

OPERATION MANUAL

Membrane massage unit

AQUAI



Manufacturer:

MEDEN - INMED, Spółka z o.o.

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Dear Customer!

We would like to congratulate You on the right choice, as well as wish You satisfaction during the operation of our product. We ask for a mindful lecture of the following manual, as it contains important information and producer remarks on how to correctly install, operate, as well as conserve the product.

Introduction

Your application of the guidelines and information contained in the Operation Manual will allow you to use the membrane massage unit safely and reliably for many years. Feel free to send your remarks and observations as to the use of this equipment and contents of its manual to the following address:

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ul. Wenedów 2
75-847 KOSZALIN
tel: +48 94 347-10-40
fax: +48 94 347-10-41
e-mail: wanny@meden.com.pl

GENERAL REMARKS:

1. The product should be operated by qualified personnel, that has read through the following manual.
2. Using, control and servicing of the product inconsistently with the following manual is prohibited and may cause damage that charges the user, and the manufacturer does not hold responsibility for it.
3. The manufacturer prohibits performing any modifications in the used product.
4. If the operation and parameters of the product are inconsistent with the description contained in the following manual, the product should not be used. It is necessary to report immediately to the manufacturer.
5. Every repair of the product must be conducted by the manufacturer or an authorised service, and recorded in the repair list added to the warranty card. Failure to satisfy this requirement will result in the loss of the product warranty.
6. The warranty conditions will not be respected if the user misuses the product, or does not comply with the operation rules, contained in the following Manual.
7. Technical description of the tub with a list of wear parts and the instructions on their replacement (including the non-detachable power cord) is available at manufacturer on request.
8. Any serious AQUAI membrane massage unit incident shall immediately be reported to the manufacturer and to the competent authority of the Member State where the user or patient is resident.

1. DEVICE PURPOSE

The AQUAIs modern equipment whose advanced structure was designed and is intended for the performance of membrane massage treatments. For the purpose of therapy and relaxation, such treatments use the mechanical effect of a strong hot water flow hitting against the membrane of a special plastic, which membrane transfers this force to the patient body.

Unlike traditional hydromassage, the patient is not submerged in the water and has no direct contact with it. The patient lies on the water-impermeable membrane, which separates him from the entire volume of water.

The massaging movement, which involves applying and relieving the pressure on soft tissues, as well as the thermal effect of hot water at the approx. temperature of 38°C, stimulates the blood circulation, oxygen supply to muscles and lymph flow; at the same time, products of metabolism are removed more quickly. This results in an increased release of endorphins and higher pain tolerance; it also facilitates the movement of the patient. Additionally, the treatment firms the skin and, by loosening and relaxing the patient's body, eases and reduces stress.

1.1 Indications



CAUTION!

The membrane massage treatment is prescribed to patients by the attending physician.

Indications for the treatment are similar as for traditional manual dry massage:

- rehabilitation;
- conditioning massage;
- prevention of circulatory system disorders;
- psychogenic neuroses;
- obesity and overweight.

1.2 Contraindications

Indications for the treatment are similar as for traditional manual dry massage:

- wounds and scars and the early stage of healing;
- ulcer diseases with haemorrhages;
- brittle bone disease;
- skin diseases;
- tendency to bleed (anticoagulant therapy);
- Sudeck's atrophy;
- period of pregnancy;
- all tumours;
- uncompensated heart failures;
- severe atherosclerosis, arterial embolism.

2. TECHNICAL CHARACTERISTICS

The basin and casing of the device are made of polyester resin reinforced with glass fibre. Using such materials guarantees many years of reliable operation. The water system, except for the connections and valves, is made of PVC, which ensures great reliability. The equipment is operated with a control panel. Select a proper program and set desired parameters of the treatment for the massage sequence to start automatically. When activated, the pump supplies pressurised water through the nozzles at the bottom of the basin. The operator may use the valve control program to activate specific massage zones and set the desired sequence of their activation. During the treatment, the water set temperature is maintained.

2.1 Performance parameters

The AQUAI equipment is made to order; specific version parameters can be found in the table below:

Utility parameters	
Height [mm]	650
Width [mm]	1150
Length [mm]	2400
Basin volume [l]	220
Maximum patient weight [kg]	135
Weight [kg]	190 ±10 (all equipment, without water)
Membrane colour	grey
Casing colour	white
Performance parameters	
Power supply conditions	230 V ~ 50 Hz Option: 400 V 3 N ~ 50 Hz
Installed power	3600 VA
Casing ingress protection	IP X5
Protection class	I
Application part	type B
Ambient temperature [°C]	from 18°C to 24°C

2.2 Elements of the unit

The unit consists of:

- AQUAI membrane massage device;
- adjustable headrest;
- hose and adapters for filling;
- lift with a support;
- operation manual with the warranty card;
- Wasserbettenkonditionierer (water preservative);
- 2 user cards (RFID) – optional.

Any changes to the specifications may depend on a design of a made-to-order version. Upon receipt, check the delivered equipment for its compliance with the specifications.

3. DESIGN AND OPERATION



CAUTION !

The manufacturer reserves the right to change the design of the device without violating basic requirements for functionality or safety.

The images provided in this manual are informative only; particular versions of the design depend on specifications of each order.

3.1 Marking



AQUAI membrane massage unit is manufactured in accordance with Medical Device Regulation 2017/745 (class IIa, rule 9) and has a CE marking, according to the manufacturer declaration.

