁷ Applicator Easy

⁸ Applicator Magnum



Buttons	4x front panel	
Indicator lights	1x orange, 4x blue	
Classification		
Applied part type	B	
Class according to Regulation (EU) 2017/745	IIa	
Adjustable values		
Shock intensity	1.5 – 4 Bar	1.5 – 6 Bar
Shock frequency	1 – 15 Hz	1 – 22 Hz
Number of shocks	1 – 9999 shocks	
Increments of adjustable values		
Intensity	0.1 Bar	
Frequency	1 Hz	
Total number of shocks per therapy	100 by the select knob and applicator knob, predefined in the device menu, random by the keyboard.	
Power Supply cord		
Connector	C7 according to IEC60320	
Type	H03VVH2-F 0.75mm2	
Length	3000 mm +/-50 mm	
Network connection	The BTL-6000 RSWT Pro and BTL-6000 RSWT Elite are standalone devices, which are not intended to be connected to any computer network for any reason.	

9 EMC INFORMATION

Medical electrical equipment should be used with precautions according to the EMC directive and must be installed in compliance with the EMC notices disclosed in this manual; otherwise the equipment could be adversely affected by mobile RF transceivers.

WARNING: Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.

WARNING: Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.

Guidance and manufacturer's declaration – electromagnetic emissions		
BTL-6000 RSWT Pro and BTL-6000 RSWT Elite are intended for use in the electromagnetic environment specified below. The customer or the user of the BTL-6000 RSWT Pro or BTL-6000 RSWT Elite should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	The BTL-6000 RSWT Pro and BTL-6000 RSWT Elite uses RF energy only for its internal function. Therefore, the emission is very low and not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	The BTL-6000 RSWT Pro and BTL-6000 RSWT Elite is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Complies	

Guidance and manufacturer's declaration – electromagnetic immunity				
The BTL-6000 RSWT Pro and BTL-6000 RSWT Elite are intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the BTL-6000 RSWT Pro and BTL-6000 RSWT Elite can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the BTL-6000 RSWT Pro and BTL-6000 RSWT Elite as recommended below, according to the maximum output power of the communications equipment.				
Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter (m)			
	150 kHz to 80 MHz $d = [3.5/V_i]\sqrt{P}$ $V_i=3V$	150 kHz to 80 MHz $d = [3.5/V_i]\sqrt{P}$ $V_i=6V$	80 MHz to 800 MHz $d = [3.5/E_i]\sqrt{P}$ $E_i= 3 V/m$	800 MHz to 2.7 GHz $d = [7/E_i]\sqrt{P}$ $E_i= 3 V/m$
0.01	0.12	0.06	0.12	0.23
0.1	0.37	0.18	0.37	0.74
1	1.2	0.58	1.2	2.3
10	3.7	1.8	3.7	7.4
100	12	5.8	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.				
NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.				
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.				



Guidance and manufacturer's declaration – Electromagnetic immunity

The device is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±8 kV contact ±15 kV air	±8 kV contact ±15 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines 100 kHz repetition frequency	±2 kV for power supply lines ±1 kV for input/output lines 100 kHz repetition frequency	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	±1 kV line(s) to line(s) ±2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0 % U _r ; 0.5 cycle at 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0 % U _r ; 1 cycle at 0° 70 % U _r ; 25 cycles at 0° 0 % U _r ; 250/300 cycles	0 % U _r ; 0.5 cycle at 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0 % U _r ; 1 cycle at 0° 70 % U _r ; 25 cycles at 0° 0 % U _r ; 250/300 cycles	Mains power quality should be that of a typical commercial or hospital environment. If the user of the device requires continued operation during power mains interruptions, it is recommended that the device be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m 50 Hz or 60 Hz	30 A/m 50 Hz or 60 Hz	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

NOTE: U_r is the AC mains voltage prior to application of the test level.



Guidance and manufacturer's declaration – Electromagnetic immunity				
The device is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that it is used in such an environment.				
Immunity test	IEC 60601 test level	Compliance level		Electromagnetic environment – guidance
Conducted RF IEC 61000-4-6	3 V 0.15 MHz – 80 MHz	3 V 0.15 MHz – 80 MHz		Portable and mobile RF communications equipment should be used no closer to any part of the device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = [3.5/V_t] \sqrt{P}$ 0.15 MHz to 80 MHz $d = [3.5/E_t] \sqrt{P}$ 80 MHz to 800 MHz $d = [7/E_t] \sqrt{P}$ 800 MHz to 2.7 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey ^{a)} , should be less than the compliance level in each frequency range ^{b)} . Interference may occur in the vicinity of equipment marked with the following symbol: 
	6 V ISM bands between 0.15 MHz and 80 MHz	6 V ISM bands between 0.15MHz and 80 MHz		
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.7 GHz		Compliance in same levels as test levels	
	Table 9 of IEC 60601-1-2:2014:			
	27 V/m	385 MHz	PM 18 Hz	
	28 V/m	450 MHz	FM 5 kHz	
	9 V/m	710 MHz	PM 217 Hz	
		745 MHz		
		780 MHz		
	28 V/m	810 MHz	PM 18 Hz	
		870 MHz		
		930 MHz		
	28 V/m	1720 MHz	PM 217 Hz	
		1845 MHz		
		1970 MHz		
28 V/m	2450 MHz	PM 217 Hz		
	5240 MHz			
	5500 MHz			
9 V/m	5785 MHz	PM 217 Hz		

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a) Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the BTL-6000 RSWT Pro and BTL-6000 RSWT Elite are used exceeds the applicable RF compliance level above, the BTL-6000 RSWT Pro and BTL-6000 RSWT Elite should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the BTL-6000 RSWT Pro and BTL-6000 RSWT Elite.

b) Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

9.1 ESSENTIAL PERFORMANCE OF THE DEVICE

The BTL-6000 RSWT Pro and BTL-6000 RSWT Elite has no essential performance according to IEC 60601-1.

9.2 MANUFACTURER

BTL Industries Ltd.

161 Cleveland Way

Stevenage

Hertfordshire

SG1 6BU

United Kingdom

E-mail: sales@btlnet.com

For service, please contact our service department at service@btlnet.com.



Date of last revision: 9th September 2022

ID: 844-80MANTEN02102

© All rights reserved. No part of this manual may be reproduced, saved or transferred by any means including electronic, mechanical, and photographic without the prior written approval from BTL Industries Limited.



