



**WATER UV STERILIZERS**

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**WATER STERILIZERS  
TYPE: AM1; AM2; AM3; AM4; AM5;  
AM6; AM8; AM10; AM12; AM15**



**MANUAL**

Patent No. 204935

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- August 2021 -

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## User Safety

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### WARNING

This device may only be operated and installed by qualified personnel. Before installation, servicing or repairs verify the qualifications of personnel and limit these activities to such personnel. Any activities on this device can only proceed after thorough familiarization with this instruction. Noncompliance with the precautions listed hereon might expose personnel to serious bodily harm (damage to human skin from UV radiation), or damage to the device alone. The manufacturer, TMA, is not responsible for damage to the device caused by improper installation, maintenance and operation.

#### 1. READ THE MANUAL

Before proceeding with any activity with the sterilizers read the manual.

#### 2. RETAIN THE MANUAL

Retain the manual for reference during the whole time the device is in operation. All precautions and warnings shall be obeyed by the user at all times during the operation of the device.

#### 3. POWER SUPPLY

Device is exclusively designed to be supplied from 220-230V 50Hz mains. It shall be installed and grounded in accordance with this manual and the local electrical code.

To guard against electrical shock, unplug the device every time work is to be done on it.

#### 4. GROUNDING

Operation of the device without connected grounding is inadmissible. Ungrounded operation might lead to occurrence of electrical shock and serious bodily harm with death included.

#### 5. ULTRAVIOLET RADIATION

Direct exposure to UV radiation is harmful to human skin and sight, which can cause from reddening of skin to serious burns, or ultimately loss of eyesight, depending on the time of exposure.

In such cases one shall contact physician as soon as possible.

### **Installation and operation instructions**

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Thank you and congratulations on your purchase of TMA manufactured UV sterilization product. Sterilizers made by TMA are made from highest quality stainless steel. The thickness of the chamber wall guarantees high factor of safety in operation. All the raw materials and components are of best quality and were processed or manufactured in the EU countries. Plastics used in production of the lamp hoods withstand 110°C working temperatures. Devices completed successfully 30 Atm pressure trials.

AM series sterilizers are equipped with electronic control system and alarm. Apart from that they are provided with:

- Audible UV Lamp Fault Alarm
- Optical UV Lamp Fault Alarm
- Total Work Time Counter
- Number of switches counter

Sterilizer AM 1 is equipped with a new control system, which also provides further information including:

- Total Work Time Counter (in days)
- Remaining Working Hours Counter (in days)
- Number of switches counter
- Audible and optical alarm 7 days before UV lamp end of life time
- Audible and optical alarm indicating the need to change UV lamp
- Audible and optical alarm indicating UV lamp burnout

In AM models we introduced additional guides for the quartz sleeves easing the assembly and disassembly. This solution allows the same ease of assembly for device working horizontally or vertically. This guide prevents the quartz sleeve from breaking during the routine maintenance. The turbulent flow induced by the guide increases the efficiency of disinfection. During the first 100 hours of operation the efficiency of disinfection is greater by 15% from the rated for the device.

New features allow continuing disinfection even without the flow of water through the chamber. Sterilizers do not require control of flow and temperature of water by the user. The sterilizer without flow could heat up to a maximal temperature of 85 ° C, after that it will turn off radiators. Return to work will take place at a temperature of approx. 65 ° C.

The design of the chamber contributes to lower incidence of sediment from calcium and magnesium on the surface of the quartz sleeve.

The AM models are equipped with more durable amalgamate lamps– up to 16,000 hours of service. The plastic lamp hood has a secondary function as a sight glass. This innovative solution of the use of transparent to visible light lamp hoods allows optical indication of the state of the lamp.

We hold high hopes that the implementations of these innovative solutions fulfill your expectations for new and more efficient products from TMA.

**MANUFACTURER RESERVES THE RIGHT TO CHANGE THE CONSTRUCTION WITHOUT NOTICE**

## 1. INTRODUCTION

The device delivered to you is disassembled and shall be protected from severe shocks and drops, as the quartz sleeve and lamps are brittle and fragile. The sterilizer shall be exclusively transported in horizontal position. The manufacturer is not responsible for damage arising from the conditions of transport.

Before installation and operation one shall read the instructions and implement the precautions listed.

Noncompliance with these precautions is grounds for releasing the manufacturer from warranty obligations.

## 2. APPLICATIONS

Disinfection with UV radiation is a reliable, simple and inexpensive method of sterilization. The use of this method is warranted every time microbiological risk exists.

Following applications might be listed, among many others:

- Potable water in private and municipal installations
- Potable and process water in restaurant and hotel business
- Process water in the production of medicines and cosmetics
- Water used in processing food
- Water in beverage production
- Water in swimming pools
- Control of green algae in ponds
- Rain water in horticultural farm
- And many others

The primary advantage of UV sterilization is water without microbes and damaging chlorine so often used in sterilization of water.

Sterilizer uses special low pressure UV lamp to produce UV radiation of wavelength of 254 nm which causes photochemical reaction damaging DNA of microorganisms leading to death or sterility.

The requirements for complete sterilization call for minimum dosage of 400J/m<sup>2</sup> for potable water. Water flowing from the sterilizer is ready for immediate use.

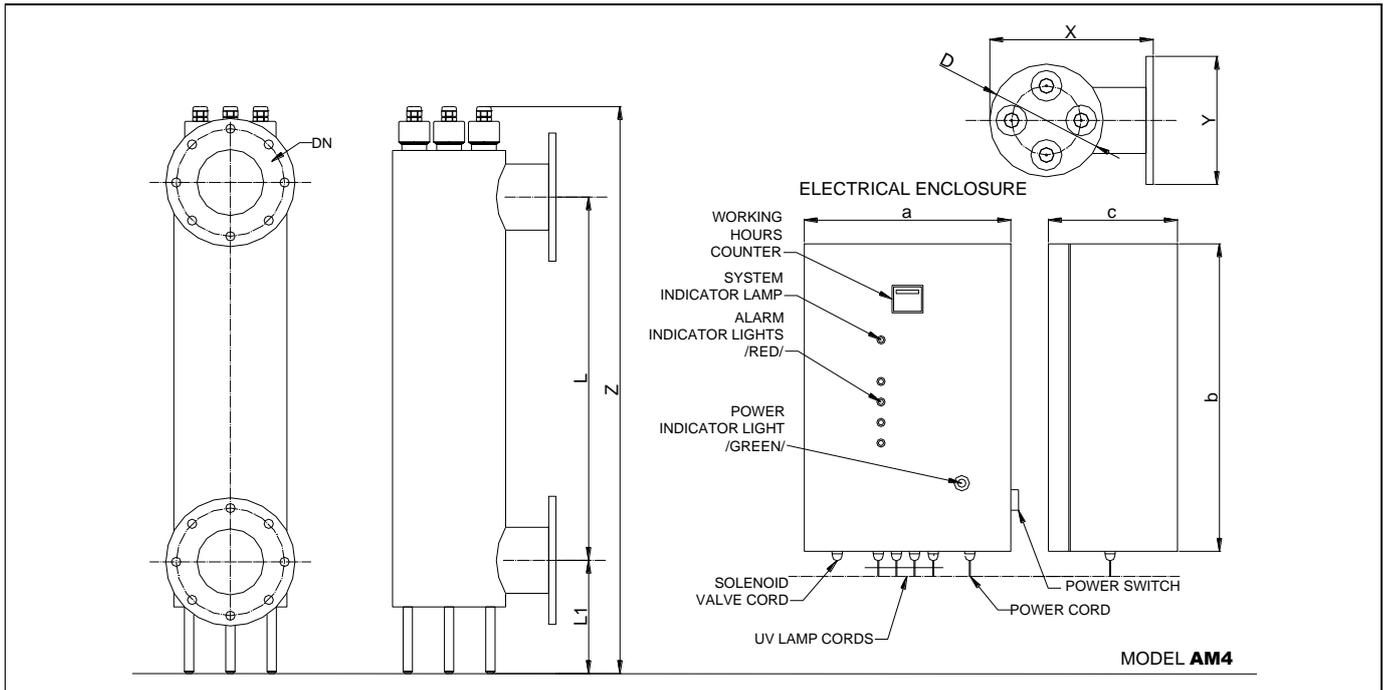
UV Sterilization does not change the chemical makeup of water

***THERE IS NO POSSIBILITY OF OVERDOSING UV RADIATION  
DURING WATER STERILIZATION IN THE CHAMBER***

***THERE IS NO REQUIRED MINIMUM FLOW OF WATER/LIQUIDS THROUGH THE STERILIZER CHAMBER***  
*Turning off radiators occurs at a temperature of approx. 85°C. Resuming at approx. 65°C*

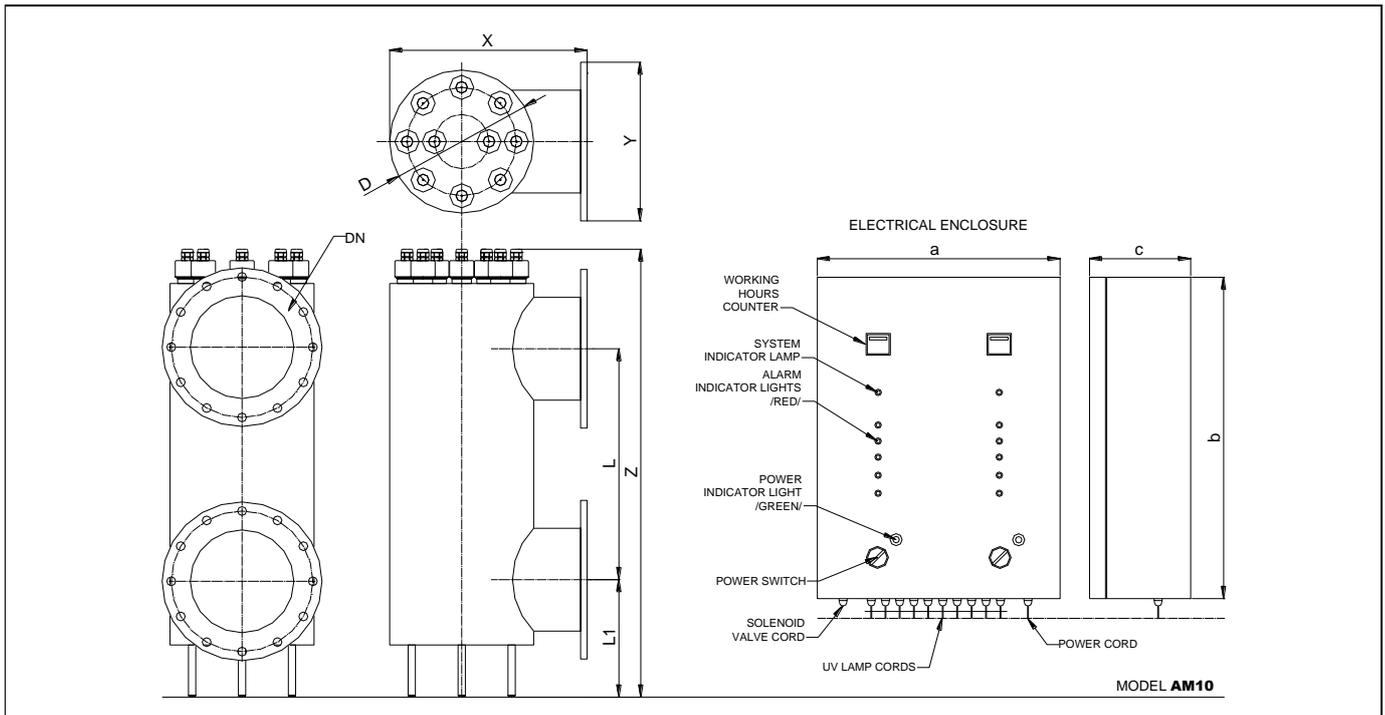
**MINIMAL FLOW OF WATER IS NOT REQUIRED.  
INCREASED FLOW THROUGH THE STERILIZER LOWERS THE DOSAGE DELIVERED TO  
MICROORGANISMS AND LOWERS EFFICIENCY OF DISINFECTION**