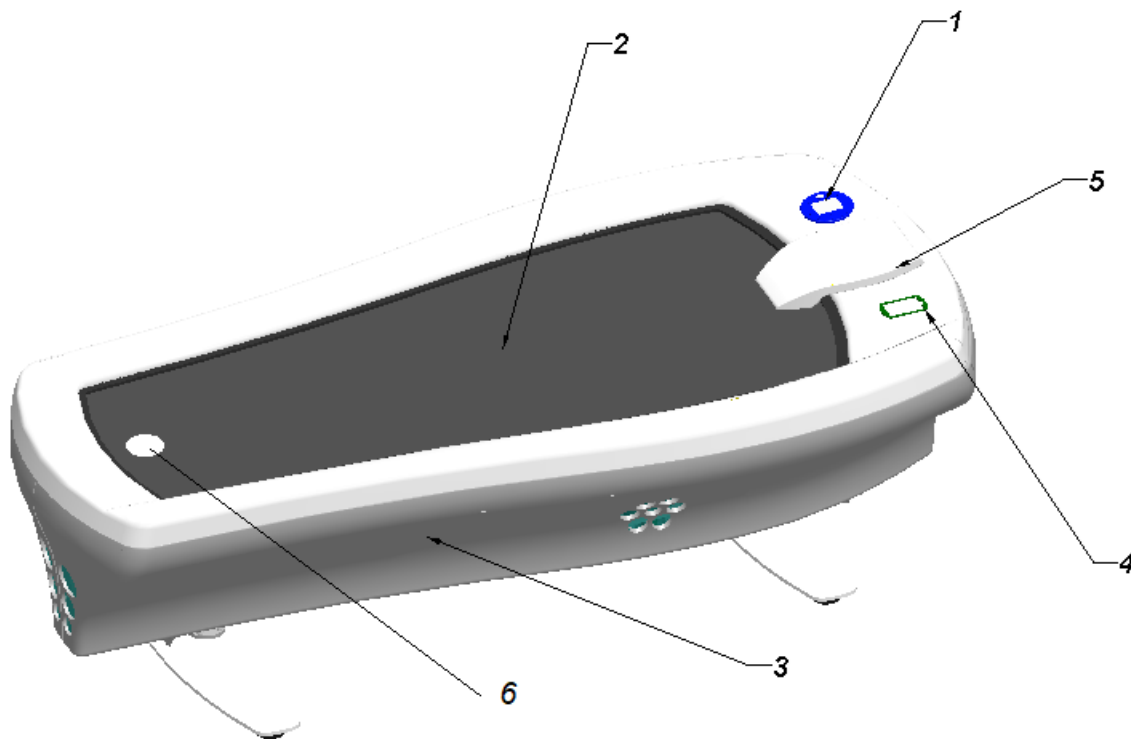


Figure 1 - View of the AQUAI device

1	Control panel
2	Membrane (application part)
3	Basin
4	Proximity reader (optional)
5	Headrest
6	Vent

Symbols:



Follow the user manual



Warning sign. Hereby determines actions that, if taken not according to this Manual, might cause worsening of conditions or security risk for user and/or personel operating the bathtub. A similar sign is applied whenever it is absolutely necessary to peruse the contents of the Manual, as well to follow its recommendations while operating the device.



Applied part type B



Alternating current



Safe Working Load (SWL)



Manufacturer



Medical device



According to the regulations on Amending the Waste Electrical and Electronic Equipment Act it is forbidden to discard with other waste the equipment marked with a crossed out trashcan. Electrical and electronic waste should be returned to a proper collection point. The above mentioned provisions were introduced in order to limit the amount of waste produced from used electrical and electronic appliance, as well as to ensure a suitable level of colletion, recovery and recycling of used appliance. Proper realization of those obligations signify especially when the waste contains dangerous components, which have a particularly negative impact on the environment and human health.

Non-electrical waste is utilised in accordance to the provisions in force.

4. SAFETY MEASURES

4.1 Location of use

Treatments may be administered in physiotherapy or spa offices. At the first start-up, it is necessary to fill the basin with cold water once. Add approx. 160 ml of Wasserbettenkonditionierer, the preservative agent delivered with the equipment, to the water. The ventilation system must exchange the room air twice an hour at the minimum. The use of the equipment in rooms which do not meet these requirements results in the unstable operation of the cooling system, which may cause the temperature of the water in the equipment to increase. In such situations, it is recommended that you take at least 10-minute breaks between treatments.

4.2 Use notes

CAUTION!



Do not lie on the membrane surface in clothes with elements which may damage it, such as: snaps, fasteners, zips! The manufacturer's warranty conditions do not cover the costs of this type of membrane damage.

The membrane may also be damaged by earrings, sharp edges of finger/wedding rings, long nails, etc. It is recommended that during the treatment the patient wear lightweight sports clothes, such as tracksuit trousers and T-shirts.

After each treatment, preventively wipe the membrane surface with a chemically stable disinfectant which does not cause discolouration or damage the membrane material, or contain toxic/irritating substances.

Use a surface disinfectant under the trade name "Incidin Foam."

5. PREPARATION FOR USE

CAUTION!



By adjusting the lift while installing the equipment in the location where it will be used, pay special attention that safety rules are observed for the vertical movement of great weights. Uncontrolled sliding off of the basin from the lift may pose a great danger for the installer and/or service technician.

CAUTION!



If the water in the basin is too hot while using the equipment, you may observe that the water volume decreases after some time. In such a situation, refill the basin as described above.

CAUTION!



After the installation of the device is completed, do not move the device, as the electrical system supplying the device may be damaged.

At the equipment installation site, provide the electrical connection (power consumption approx. 3.5 kW) and enable (once) the connection to the water system with a flexible hose.

The room must be equipped with a ventilation system to exchange the room air twice an hour at the minimum. You may not use and store the equipment outdoors or in rooms where the temperature drops below 5°C.

5.1 First start-up



CAUTION!

The manufacturer's bath has been completely emptied of water. After refilling with water, the user takes responsibility if there is damage to the bath due to freezing water.

Before the first filling of the bathtub with water (according to the User's Manual), drop the liquid with which the pump was filled. For this purpose, there is a drain plug in pump A located in the lower part of the bathtub (fig. 2). After unscrewing the plug, the green liquid should flow. It is antifreeze preparation (up to -25°C) based on glycerol, certified by PZH, environmentally friendly. After draining the liquid, turn the plug.

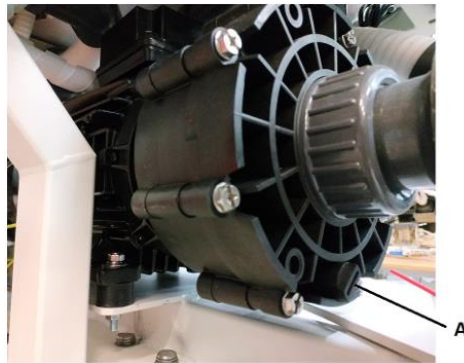


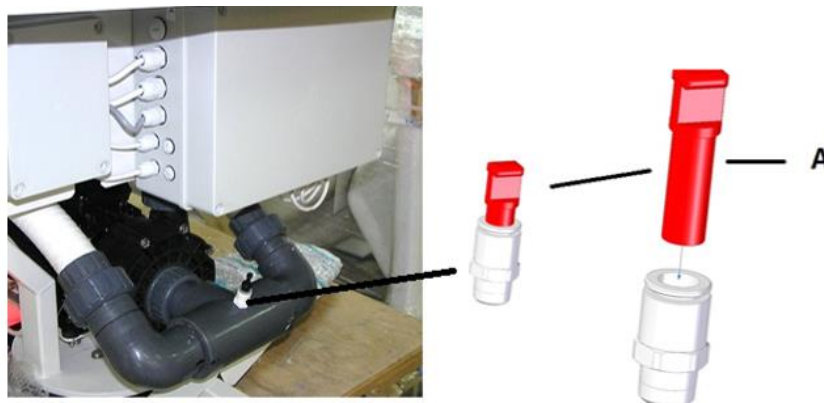
Figure 2 – Location of the drain plug in the pump

If the bathtub will not be used for more than two weeks or will be transported to another location, it is recommended to empty the bath water system from water and to fill the pump/s with a non-freezing preparation based on glycerol (can be purchased from the device manufacturer (Meden-Inmed)).

To fill the pumps, follow the steps below:

- a) to empty the bathtub;
- b) to empty the bath water system from water;
- c) to empty the water from the pump through the pump's drain plug (fig. 2);
- d) all the valves should be set to an open position;
- e) remove the push-in plug (A - fig. 3);
- f) fill the pump with liquid (using e.g. a funnel);
- g) push in the cap.

The procedure has been completed successfully.



**Figure 3 – Pump suction coupling
A – Push-in cap**

5.2 First fill

The assembly and first start-up of the equipment is to be performed by the service team of the manufacturer or unit authorised by the manufacturer. After installing the device in the place of use, it is necessary to find a wire hidden under the cover, ending with a brass valve with thread G1/2, which serves for filling the basin with water and emptying it from the water.

When filling, discharging, or refilling water, unscrew the vent cap (item 6, Figure 1), which will allow excess air to escape from under the diaphragm. Unscrew the vent cap until it stops lifting and rotates freely. The cap is secured against complete unscrewing.

Before filling the tub with water, in the rack profile at the rear (legs) of the tub, find the outlet and insert the lift support, delivered with the equipment. Next, lift the equipment at 8 cm by using the lift. Lift the filling lines as high as possible; open the filling/discharge valve and pour Wasserbettenkonditionierer into the line. Then, close the filling/discharge valve, connect the water supply source through a mesh filter and reopen the filling valve. At this point, you may begin the proper filling of the basin with water by opening the main water valve. It is recommended half-opening the main water valve so that the air can escape from under the membrane through the vent line. Continue filling the tub until the water level on the membrane is approx. 70 cm from the end line (legs). Keep an eye on the water line as excess water may overflow the vent. If this happens, close the water valves and the vent, and wipe the water off the diaphragm with a clean, smooth cloth.

You may facilitate the venting process by applying pressure to the membrane, for instance by laying a folded blanket on it to reduce the air volume in the closed basin.

When filling is complete, close the fill valve, turn off the vent and water valve. Disconnect the filling source and hide the line under the covers by laying it on the inside of the horizontal rim of the cover. Then remove the lift with the bracket, wait until the water level is established in the basin.

While filling, it is recommended that you press the membrane surface to help bleed the air underneath it. After filling the equipment, level it. Repeat this activity, simultaneously adding the preservative, every time the basin is being filled.

Likewise, as the water is discharged, the filling/discharge valve must be half-open, whereas the vent valve must be open fully. Otherwise, the membrane may be overly sucked into the basin, which may damage the membrane material.

5.3 Connection to the electrical mains



CAUTION!
To avoid the risk of electric shock, the equipment must be connected only to the power grid with protective earthing.



CAUTION!
To efficiently disconnect the equipment from the power grid, use a two-pole (or four-pole) power switch located in the room where the tub is operated.