### 3. TECHNICAL SPECIFICATIONS



#### TECHNICAL SPECIFICATIONS:

Model			AM1	AM2	AM3	AM4	AM5
Power Supply			220V-230V				
Safety Class			IP 66				
Chamber Material			Stainless Steel				
Finish			Satin				
Dimensions	X / Y / Z	[mm]	317 / 200 / 1110	317 / 220 / 1110	317 / 220 / 1110	317x250x1110	375x285x1110
	L / L1	[mm]	755 / 200,5	740 / 208	740 / 208	715 / 220,5	688 / 236
	DN / D	[mm]	DN80 / 220	DN100 / 220	DN100 / 220	DN125 / 220	DN150 / 256
No. of UV Lamps x Nominal Power			1x150W	2x150W	3x150W	4x150W	5x150W
Life of UV Lamps			16 000 h				
Operating Temperature			0,5-50°C				
Operating Pressure			10bar(1MPa)				
UV Power at 254nm			46 W	92 W	138 W	184 W	230 W
Nominal Power			160 W	320 W	480 W	640 W	800 W
Nominal Flow at transmittance T10=95%, dose 300J/m2			265,0 m3/h	47,0 m3/h	81,0 m3/h	104,0 m3/h	151,0 m3/h
Nominal Flow at transmittance T10=95%, dose 400J/m2			19,5 m3/h	35,5 m3/h	61,0 m3/h	78,5 m3/h	113,0 m3/h
Sight glass Muff			1pcs.	2 pcs.	3 pcs.	4 pcs.	5 pcs.
Drain Valve			Yes	Yes	Yes	Yes	Yes
Temperature sensor			No	No	Yes	Yes	Yes
Orientation			Horizontal/Vertical				
<b>ELECTRICAL ENCLOSURE</b>							
Material			Plastic	Steel			
Safety Class			IP 65	IP42	IP42	IP42	IP42
Dimensions /mm			325x250x120	400x400x200	400x600x250	400x600x250	400x600x250
Audible UV Lamp Fault Alarm			Yes				
Optical UV Lamp Fault Indicator			Yes				
Working Hours Counter			Yes				
Alarm System			Yes				
Solenoid Cut-Off Valve Terminals			Yes				
Terminals for Remote Alarm Indicator			Yes				
Remote ON/OFF Switch Terminals			Yes				
Weight with Enclosure			36,0kg	48,0kg	62,0kg	65,0kg	83,0kg
UV Intensity Measurement System			On demand /Optional/				



**TECHNICAL SPECIFICATIONS:**

Model			AM6	AM8	AM10	AM12	AM15
Power Supply			220V-230V				
Safety Class			IP 66				
Chamber Material			Stainless Steel				
Finish			Satin				
Dimensions	X / Y / Z	[mm]	463 / 340 / 1110	463 / 340 / 1110	488 / 395 / 1130	544 / 445 / 1130	544 / 445 / 1130
	L / L1	[mm]	625 / 267,5	625 / 267,5	580 / 292,5	526 / 319,5	526 / 319,5
	DN / D	[mm]	DN200 / 306	DN200 / 306	DN250 / 356	DN300 / 406	DN300 / 406
No. of UV Lamps x Nominal Power			6 x150W	8 x150W	10 x150W	12 x150W	16 x150W
Life of UV Lamps			16 000 h				
Operating Temperature			0,5-50 °C				
Operating Pressure			10bar(1MPa)				
UV Power at 254nm			276W	368W	460 W	552 W	736W
Nominal Power			960 W	1280 W	1600 W	1920 W	2560 W
Nominal Flow at transmittance T10=95%, dose 300J/m2			208,5,0 m³/h	299,0 m³/h	448,5 m³/h	550,0 m³/h	762,0 m³/h
Nominal Flow at transmittance T10=95%, dose 400J/m2			<b>156,0 m³/h</b>	<b>225,0 m³/h</b>	<b>336,0 m³/h</b>	<b>412,0 m³/h</b>	<b>572,0 m³/h</b>
Sight glass Muff			6 pcs.	8 pcs.	10 pcs.	12 pcs.	16 pcs.
Drain Valve			Yes	Yes	Yes	Yes	Yes
Temperature sensor			Yes	Yes	Yes	Yes	Yes
Orientation			Horizontal/Vertical				
<b>ELECTRICAL ENCLOSURE</b>							
Material			Steel				
Safety Class			IP 42				
Dimensions /mm			400x600x250	600x800x250	600x800x250	800x800x250	800x800x250
Audible UV Lamp Fault Alarm			Yes				
Optical UV Lamp Fault Indicator			Yes				
Working Hours Counter			Yes				
Alarm System			Yes				
Solenoid Cut-Off Valve Terminals			Yes				
Terminals for Remote Alarm Indicator			Yes				
Remote ON/OFF Switch Terminals			Yes				
Weight with Enclosure			105,0kg	125,0kg	150,0kg	185,0kg	200,0kg
UV Intensity Measurement System			On Demand /Optional/				

Standard features:

- Sterilizer chamber made from stainless steel ( AISI 316),
- Electrical enclosure, with control system,
- Set of quartz sleeves
- Set of UV lamps
- Set of O-rings + backup set of O-rings
- Terminals for connecting electromagnetic valve shutting off flow in case of power or lamp failure

Optional Accessories:

- UV intensity sensor.

#### 4. DESCRIPTION

Sterilizer's chamber is made from stainless steel. Quartz sleeves with UV lamps are mounted in the chamber.

When mounted vertically, the inlet should be located in the bottom part of the chamber and the outlet in the upper part. When mounted horizontally, the arrangement is optional. At the bottom of the chamber the drain plug is located, which is used to empty the chamber from fluid. The power supply system is mounted in the electrical enclosure and connected with the sterilizer by hi-potential wires. The enclosure houses, besides the power supply, is equipped lamp working hours counter, the audible and optical alarm, and indicating lights with the terminals for electromagnetic shutoff valve in case of lamp or power failure.

Power supply is 180-240V  $\pm$  10%, 50-60 Hz.

Electric shock protection by earth terminal.

Sight glass muff enables indication of working condition of the lamp.

##### 4.1. LEADING OUT THE ALARM SIGNAL IN AM1 MODEL

Connect alarm signal wires to the terminals 1 & 2 on electronic plate /neutral/.

- Contacts closed - sterilizer working properly
- Contacts open - UV lamp damage
  - Alarm on
  - Power cut off

##### 4.2. CONNECTION OF SOLENOID VALVE IN AM1 MODEL

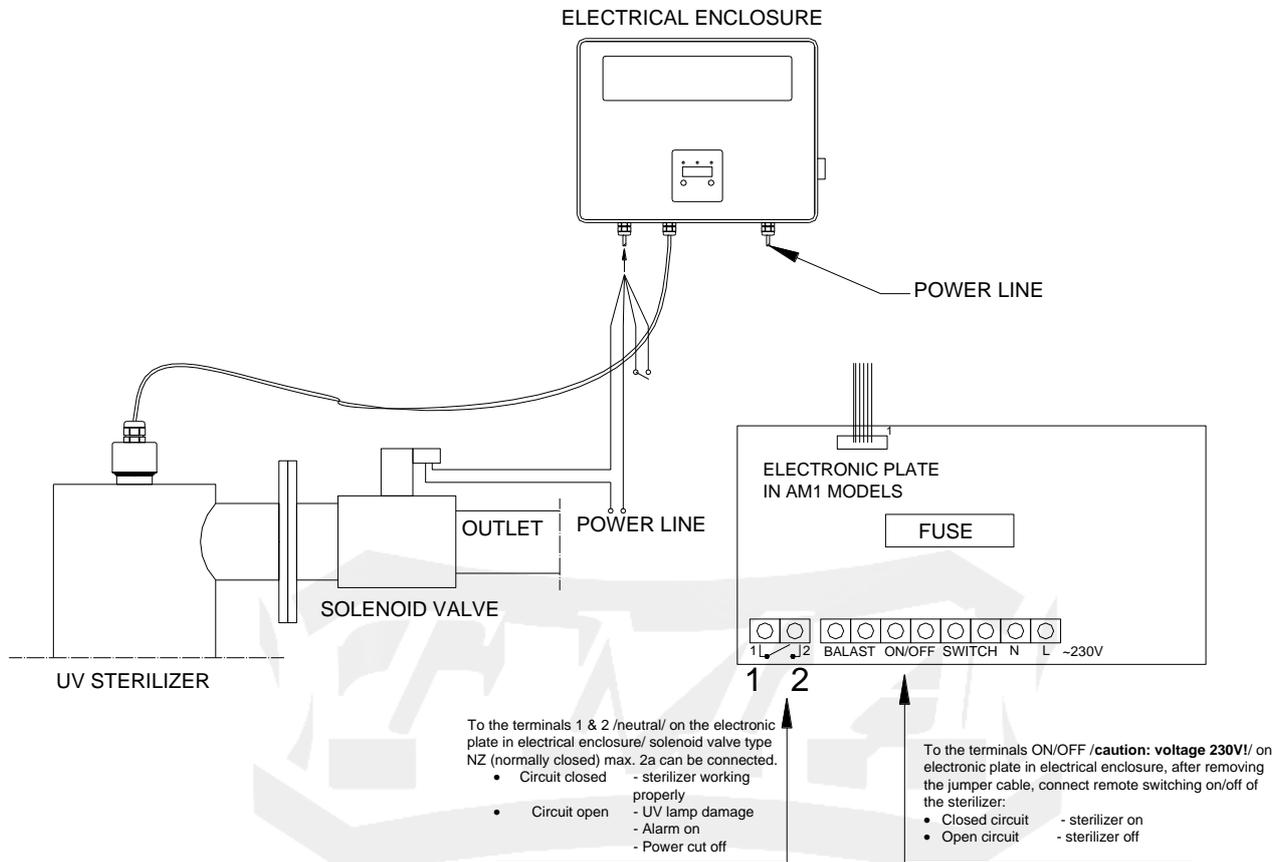
Connect solenoid valve type NZ (normally closed) max. 2A to the terminals 1 & 2 /neutral/ on the electronic plate in electrical enclosure.