The equipment is intended to be permanently connected. The massage unit location must have a power supply connection with a protective earthing terminal (PE) !

Depending on the version, connect the equipment to the electrical system:

230 V ~ 50 Hz:

- protected with a residual-current circuit breaker with the rated breaking current value of ≤ 30 mA;
- protected with an overcurrent circuit breaker with the rated current value of 16 A and characteristic C;
- two-pole power switch with the minimum contact clearance of 3 mm (between the equipment and the residual-current circuit breaker located in the room where the equipment is operated), in a place which allows easy and quick access of personnel in emergency cases;
- electrical system must have a protective earthing, to be connected to the protective earthing terminals of the equipment.

400 V 3 N ~ 50 Hz:

- protected with a residual-current circuit breaker with the rated breaking current value of ≤ 30 mA;
- protected with an overcurrent circuit breaker with the rated current value of 10 A and characteristic C;
- four-pole power switch with the minimum contact clearance of 3 mm (between the equipment and the residual-current circuit breaker located in the room where the equipment is operated), in a place which allows easy and quick access of personnel in emergency cases;
- electrical system must have a protective earthing, to be connected to the protective earthing terminals of the equipment.

The electrical installation to which the device is connected must conform to the requirements of the applicable legislation (PN-HD 60364-7-710, PN-HD 60364-7-701).

5.4 Sequence of actions while operating the equipment



CAUTION!

In the version with the RFID card reader, place the user card with available treatment duration units in the spot on the crown of the device.



CAUTION!

Plan treatments with the equipment to include 5-minute breaks for every 20 minutes of massage, for the cooling system to work efficiently.

When the equipment is powered on for the first time, the user must check, or set, the time and current day of week (pt. 6.8). This action is performed once; the settings are saved in the controller memory, also when there is no power supply. Proper settings will allow the automatic preparation of the treatment (pt. 6.7).

In the edition window for the automatic preparation of the treatment, specify the scope of hours within which the previously set water temperature is to be maintained (pt. 6.5). The factory settings are by default as follows: readiness from Monday to Friday, from 8:00 to 16:00, at the temperature 36°C.

If the user wants to perform the treatment earlier, before the scheduled readiness time, he must keep in mind that the water should be heated for 20-99 minutes in advance, depending on the initial temperature of The water in the basin. To this end, set the desired temperature (pt. 6.5) and maximum treatment duration (pt. 6.4) and start any program.

If after 30 minutes the water has not reached the set temperature (blue thermometer icon), restart any program.

In order to estimate how long it will take for the equipment to get ready, assume that as the pump and heater work, the temperature of the water in the basin increases by approx. 1.5°C for every 10 minutes of operation.

In order to take the best advantage of membrane massage, it is recommended that the patient wear lightweight sports clothing. The patient should delicately sit in the middle of the tub, on its frame, and slip down to the membrane surface, and lie comfortably so that his head rests on the headrest.

If the default settings of the equipment are accepted, just push the START/STOP button to launch it.

During the treatment, the patient may move on the membrane to find the convenient position. Unless the patient's clothes have sharp edges, his movement to adjust his position on the membrane during the treatment does not pose a risk of puncturing or scratching it (pt. 4.2).

Getting off the massage unit is analogous to getting on it. If the user wants to get off the massage unit before the treatment ends, he may turn off the treatment by pressing the START/STOP button before or after he gets off the tub.

Before the next treatment, wipe the membrane with a mild disinfectant; it is recommended that you use the surface disinfectant available in Poland under the trade name of Incidin Foam, which contains these active substances: 2-propanol, ethanol, benzalkonium chloride and glucoprotamin.

The modification scope allowed by the equipment before starting the treatment allows setting the treatment duration (pt. 6.4), sequence stage duration (pt. 6.4), water temperature (pt. 6.5), selection of one of the factory treatment programs or user's own treatment program (pt. 6.4).

5.5 Care and maintenance

Wash and clean the membrane surface with, for example, baby wipes. Disinfect it with mild disinfectants, such as Incidin Foam. Clean the surface of the crown and basin covers with preparations which do not scratch surfaces. It is recommended that you change the water in the basin once a year with Wasserbettenkonditionierer.

6. OPERATION OF THE EQUIPMENT

6.1 Control panel

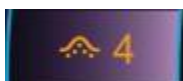


Figure 4 - AQUAI control panel with the MENU screen

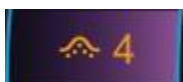
The communication with the user is facilitated by a graphic display with a touch panel and independent START/STOP button. The remaining buttons are displayed in the form of fields which react to touch. Functions of the touch buttons depend on the currently displayed menu. The button status is indicated by its colour:



- button not pressed (color blue)



- button pressed (color yellow)



- button marked (function selected)(color yellow)



- button inactive (color black)

6.2 Standby mode

In this mode, the screen is blank. When the blue diode flashes approx. every 5 s, it means that the power is on.

The equipment does not maintain the set water temperature. Switching from the standby to the operation mode will occur automatically at an hour programmed by the user (pt. 6.7). You may also switch the equipment from this mode by pressing and holding the START/STOP button.

6.3 Splash screen




Once the equipment is powered on, the splash screen appears. The START/STOP button flashes blue. Press the START/STOP button to display the Main Settings screen.



Figure 5 - Splashscreen

CAUTION!

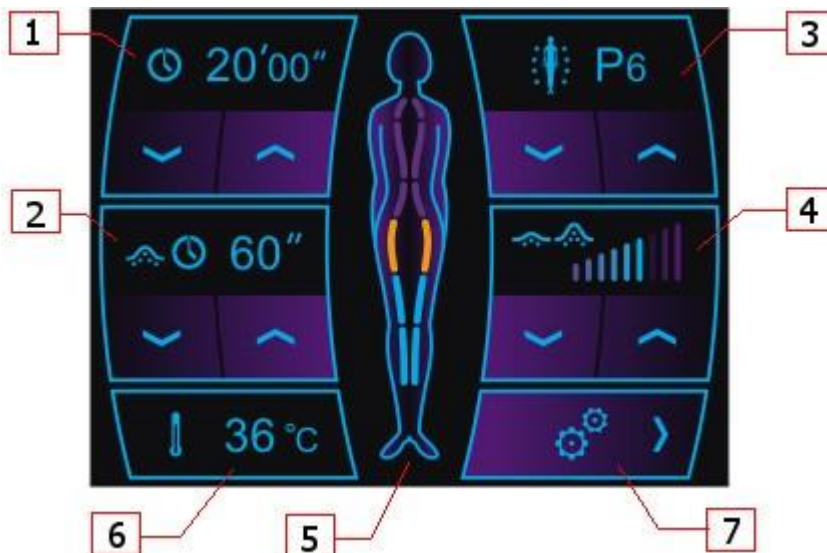
Press and hold the START/STOP key to switch to the standby mode.

Icon	Description
(none)	The water temperature is sufficient.
	Cooling the water to the set temperature in progress.
	Heating the water to the set temperature in progress.
	The alternating icons signal that the water is being heated but there was a blackout and the equipment started later than planned.

6.4 Home screen

This screen is displayed while setting the equipment before the treatment and during the treatment. It allows the user to select a program, treatment duration, sequence stage duration and further settings. After 3 minutes of inactivity, the splash screen will be displayed.

Home screen for the version without the card reader



Home screen for the version with the card reader

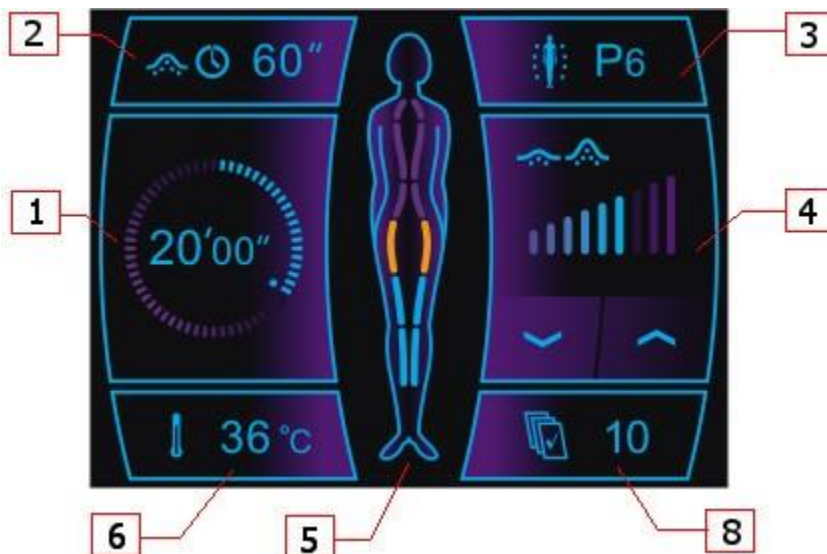




Figure 6 - Main Settings screen

Item	Description
1	Massage duration setting within the scope of 1..30 min. After the massage treatment starts, the remaining time is displayed.
2	Setting the duration of one program sequence stage (20s, 30s, 40s, 50s, 60s).
3	Selection of one massage program. There are six factory programs P1 .. P6 (pt. 6.9) and program defined by the user PU (pt. 6.6).
4	Selection of the massage intensity level.
5	The zones currently in operation appear in yellow on the displayed profile. The remaining zones involved in the selected massage program are marked with blue. Before the massage, the course of a selected program sequence is quickly simulated
6	Field with the currently measured water temperature. Additionally, the indicator may be displayed which informs about the status of the automatics maintaining the water temperature:  - cooling the water to the set temperature in progress  - heating the water to the set temperature in progress
7	The Configuration screen may not be displayed (pt. 6.5) during the massage treatment.
8	Field with the user card status. Apply the card to display the number of treatments bought by the patient ("∞" means that the patient may receive treatments with no limits on their number). The treatment may only be started with the card. Access to the Configuration screen for the operator: - keep your finger on the field (8) for more than three seconds until the symbol of a pressed button appears here (7) - release the button to go to the Configuration screen During the massage treatment, the access to the Configuration screen is locked.
START /STOP	Massage start/stop.
	Press and hold the START/STOP key to switch to the standby mode.

6.5 Differences in the operation of the card reader-equipped version

Apply the card to load the massage settings: selected program, treatment duration and program stage duration.