- Contacts closed - sterilizer working properly
- Contacts open - UV lamp damage
  - Alarm on
  - Power cut off

### 4.3. REMOTE-CONTROLLED ON/OFF SWITCH IN AM1 MODEL

After removing the bridge, it is possible to connect remote-controlled switch to the ON/OFF terminals /**caution: voltage 230V!**/.

- Contacts closed - sterilizer on
- Contacts open - sterilizer off



M1 – Diagram for solenoid valve, alarm signal and outside connection of the device.

### 4.4. LEADING OUT THE ALARM SIGNAL IN AM2-AM15 MODELS

Connect the alarm signal wires to the terminals 1 & 2 /neutral/ on the terminal blocks in electrical enclosure /in the right bottom corner/.

- Contacts closed - sterilizer working properly
- Contacts open - UV lamp damage, Alarm on, Power cut off

### 4.5. CONNECTION OF SOLENOID VALVE IN AM2-AM15 MODELS

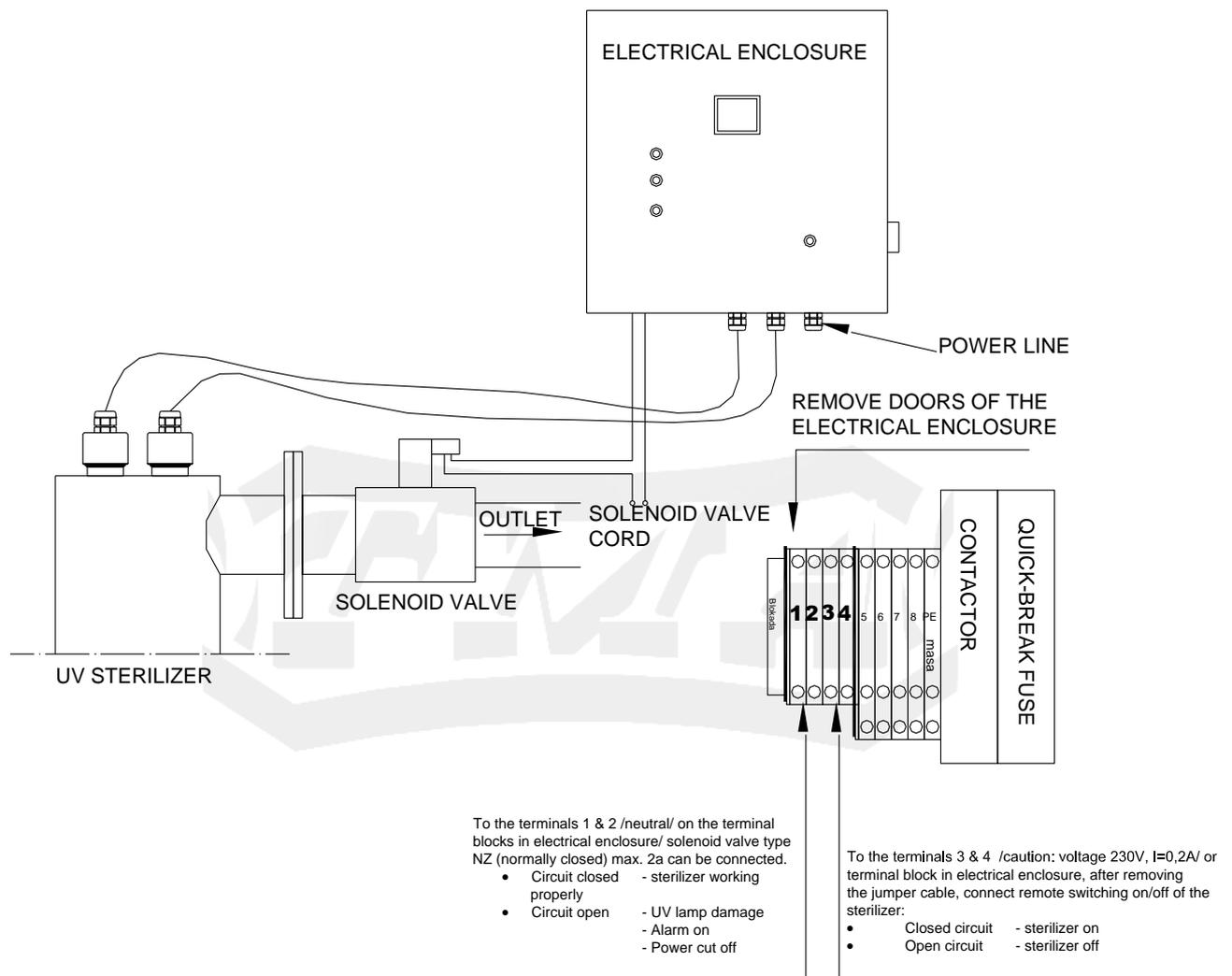
Connect solenoid valve type NZ (normally closed) max. 2A to the terminals 1 & 2 /neutral/ on the terminal blocks in electrical enclosure/

- Contacts closed - sterilizer working properly
- Contacts open - UV lamp damage, Alarm on, Power cut off

#### 4.6. REMOTE-CONTROLLED ON/OFF SWITCH IN AM2-AM15 MODELS

After removing the bridge, it is possible to connect remote-controlled switch to the terminals 3 & 4 /caution: voltage 230V!, I=0,2A/.

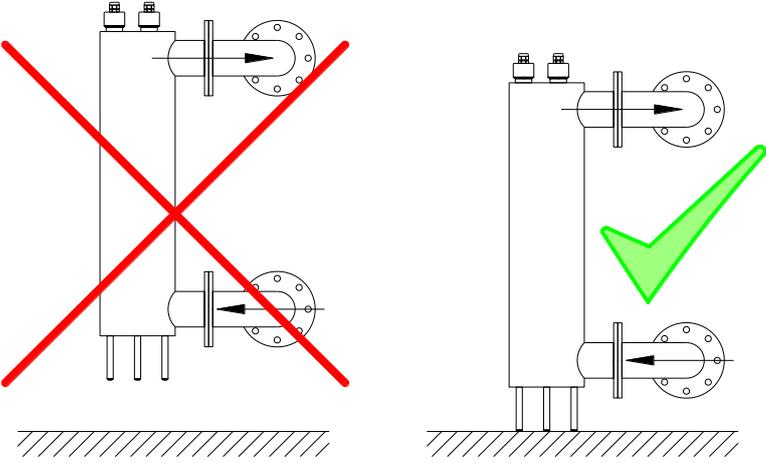
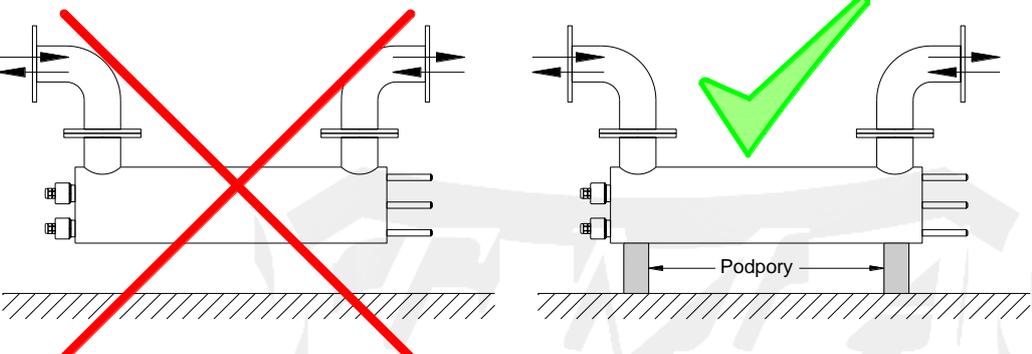
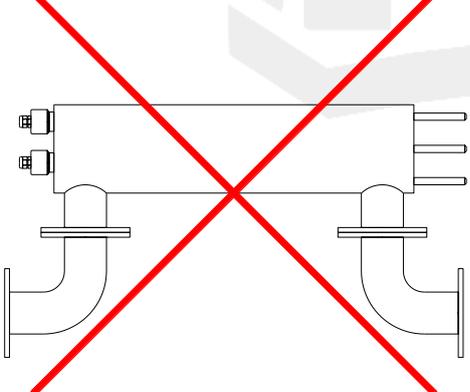
- Contacts closed - sterilizer on
- Contacts open - sterilizer off



AM2 - Diagram for solenoid valve, alarm signal and outside connection of the device.

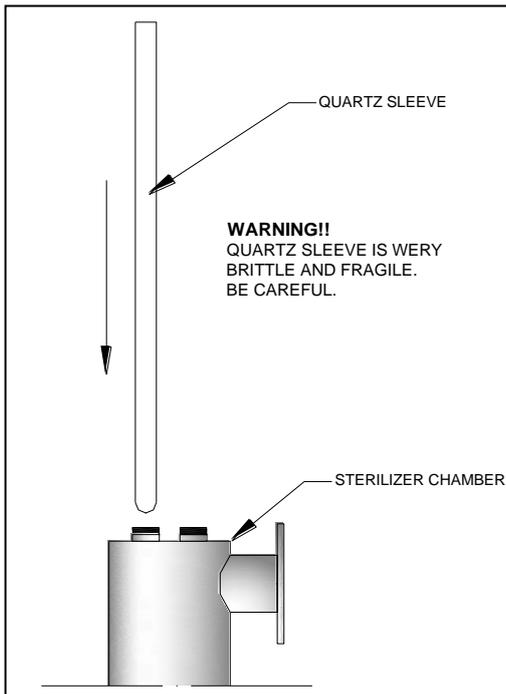
## 5. INSTRUCTION FOR INSTALLATION AND OPERATION

### 5.1. CHAMBER ASSEMBLY

	<p>Vertical</p>
	<p>Horizontal</p>
	<p>Forbidden</p>

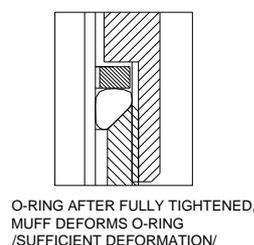
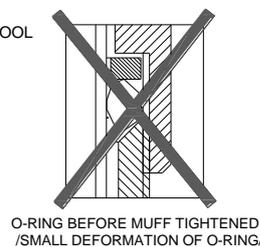
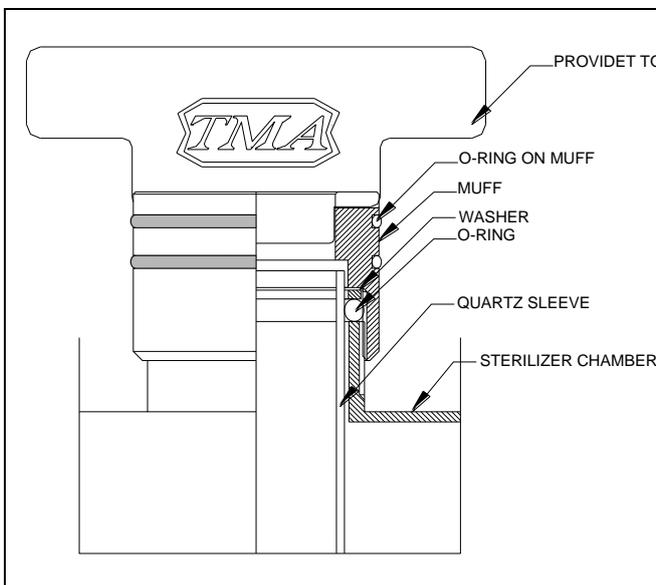
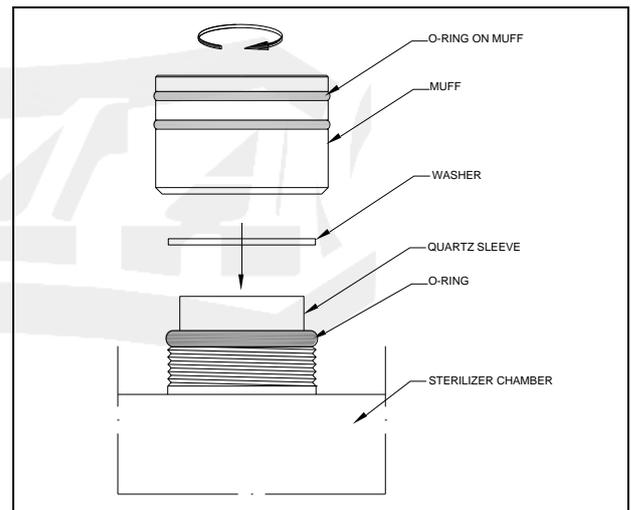
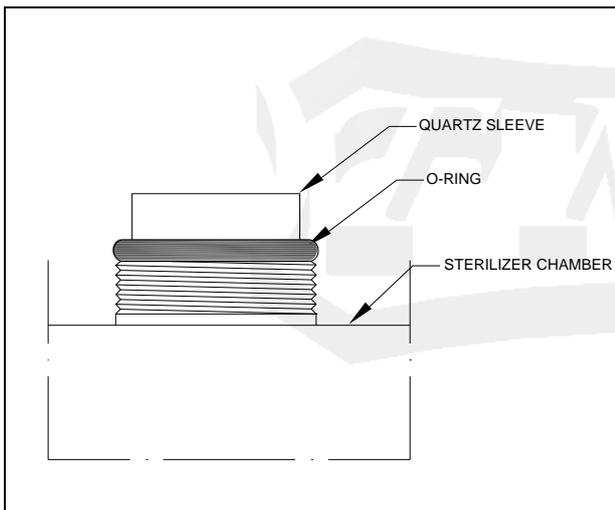
- Device assembles in either vertical or horizontal position. Temperature range for installation is from 0.1 to 35°C. **DO NOT ALLOW THE CHAMBER TO FREEZE.**
- Correct assembly shall prevent the creation of air gap in the chamber.
- By-pass installation is recommended.
- Assembly cannot cause strain on the nipples.**
- It is forbidden to mount the sterilizer on flanges without appropriate support.**
- Upstream of the intake install potable water filter, minimum rating 0.1 mm, recommended 0.05 mm. Water shall not contain more than 0.3mg Fe and 0.1 Mn.
- Install cut-off valves on both sides.

## 5.2. QUARTZ SLEEVES ASSEMBLY



- Slide in gently through the nipple the quartz sleeves; continue through sleeve guides onto nests at the bottom.
- Place the o-ring over quartz sleeve and against the lip of the nipple. Next place the washer over the o-ring, screw the muff onto this assembly with the provided tool. Turn the muff to considerable resistance in order to tighten the seal. Tightening the muff shall not break the sleeve.
- Fill the chamber under full pressure and check the seal tightness.

**!!! ATTENTION !!!**  
Tightening the muffs with other tools may cause quartz sleeves breakage.



Tightest seal around quartz sleeve shall be created with the largest possible deformation of o-ring. O-ring is visible through the sleeve. Tighten muff with the provided tool, as seen.

### 5.3. UV LAMPS AND ELECTRICAL ENCLOSURE ASSEMBLY

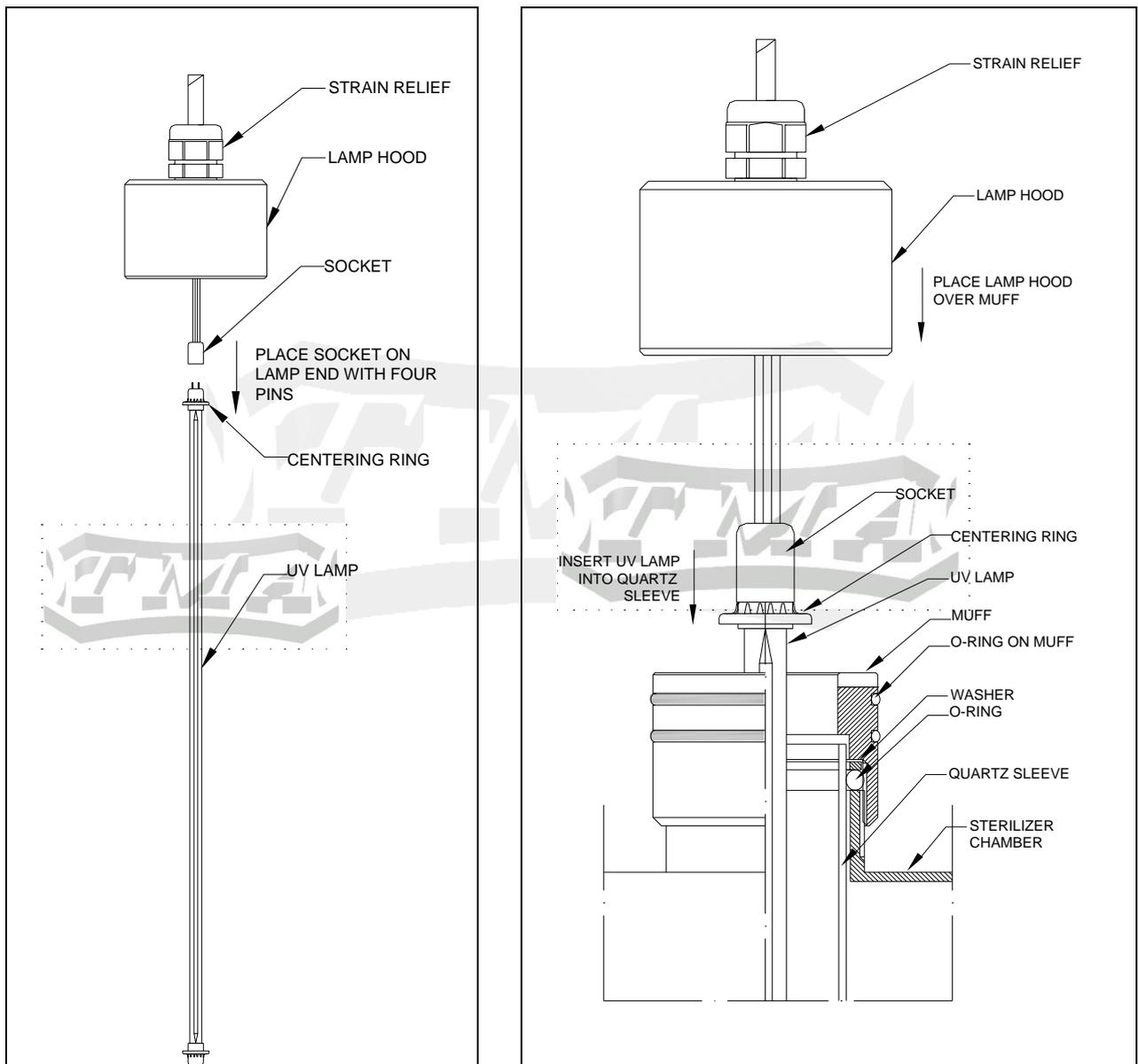
(GRAPHICAL INSTRUCTIONS AT PAGE 25,26)

- a) Mount electrical enclosure on wall, at least 60 cm from the floor.
- b) Place the socket on the end of UV lamp with four pins. Gently slide the fully connected lamp into the quartz sleeve.

**!!! CAUTION !!!**

**MOUNT UV LAMPS IN PROTECTIVE, PREFERABLY COTTON, GLOVES.**

If not done as required, the UV lamps may break after turning on the device.



- c) Place lamp hood over muff.
- d) Plug in to mains in the electrical enclosure, according to the labels.
- e) Turn device on by using switch on the side or front of electrical enclosure. Green indicator light goes on when device is connected to power and powered up.
- f) Replace UV lamps after its end of life time.