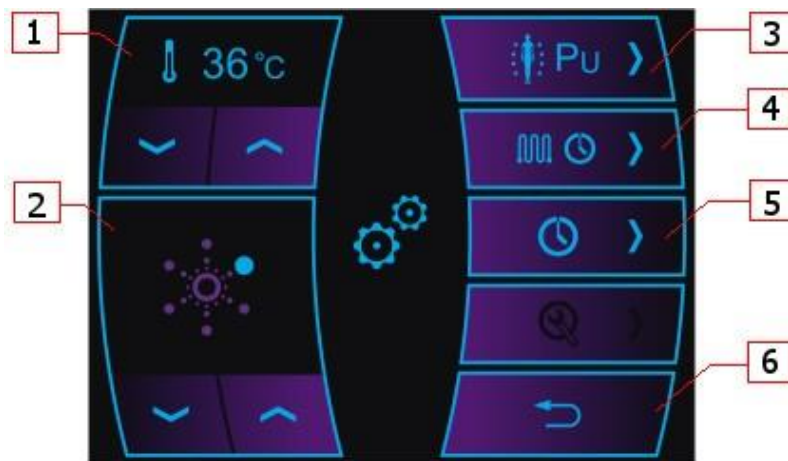
These settings may not be edited from the pulpit; you may only adjust the massage intensity.

Starting the treatment is possible only when the card is applied and number of treatments is at least 1.

Press the START/STOP button to start the countdown of the programmed delay time, after which the massage will start and the number of treatments on the card will decrease by 1.

During the treatment, the card should lie on the reader. If you take the card away, the treatment will end.

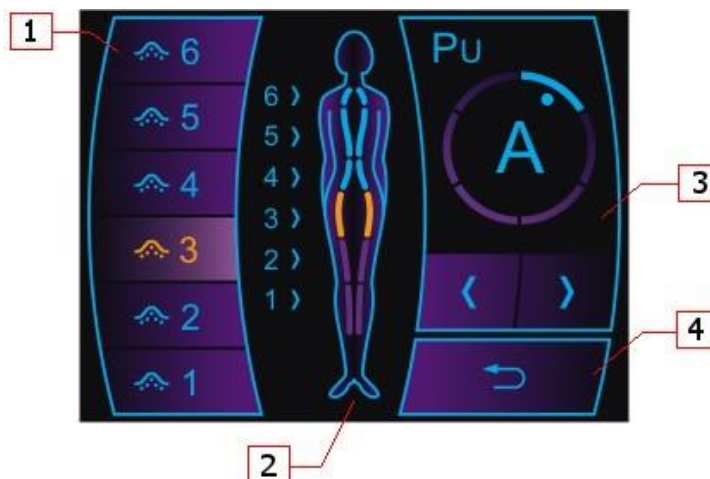
6.6 Configuration screen



Item	Description
1	Setting the desired water temperature within the scope of 30..40°C.
2	Selection of the external backlight of the equipment with a LED strip.
3	Transition to the screen with the user's program settings (pt. 6.6)
4	Transition to the screen with the automatic preparation settings (pt. 6.7)
5	Transition to the screen with time settings (pt. 6.8)
6	Back to the Home screen.

6.7 User's program settings screen

The user's program is a repeated sequence of working massage zones, which consists of 6 stages at most. For each stage, you may choose zones active at a specific moment; for each stage, you may choose 3 simultaneously working zones at most.



Item	Description
1	Selection of zones active at a specific sequence stage.
2	The zones selected for a specific stage are marked with yellow on the displayed profile. The zones selected for the remaining program stages appear in blue.
3	Selection in the sequence of the user's program which will be edited. The program may have 6 stages at most (marked with A..F).
4	Back to the previous screen (Configuration screen).

6.8 Automatic preparation settings screen

A properly configured automatic preparation mode ensures that the water temperature is not unnecessarily maintained when the equipment is not used. After the set end time, the equipment will automatically switch to the Standby mode. The following day, it will automatically return to the operation mode sufficiently earlier so that the water temperature is proper, at a programmed hour when treatments are scheduled.

Use the menu to set the desired time scope during the day on which the equipment is to be ready for the administration of treatments. It is possible to independently set operation hours for each day of week or completely switch off the temperature maintenance mode on given days.



Item	Description
1	Day of week selection bar.
2	Readiness time setting for a specific day of week.
3	End of operation time setting for a specific day of week.
4	Button to start/stop the automatic preparation mode for a specific day of week.
5	Back to the previous screen (Configuration screen).

6.9 Time settings screen



CAUTION!

The Time settings screen will also be displayed if any issues arise after the equipment is powered on with the synchronisation of the clock. Set the current time and day of week to move on.

Setting the accurate clock time and day of week is necessary for the operation of the equipment to be proper in the automatic treatment preparation mode.

The clock time is counted by the battery-powered RTC system. This aims to allow the proper operation of the automatic preparation mode during a blackout.



Item	Description
1	Current day of week selection bar.
2	Current time (hour) setting.
3	Current time (minutes) setting.
4	Back to the previous screen (Configuration screen).

6.10 Factory program

The table contains numbers of zones active at a specific treatment stage. Having completed all the stages, the sequence is restarted. The user may change the duration of sequence stages (pt. 6.4).

Program	Zone numbers						
P1	1	2	3	4	5	6	...
P2	1 2	2 3	3 4	4 5	5 6	...	
P3	4	5	6	4 5	5 6	...	
P4	2	3	4	...			
P5	2 3	3 4	2 4	...			
P6	1	2	3	1 2	2 3	...	
PU	Sequence defined by the user (pt. 6.6)						

7. CONDITIONS OF MAINTENANCE



CAUTION !

The manufacturer will, on demand, turn over the electrical network schemes, parts lists, descriptions helpful during repair of those parts that are allowed to repair by the manufacturer.

7.1 Manufacturer liability

Estimator life is 7 years.

After 7 years from the date of manufacture of the device (and its equipment) the manufacturer is not liable for device and its equipment defects as well as the resulting consequences. The manufacturer is also not liable for consequences the user and patient put themselves, resulting, for example, from incorrectly installed device, or being the result of misdiagnosis, misuse of the device and its equipment, misinterpretation or not following the manual, as well as conducting repairs by unauthorised personnel.