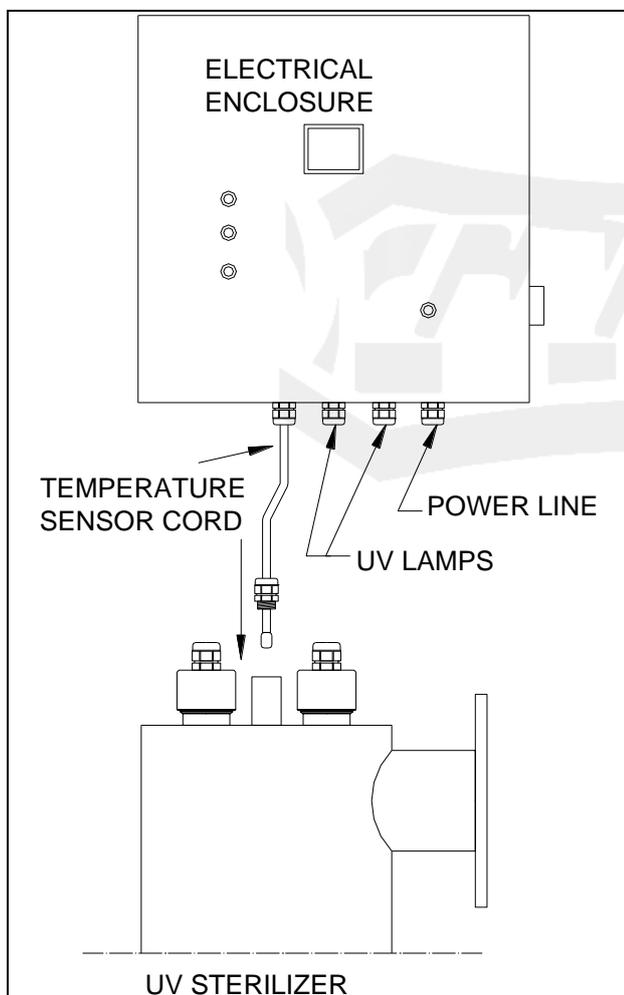
**ATTENTION!**

1. Any fault of UV lamp, including burn out, is signaled by lighting up of red indicator lamp and tripping of audible alarm.
2. Incidental powering of the electrical enclosure without connected UV lamps may cause damage to electronic ballast driving UV lamps.

**ATTENTION!**

In case of installing solenoid shut-off valve ( terminals 1 & 2) upstream /or downstream/ of the sterilizer, tripping alarm or power interruption causes immediate shutting off of fluid flow to the chamber of the sterilizer / **Section 4.3-4.6/**. Terminals 1 & 2 are neutral. Power to solenoid shut-off valve shall be connected through terminals 1 & 2.

Solenoid shut-off valve serves the purpose of preventing unsterilized fluid entering the installation downstream of the sterilizer in the case of power interruption or lamp failure.

**5.4. MOUNTING TEMPERATURE SENSOR (MODELS AM3-AM15)**

- a) Choose the temperature sensor cord (ended with strain relief PG11).
- b) Loosen the cable gland
- c) Install the strain relief into the hole at the center of sterilizer (between the UV lamps mountings)
- d) Move the wire to the end of the hole.
- e) Tighten the strain relief.

**ATTENTION!**

Improper mounting of temperature sensor can cause a short circuit, resulting in failure of whole device

*Turning off radiators occurs at a temperature of approx. 85°C. Resuming at approx. 65°C*

## 6. DESCRIPTION OF ALARMS IN ELECTRICAL CABINET / AM1 /

Display indications	Cause	Solving the problem
 <ul style="list-style-type: none"> <li>- Blinking digit 7 on the display.</li> <li>- An intermittent sound signal</li> </ul>	<ul style="list-style-type: none"> <li>- 7 days left to the end of life time of UV lamp</li> <li>- change UV lamp after 7 days.</li> </ul>	 <p>Hold left button more than 3 seconds to silence the sound alarm</p>
 <ul style="list-style-type: none"> <li>- Blinking number 0 on the display.</li> <li>- An intermittent sound signal</li> </ul>	<ul style="list-style-type: none"> <li>- UV lamp reached its end of life time.</li> </ul>	 <p>Hold left button more than 3 seconds to silence the sound alarm (max 2 times)</p>
 <ul style="list-style-type: none"> <li>- Blinking number 0 on the display.</li> <li>- Blinking 3 LED's over display</li> <li>- Continuous sound signal</li> </ul>	<ul style="list-style-type: none"> <li>- UV lamp is damaged or reached its end of life time.</li> </ul>	<p>Change UV lamp</p>
 <ul style="list-style-type: none"> <li>- No indication on the display</li> <li>- No indication on LED above display</li> <li>- No audible alarm</li> </ul>	<ul style="list-style-type: none"> <li>- No power at the input of the control cabinet.</li> </ul>	<ul style="list-style-type: none"> <li>- Check power supply.</li> <li>- Check the fuse in the alarm system</li> </ul>

## 7. RESSETTING COUNTER IN ALARM SYSTEM / AM1/

COUNTER IN THE ALARM SYSTEM SHOULD BE RESSETED EACH TIME THE UV LAMP IS REPLACED

- Disconnect from power supply /neutral and life/.
- Replace UV Lamp – see p. **9. INSTRUCTION FOR REPLACEMENT OF UV LAMP**
- Connect device to Power supply (power switch should be turned off)
- Hold the right button under display..



- Turn on the power switch while still holding the right button for more than 10 seconds.
- Short sound signal will confirm resetting the work time counter.

## 8. LEGEND FOR INDICATOR LIGHT ON ENCLOSURE

Lighted colour indicator lights inform the operator of the status of the sterilizer. Certain conditions can be identified from the configuration of lights. For these corrective actions are listed below:

<b>Alarm</b> <i>Red Light</i>	<b>Power Supply</b> <i>Green Light</i>	<b>Power</b> <i>Green Light</i>	<b>Problem</b>	<b>Action</b>
OFF	ON	ON	No fault	-
OFF	OFF	OFF	No Power	Check power source
ON	OFF	ON	Burned out or faulty UV lamp	Replace UV lamp
OFF	OFF	ON	Alarm System Fault	Contact Dealer. Replace alarm system.

## 9. MAINTENANCE

- a) **UV radiation is harmful to eyes and skin. It is forbidden to directly observe UV lamp (radiator) during operation.**
- b) It is recommended to check cleanness of the quartz sleeve whenever the UV lamp is replaced.
- c) If any sediment is noticed on the surface of the quartz sleeve, it is recommended to immediately clean the sleeve. Negligence of this recommendation can cause drop in efficiency of sterilization.
- d) Any time the sleeve is cleaned or replaced it is required to **unconditionally replace the o-ring creating the seal around the sleeve.**
- e) Inlet and outlet valves shall be opened slowly to prevent the rush of fluid hitting and damaging the quartz sleeve.
- f) There is no need for minimal flow through the device as it is designed in such a way that there may be no flow through the chamber with no damage to the sterilizer. **When there is no flow of water through the chamber can heat up to approx. 85°C that is when turning off radiators occurs. Sterilizer is resumed to work after reaching temperature of approx. 65°C.**
- g) UV sterilizer should work constantly - his long-term exclusion may cause secondary infection in the installation, which is very difficult to remove.
- h) It is recommended that before the UV sterilizer a filter is installed.
- i) Water not fit for consumption may require treatment i.e. deironing, softening or filtering. If any doubt, please contact your dealer.
- j) In case of high turbidity and waste water, the choice of equipment and efficiency should be made by the dealer.
- k) Sterilizers must be sized for the maximum momentary flow of water (matching them to the daily flows may result in incomplete disinfection)
- l) Avoid frequent turning on and off the equipment. One on-off cycle lowers the UV lamp life by about 10-20 hours.
- m) Sterilizers should not be installed in such a way that their work was dependent on other devices, eg. pumps, pressure-water.
- n) Flow rate through the device can be increased, however, this lowers the delivered dosage and lowers the efficiency of disinfection.
- o) The lamp needs about 2 minutes to reach full capacity at temperature of water about 12-16 °C. If the water is at temperature 5-12°C, the time might be about 3-5 minutes.
- p) If the sterilizer is left idle for longer period of time or it can freeze, we recommend that the water be drained from the chamber. The chamber is provided with drain valve.
- q) **Bioassay samples shall be collected into sterile opaque containers as not to expose the sample to the light to avoid photo reactivation of microorganisms, which can rebuild their damaged DNA in presence of light.**
- r) In case the red indicator light is on, replacement of the UV lamp is necessary. The part number can be found on transparent plastic lamp hood placed over the muff.
- s) Even short lived surge, to above 254V, can damage the electronic ballast driving the UV lamps.

- t) Using faulty or post end of life UV lamps / operating time above their durability period / can lead to damage to electronic ballast located In the electrical enclosure. When replacing the UV lamp, protective gloves should be worn.
- u) Excessive humidity and water inside the quartz sleeve can cause damage to the power supply of the UV lamp.
- v) The leakage current going into grounding is 1,5 mA for each UV lamp.
- w) Fans in control cabinets should be replaced every 50 000h.
- x) In control cabinets there are mounted protection devices as below:

Sterilizer type	Protection device
<b>AM1</b>	Fuse 2A
<b>AM2</b>	MCB - C6
<b>AM3</b>	MCB - C10
<b>AM4</b>	MCB - C10
<b>AM5</b>	MCB - C10
<b>AM6</b>	MCB - C10
<b>AM8</b>	MCB - C16
<b>AM10</b>	MCB - C16
<b>AM12</b>	MCB - C16
<b>AM15</b>	MCB - C16

## 10. INSTRUCTION FOR REPLACEMENT OF UV LAMP

(GRAPHICAL INSTRUCTIONS AT PAGE 25,26)

In order to replace the UV lamp one shall:

- a) Disconnect from power supply /neutral and life/,

Replacing the radiator does not require shutting off the water flow through the chamber.

- b) Put on protective gloves, preferably made of cotton,
- c) Take off plastic hood,
- d) Slide out the UV lamp from the quartz sleeve,

### **DO NOT UNSREW THE STEEL MUFF!**

- a) Remove sockets from connectors of the UV Lamp,
- b) Remove old UV lamp from the quartz sleeve,
- c) Carefully place the new UV lamp in the sleeve,
- d) Reverse the remaining steps.

### **ATTENTION!**

In model AM sterilizers UV lamps must have special centering ring at both ends.

When the UV lamps are shipped from the manufacturer, the centering rings are provided with every lamp.

## 11. REPLACEMENT AND CLEARING OF THE QUARTZ SLEEVE (WARNING: VERY BRITTLE)

(GRAPHICAL INSTRUCTIONS AT PAGE 25,26)

In order to replace quartz sleeve one shall:

- a) Disconnect the power supply,
- b) Cut off the liquid flow through the chamber,
- c) Allow for lamp to cool down from operating temperature,
- d) Remove UV lamp according to p. 10. /Instruction for replacement of UV lamp/,
- e) Unscrew the steel muff using special spanner,
- f) Take off the washer and o-ring from the quartz sleeve,
- g) Slide the sleeve out of guides and nipple of the sterilizer,
- h) Every time the UV lamp is replaced, when it is necessary to clean the quartz sleeve use common glass cleaners and then inside of the sleeve should be thoroughly dried so that no liquid is left there,

### **ATTENTION!**

**SLEEVE IS MADE OF PURE QUARTZ – VERY BRITTLE**

### **ATTENTION!**

**AT THE TIME OF REPLACEMENT OR CLEARING OF THE QUARTZ SLEEVE, THE O-RING MUST BE REPLACED**

- i) Slide carefully the new or cleaned quartz sleeve into the chamber of the sterilizer,
- j) Place **new o-ring** over the sleeve, then place the washer,
- k) Tighten the muff over the o-ring and washer with the provided tool. Check the proper placement of the o-ring, it should be lodged into the **conical groove in the nipple of the sterilizer**,

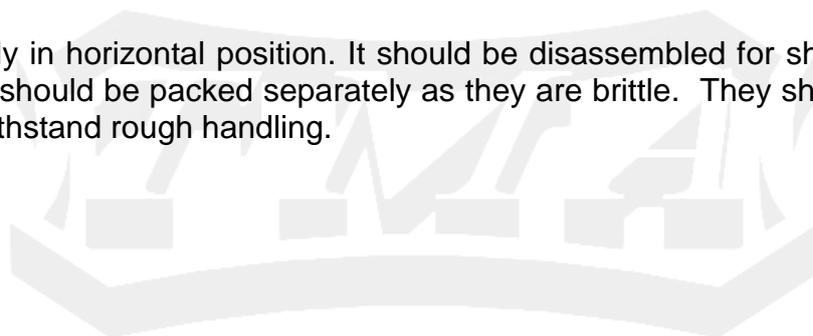
- l) Open gradually the cut-off valves, flood the chamber, and check the seal around the sleeve. If it springs a leak, tighten the muff till tight seal is obtained,
- m) Place the UV lamp according with p. 10 of this Manual.

## 12. TROUBLE SHOOTING

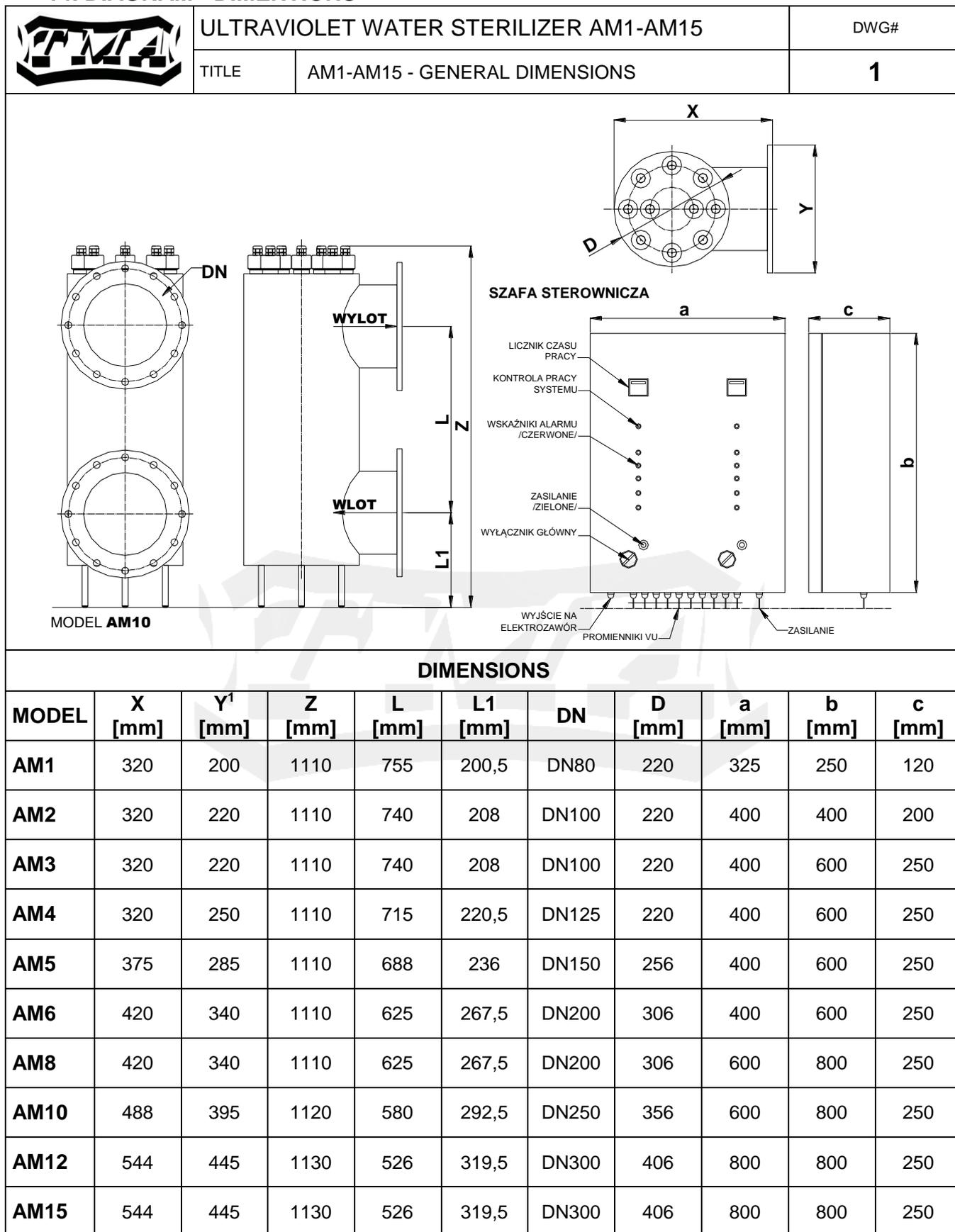
<b><i>Problem</i></b>	<b><i>Cause</i></b>	<b><i>Action</i></b>
Burned out UV Lamp Water inside the quartz sleeve - . short circuit – open circuit on circuit breaker	Muff not tightened sufficiently. Worn out o-ring.	Take quartz sleeve out, dry interior, change o-ring, and assemble back. Tighten muff. If device does not work – electronic ballast damaged – replace – contact dealer
Burned out UV lamp	End of lamp life caused by number of working hours and number of on-off cycles.	Replace UV lamp.

## 13. TRANSPORT

Ship sterilizer only in horizontal position. It should be disassembled for shipping. The quartz sleeve and lamp should be packed separately as they are brittle. They should be sufficiently well packed to withstand rough handling.



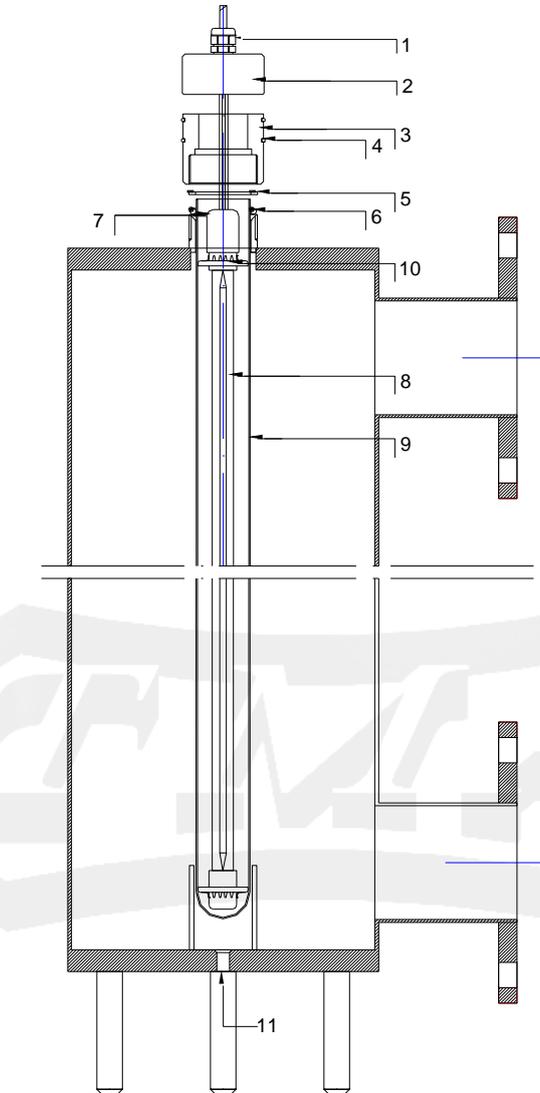
### 14. DIAGRAM - DIMENTIONS



<sup>1</sup> Dimensions indicated are for the standard version to operate at a pressure of 10 bar [PN10]. In another embodiment, the size may vary slightly.

**15. DIAGRAM – SPARE PARTS LIST**

	ULTRAVIOLET WATER STERILIZER AM1-AM15		DWG#
	TITLE	STERILIZER ORIENTATION DIAGRAM	<b>6</b>



MODEL AM1

PART	SYMBOL	AM1	AM2	AM3	AM4	AM5	AM6	AM8	AM10	AM12	AM15
1 STRAIN RELIEF	02.01	1 pcs	2 pcs	3 pcs	4 pcs	5 pcs	6 pcs	7 pcs	10 pcs	12 pcs	16 pcs
2 LAMP HOOD	01.02.02	1 pcs	2 pcs	3 pcs	4 pcs	5 pcs	6 pcs	7 pcs	10 pcs	12 pcs	16 pcs
3 MUFF	01.04.02	1 pcs	2 pcs	3 pcs	4 pcs	5 pcs	6 pcs	7 pcs	10 pcs	12 pcs	16 pcs
4 O-RING MUFF	01.04.01	2 pcs	4 pcs	6 pcs	8 pcs	10 pcs	12 pcs	14 pcs	20 pcs	24 pcs	32 pcs
5 WASHER	01.05	1 pcs	2 pcs	3 pcs	4 pcs	5 pcs	6 pcs	7 pcs	10 pcs	12 pcs	16 pcs
6 O-RING	01.06	1 pcs	2 pcs	3 pcs	4 pcs	5 pcs	6 pcs	7 pcs	10 pcs	12 pcs	16 pcs
7 SOCKET	03.08	1 pcs	2 pcs	3 pcs	4 pcs	5 pcs	6 pcs	7 pcs	10 pcs	12 pcs	16 pcs
8 UV LAMP	12.07	1 pcs	2 pcs	3 pcs	4 pcs	5 pcs	6 pcs	7 pcs	10 pcs	12 pcs	16 pcs
9 QUARTZ SLEEVE	12.09	1 pcs	2 pcs	3 pcs	4 pcs	5 pcs	6 pcs	7 pcs	10 pcs	12 pcs	16 pcs
10 CENTERING RING	01.15	2 pcs	4 pcs	6 pcs	8 pcs	10 pcs	12 pcs	14 pcs	20 pcs	24 pcs	32 pcs
11 DRAIN VALVE	01.12	1 pcs	1 pcs	1 pcs	1 pcs	1 pcs	1 pcs				