7.2 Periodic electrical safety tests

The user's technology services must perform or commission the performance of periodic (at least once a year and every time after a failure/repair of the equipment) electrical safety tests of the equipment within the following scope:

- earth leakage current
- earth path resistance (at the earth electrode fixing pin the support frame).

Tests should always be documented with a report containing their results.

Maintenance personnel must observe the guidelines contained in this manual.

7.3 Troubleshooting

Evidence of the fault	Probable cause - Procedure
No information on the LCD screen	Press and hold the START/STOP button (equipment may be in the standby mode) Check if the equipment is connected to the power grid Check the state of: overcurrent protection; residual-current circuit breaker; main power switch. Check the equipment power cord. Power off the equipment and contact the service team.
Error no. E01 displayed	Water level too low / no water
Other error no. E displayed...	Contact the service team.
During the operation, the water heats up to an excessive temperature	Check whether the ventilation system is operational to exchange the air in the room.
The zone does not work during the treatment or works all the time contrary to the treatment program	Damage to the valve system – contact the service team.

7.4 Maintenance scope

Once a quarter, evaluate the surface of the crown and covers of the basin, and remove any scratches in consultation with the manufacturer's service team.

7.5 Service contact

Meden-Inmed, spółka z o.o., 75-847, Koszalin, ul. Wenedów 2, +48 94 347 10 48 (347 10 50);
+48 600-052-584; e-mail: rm@meden.com.pl, dg@meden.com.pl

If the equipment is purchased from a middleman, provide the information on the serial number and location where the equipment has been used. This information will be kept in our service database, which will allow us to smoothly fulfil the warranty and service conditions.

8. STORAGE AND TRANSPORT

Transport and store the equipment in its manufacturer's transport packaging at a temperature exceeding 5°C, indoors, in a dry room.

Temperature of the storage and transport [°C]	positive (max. 50°C)
Air humidity the storage and transport	5%-95% without condensation

9. ELECTROMAGNETIC COMPATIBILITY


Electrical medical devices require special care in respect to electromagnetical compatibility (EMC) and must be installed and activated in respect to the information on EMC in this manual.

Mobile and portable means of radio communication might influence the AQUAI bathtub operation.

Instructions and declaration of manufacturer – electromagnetic emissions			
AQUAI bathtub is intended for use in the below specified electromagnetic environment. The purchaser or user of the AQUAI bathtub must provide such environment.			
Emissions test	Compatibility	Instructions on the electromagnetic environment	
RF emissions CISPR 11	Group 1	AQUAI bathtub uses the RF energy only for its internal functions. Due to that fact, the RF emissions of the device is very low and should not cause any distortion in electrical devices in proximity.	
RF emissions CISPR 11	Class A	AQUAI bathtub can be used in every facility other than apartment buildings and buildings connected directly to the low-voltage grid, supplying buildings intended for accommodation purposes.	
Harmonic emissions IEC 61000-3-2	none		
Voltage variation/light flickering IEC 61000-3-3	none		
Instructions and declaration of manufacturer – electromagnetic resistance			
AQUAI bathtub is intended for use in the below specified electromagnetic environment. The purchaser or user of the AQUAI bathtub must provide such environment.			
Resistance test	Testing level IEC 60601	Level of compliance	Electromagnetical environment — guidelines
Electrostatic discharge (ESD) IEC 61000-4-2	+/- 6 kV (contact) +/- 8 kV (air)	+/- 6 kV (contact) +/- 8 kV (air)	The floor should be made of wood, concrete or ceramic tiles. If the material is synthetic, relative humidity should amount at least 30%.
Fast electrical transition IEC 61000-4-4	±2 kV for supply line ±1 kV for input/output line	±2 kV for supply line ±1 for input/output line	The supply quality should be typical for commercial or hospital.
Surge resistance IEC 61000-4-5	± 1 kV line(e) to line ± 2 kV line to earth	± 1 kV line(e) to line ± 2 kV line to earth	The supply quality should be typical for commercial or hospital.
Short cuts, drops and changes in voltage on the power lines IEC 61000-4-11	<5% U_T (>95% drop in U_T) for 0,5 cycle 40% U_T (60% drop w U_T) for 5 cycles 70% U_T (30% loss in U_T) for 25 cycles <5% U_T (>95% loss in U_T) for 250 cycles	<5% U_T (>95% drop in U_T) for 0,5 cycle 40% U_T (60% spadek w U_T) dla 5 cykl 70% U_T (30% loss U_T) for 25 cycles <5% U_T (>95% loss in U_T) for 250 cycles	The supply quality should be typical for commercial or hospital. If the user of the AQUAI bathtub requires to continue the work during power outage, it is recommended to supply the AQUAI bathtub with uninterruptable power or a battery.
Resistance to magnetic field with grid frequency (50/60 Hz) IEC 61000-4-8	3 A/m	3 A/m	Magnetic field of the power grid frequency should be typical for commercial or hospital.
WARNING U_T is a line voltage AC before the implementation of test level.			

Instructions and declaration of manufacturer – electromagnetic resistance

AQUAI bathtub is intended for use in the below specified electromagnetic environment. The purchaser or user of the AQUAI bathtub must provide such environment.