## 16. HYGIENIC CERTIFICATE



NARODOWY INSTYTUT ZDROWIA PUBLICZNEGO  
- Państwowy Zakład Higieny

Zakład Bezpieczeństwa Zdrowotnego Środowiska

**ATEST HIGIENICZNY**  
HYGIENIC CERTIFICATE

**BK/W/0223/01/2019**

ORYGINAL

NATIONAL INSTITUTE OF PUBLIC HEALTH – NATIONAL INSTITUTE OF HYGIENE

Wyrób / product: **STERYLIZATORY UV seria AM**

Zawierający / containing: komorę ze stali kwasoodpornej, lampę UV w osłonie kwarcowej, uszczelnienie silikonowe

Przeznaczony do / destined: dezynfekcji wody przeznaczonej do spożycia przez ludzi i na potrzeby gospodarcze, wody technologicznej, wody basenowej i innych cieczy

Wymieniony wyżej produkt odpowiada wymaganiom higienicznym przy spełnieniu następujących warunków / the above-named product is acceptable according to hygienic criteria with the following conditions:

Urządzenia można stosować do wód klarownych i bezbarwnych. Typ urządzenia należy dobierać w zależności od jakości wody w danym wodociągu i wymogów użytkownika. Do urządzenia należy dołączyć instrukcję użytkowania zawierającą informacje o zalecanej szybkości przepływu wody. Na stosowanie lamp UV do dezynfekcji wody przeznaczonej do spożycia w wodociągach publicznych, należy każdorazowo uzyskać zgodę terenowo właściwego Państwowego Powiatowego Inspektora Sanitarnego.

Atest higieniczny nie dotyczy parametrów technicznych wyrobów/ Hygienic certificate does not apply to technical parameters of the products.

Wytwórca / producer:

TMA Tomasz Adamowicz

Białostoczek 26, gm. Zabłudów, 15-592 Białystok

Niniejszy dokument wydano na wniosek / this certificate issued for:

TMA Tomasz Adamowicz

Białostoczek 26, gm. Zabłudów, 15-592 Białystok

Atest może być zmieniony lub unieważniony po przedstawieniu stosownych dowodów przez którąkolwiek stronę. Niniejszy atest traci ważność po 2022-04-08 lub w przypadku zmian w recepturze albo w technologii wytwarzania wyrobu.

The certificate may be corrected or cancelled after appropriate motivation. The certificate loses its validity after 2022-04-08 or in the case of changes in composition or in technology of production.

Data wydania atestu higienicznego: 8 kwietnia 2019

The date of issue of the certificate: 8th April 2019

Kierownik  
Zakładu Bezpieczeństwa Zdrowotnego  
Środowiska

dr hab. Jolanta Solecka, prof. NIZP-PZH

Kontakt w sprawie niniejszego atestu higienicznego / To contact regarding this hygienic certificate  
Zakład Bezpieczeństwa Zdrowotnego Środowiska NIZP-PZH / Department of Environmental Health and Safety NIPH-NIH  
00-791 Warszawa, ul. Chocimska 24 / 00-791 Warsaw, Chocimska 24, Poland  
e-mail: sek-zhk@pzh.gov.pl tel. +48 22 54-21-354, +48 22 54-21-349

## 17. DECLARATION OF CONFORMITY



Made in Poland

STERYLIZATORY UV  
UV WATER STERILIZER

Białostoczek, 2020-02-01

**Deklaracja zgodności TMA/01/02/2020**

Declaration of conformity

1. Producent wyrobu /  
The manufactured of the product: TMA  
Białostoczek 26, gm. Zabłudów  
15-592 Białystok  
Polska / Poland
- Zakład produkcyjny: TMA  
Białostoczek 26, gm. Zabłudów  
15-592 Białystok  
Polska / Poland
- Deklaruje, że produkty / Hereby declares that the sterilisers:
2. Nazwa wyrobu / Models: Sterylizator / Steriliser  
**SERIA/SERIES V**  
**SERIA/SERIES AM / AP-POOL**  
**SERIA/SERIES AMX / AP-POOL X**  
**CZUJNIK UV UVC-02/UV METER UVC-02**
3. Klasyfikacja wyrobu / Product classification:  
SWW 0719-149, PKWiU28.29.12.0 (29.24.12-30.20)
4. Przeznaczenie i zakres stosowania wyrobu / The scope of use:  
Dezynfekcja promieniami UV wody pitnej, grzewczej,  
basenowej, wód technologicznych.  
/ UV disinfection of notable, heating, pool and  
technological waters.
5. Dokumenty odniesienia / Reference documents:  
**2014/35/UE** / w miejsce / it replaces 2006/95/WE/  
Dyrektywa niskonapięciowa / Low Voltage Directive  
**2014/30/UE** /w miejsce 2004/108/WE/  
Kompatybilność elektromagnetyczna /  
Electromagnetic Compatibility Directive  
**2014/68/UE** /w miejsce / it replaces 97/23/WE/  
Urządzenia ciśnieniowe / Pressure Equipment Directive  
**EN 60529** Stopnie ochrony zapewniane przez obudowy /  
Degrees of casings' protection.

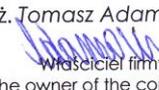
zostały zaprojektowane zgodnie z zasadami dobrej praktyki inżynierskiej.  
/ are designed in accordance with good engineering practice./

Deklaruję z pełną odpowiedzialnością, że wyroby z partii określonej w pkt.2 są zgodne z dokumentami odniesienia wymienionymi w pkt 5.  
/I hereby declare with full responsibility that the products from the lot determined in the declaration comply with the reference documents defined in p. 5./

Partia wyrobów objęta deklaracją./The lot determined in the declaration.: 18 001 - 24 000

  
15-592 Białystok,  
Białostoczek 26  
gm. Zabłudów  
NIP 542-000-84-13, Regon 002333645  
tel. +48 85 7431246, e-mail: biuro@tma.pl

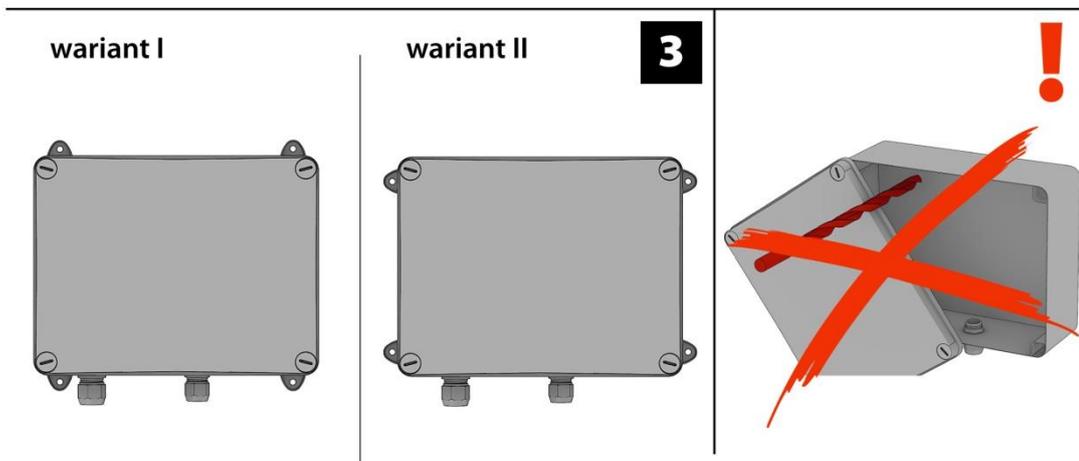
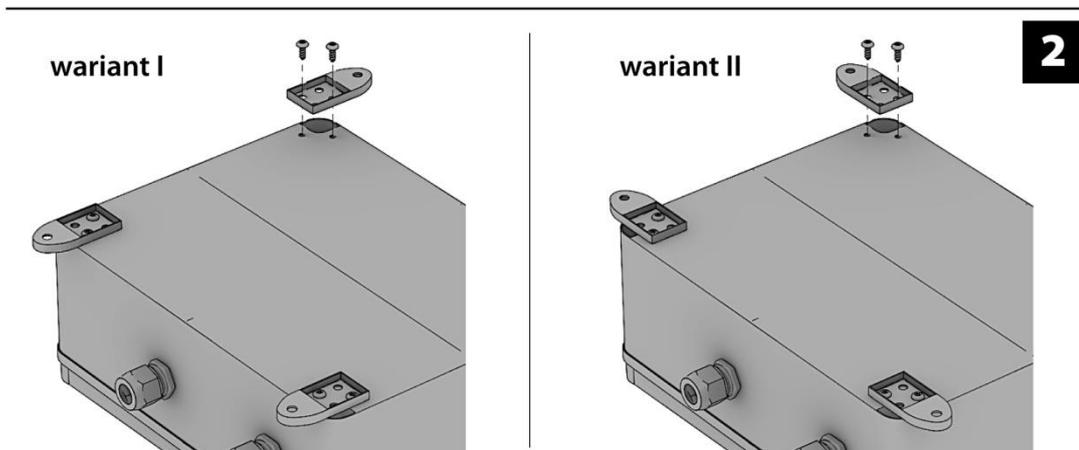
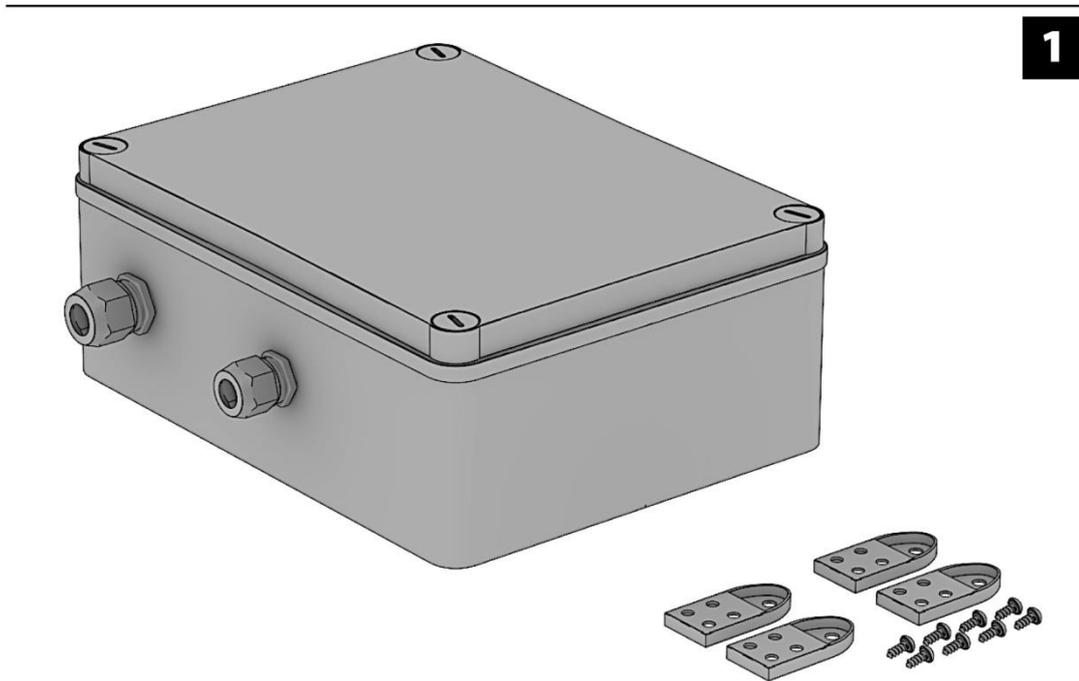
Mgr inż. Tomasz Adamowicz