Resistance test	Testing level IEC 60601	Level of compliance	Electromagnetic environment — guidelines
RF conducted IEC 61000-4-6	3 Vrms 150kHz do 80MHz	3 V	Mobile and portable RF communication devices should be used no closer to the bathtub AQUAI, including wiring, than the recommended separation distance, calculated from the equation for a specific frequency of the transmitter. Recommended separation distance $d=1,2 \sqrt{P}$ $d=1,2 \sqrt{P}$ 80MHz do 800MHz $d=2,3 \sqrt{P}$ 800MHz do 2,5GHz
RF radiated IEC 61000-4-3	3 V/m 80MHz do 2,5GHz	3 V/m	where P means maximum power output of the transmitter in watts (W) according to the transmitter manufacturer, and d is the recommended separation distance in meters (m). Force field of stationary RF transmitters, which is defined by a test of the electromagnetic field ^a , should be lower than the level of compliance for every range of frequency ^b Interferences may occur in proximity of devices marked with the following symbol: 

WARNING 1 With 80MHz i 800MHz, the higher frequency range applies.
 WARNING 2 Those instructions may not apply in every case. Electromagnetic propagation is influenced with construction, objects and people absorption and reflection.

^a Field force of stationary transmitters, such as telephone bases (cellphone, wireless), terrestrial portable radiotelephones, walkie-talkie, AM and FM radio transmissions, as well as television transmissions, cannot be exactly foreseen theoretically. To evaluate the electromagnetic field of the stationary RF transmitters, it is necessary to test the electromagnetic field. If the tested field in the location of the bathtub AQUAI is higher than the RF compliance presented above, it is necessary to monitor the AQUAI bathtub operation to ensure that it works properly. In the case of irregularity, undertaking additional counter measures, such as change of orientation of location of the AQUAI might be necessary.
^b In the frequency range of 150kHz to 80 MHz, the field force should be lower than 3 V/m.

Recommended separation distance between mobile and portable RF communicating devices, and the AQUAI bathtub.

The AQUAI bathtub is designed to be used in a electromagnetic field, in which the emitted RF disturbances are controlled. The client or user may avoid electromagnetic interference by keeping the minimum separation distance between the mobile and portable communication devices, working in the radio belt (transmitters) and the AQUAI bathtub, as recommended below, in accordance to the maximum output power of the communication device.

Maximum rated output power of the transmitter W	Separation distance dependent on the transmitter frequency m		
	150kHz do 80MHz $d=1,2 \sqrt{P}$	80MHz do 800MHz $d=1,2 \sqrt{P}$	800MHz do 2,5GHz $d=2,3 \sqrt{P}$
0,01	0,12	0,12	0,23
0,1	0,37	0,37	0,74
1	1,2	1,2	2,3
10	3,7	3,7	7,4
100	12	12	23

In case of transmitters with maximum output power not included above, the recommended separation distance d in meters (m) may be specified with the use of an equation applicable to the transmitter frequency, where p means maximum output power of the transmitter in watts (W), according to the transmitter manufacturer.

WARNING 1 With 80MHz i 800MHz, the separation distance applies to the higher frequency range.
 WARNING 2 Those instructions may not apply in every case. Electromagnetic propagation is influenced with construction, objects and people absorption and reflection.

10. WARRANTY CARD

1. The seller (authorized representative, distributor) offers a 24-month warranty on the unit supplied. The warranty period runs from the date of sale as shown on the sales document.
2. The seller (authorised representative, distributor) is responsible for any faults whether in quality or quantity occurring immediately after unpacking the product from its **original shipment packaging** only if they have been reported **in a written form** within 2 working days following the delivery.
3. The warranty will be fulfilled only by the authorised service team of the seller (authorised representative, distributor) or other technical service authorised by the manufacturer.
4. A repair time exceeding 3 days, shall result in the extension of the warranty period by a time equivalent to the total time during which the device was out of order.
5. In case a faulty subassembly has already been repaired three times, the manufacturer shall be obliged to replace a faulty subassembly with a new one.
6. The user must ensure all the maintenance service described in the manual in order to benefit from the warranty coverage.
7. In case the installation and operation instructions have not been observed, the manufacturer shall bear no responsibility for the safety of the user or patient during the use of the unit.
8. The warranty does not cover faults of parts and materials resulting from natural wear and tear, which means faults other than material or workmanship, as well as faults resulting from poor or no maintenance (e.g. valves, bearings, guides, fans etc.).
9. The seller (authorised representative, distributor) shall bear no responsibility for any loss, whether consequential or incidental, including loss of profits or costs incurred that result from a failure to follow the instructions set out in the installation and user manual.
10. The seller (authorised representative, distributor) shall bear no responsibility resulting from this warranty for any loss, whether consequential or incidental, including loss of profits or costs incurred by failure of the equipment.
11. Faults that occur within the warranty period and are not reported to the authorised service are not covered by the warranty.
12. Costs resulting from an unfounded claim shall be borne by the user.
13. The warranty shall not cover any equipment:
 - damaged as a result of fire and lightning or force majeure;
 - with a name plate and/or serial number or factory seals removed or damaged;
 - damaged due to its use in a manner other than defined in the operation manual;
 - where repairs or modifications have been done by unauthorized personnel;
 - damaged mechanically due to improper handling or transportation.
14. In case the equipment covered by the warranty has been re-sold, no new warranty document will be issued.
15. The warrantor shall not issue a duplicate of the Warranty Card.
16. This warranty does not exclude, limit or suspend your **consumer** statutory rights.

AQUAI unit type: _____

Serial number of the device: _____

Date, signature and stamp of the Guarantor: _____

Equipment installed by: _____

Date, signature and stamp of the Installer: _____