  
Właściciel firmy „TMA”  
/The owner of the company/

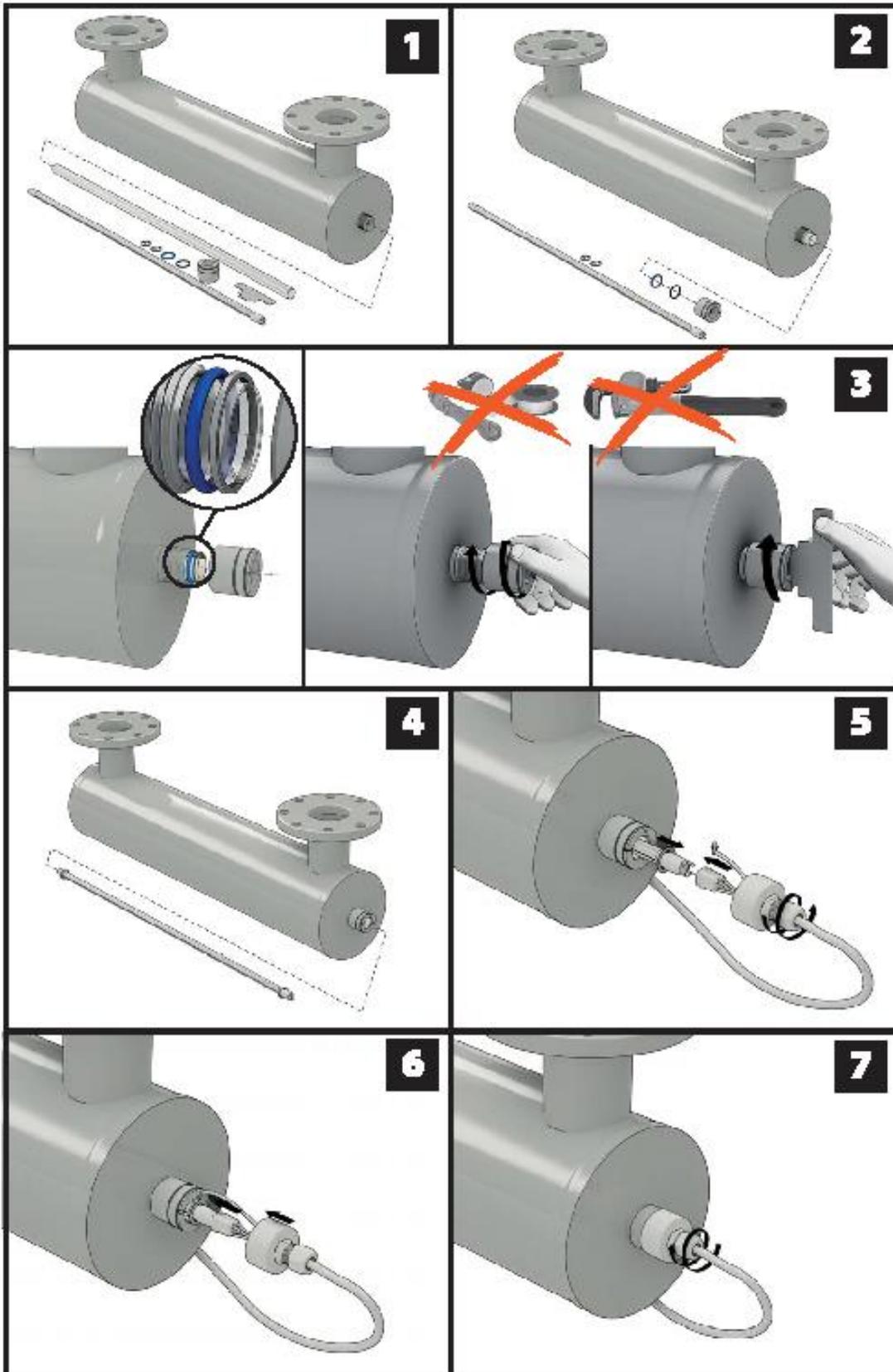
TMA  
15-592 Białystok, Białostoczek 26  
Gm. Zabłudów, Polska/Poland  
NIP/VAT: PL5420008413

Tel. +48 85 743 12 46  
Tel. +48 85 687 14 50  
[www.tma.pl](http://www.tma.pl)  
e-mail: biuro@tma.pl

## 18. GRAFICAL MOUNTING INSTRUCTION



### Assemble of AM sterilizer



## 19. WARRANTY

1. UV sterilizers are exclusively for treatment of water/liquids which content is known.
2. The manufacturer of the UV sterilizers - the TMA company guarantees efficient operation of the equipment covered by this warranty card.
3. In order to obtain warranty service during the warranty period it is essential to:
  - Possess a document confirming the purchase of the equipment (purchase invoice, receipt)
  - Perform installation and operation of the device in accordance with the instructions found in the manual (included with the device).
4. All defects of the product determined at any time during this Warranty shall be repaired at no additional charge within 14 days from the date of delivery of the defective product to the manufacturer, based on this filled Warranty. In exceptional situations, this period can be extended to 21 days.
5. Defective equipment/product shall be delivered **COMPLETE** and appropriately packaged and secured for transport. We reserve the right to refuse to recognize a claim for damage and components resulting from poor security of goods in transport.
6. During the warranty period, the supplier repairs or replaces parts of the equipment, in that order, as appropriate, in accordance with the law, without any additional cost to the buyer. Products and parts replaced during warranty become the property of the manufacturer.
7. In the case of unfounded warranty claims, the claimant will be charged with any costs relating to the services performed, e.g. transport.
8. Installation and commissioning of the equipment can be made by the buyer following the instructions in the manual that came with this product
9. Manufacturer warrants that the product shall meet all specifications of performance as stated in the Manual for the period of:
  - 36 months from the date of purchase covering the stainless steel chamber
  - 24 months from the date of purchase covering all electrical parts of the sterilizer
10. The chamber is covered by Warranty for 36 months, as long as it is used for substance disinfection, in accordance with the steel corrosion resistance list, according to EN 10088-1 norm.
11. The use of the product not in accordance with the EN 10088-1 norm shall result in the loss of Warranty for the chamber and cannot be grounds for any claims in case of chamber damage.
12. The water flowing through the device cannot contain sulphur, solid substances that can be filtered or iron over 0.3 mg/dm<sup>3</sup>.
13. No warranty is given for the chambers made from AISI 304 stainless steel in the case of:
  - Chlorinated water with chlorine content greater than 0.3 mg/dm<sup>3</sup>, e.g. in swimming pools
  - The contents of chlorides greater than 200 mg/dm<sup>3</sup>
  - pH outside the range 6.5-9.5
  - Application for brine water above 250 mg/dm<sup>3</sup> NaCl
- No warranty is given for the chambers made from AISI 316 stainless steel in the case of:
  - Chlorinated water with chlorine content greater than 1,0 mg/dm<sup>3</sup>
  - The contents of chlorides greater than 450 mg/dm<sup>3</sup>
  - pH outside the range 6.5-9.5
  - Application for brine water above 800 mg/dm<sup>3</sup> NaCl
14. The purchaser shall have the right to have the product replaced if:
  - It is determined that there is a manufacturing defect which is irreparable; or
  - During the Warranty period there is a need of 4 repairs and even after these the exploitation of the product according to the instructions is impossible.
15. The term 'repair' does not cover all the actions stipulated in the Manual (i.e. routine maintenance) which are to be performed by the user.
16. The Warranty does not include:
  - Damage caused by inadequate storage of the products by the purchaser
  - Damage caused by faulty assembly or exploitation of the sterilizer

- Damage caused as a result of nonreliance on the instructions for assembly, use, transport or handling entered in the user manual
  - Damage caused by unforeseen natural phenomena, i.e. floods, frost, storms, hurricanes or earthquakes
  - Burning UV radiator
  - Quartz casing
  - Parts subject to aging/ wear, e.g. rings, gaskets, electrical cables, etc.
17. The manufacturer is released from liability under the guarantee in the following cases:
- If during the warranty period the device is changed / repaired by persons not authorized by the manufacturer of the equipment - the TMA company
  - If the unit is powered by voltage of character and value other than defined in the manual.
  - If the appliance is used for purposes and in a manner inconsistent with the recommendations applicable in the manual, data sheet, warranty card.
  - Damage caused by unforeseen natural phenomena, i.e. floods, frost, storms, hurricanes or earthquakes
  - If the purchaser does not possess any documents proving the purchase of the equipment or a valid warranty card signed by the manufacturer / reseller
  - The unit has no markings left by the manufacturer
18. This Warranty is limited to the obligations stated above and does not cover the effects of damage caused by break-downs of the appliance or disinfection efficiency.
19. The manufacturer shall not be liable for any financial loss or other civil law consequences resulting from any defects of the device. It specifically relates to: loss of turnover, profit, possible benefits, damage of products and media.
20. Warranty claims may relate only to the replacement or repair of defective parts of UV sterilizers

**THE WARRANTY SHALL NOT COVER DEVICES NOT BEARING THE TMA LOGO.**

Warranty and post warranty repairs		
Receive date	Type of failure and repair procedure	End date of repair