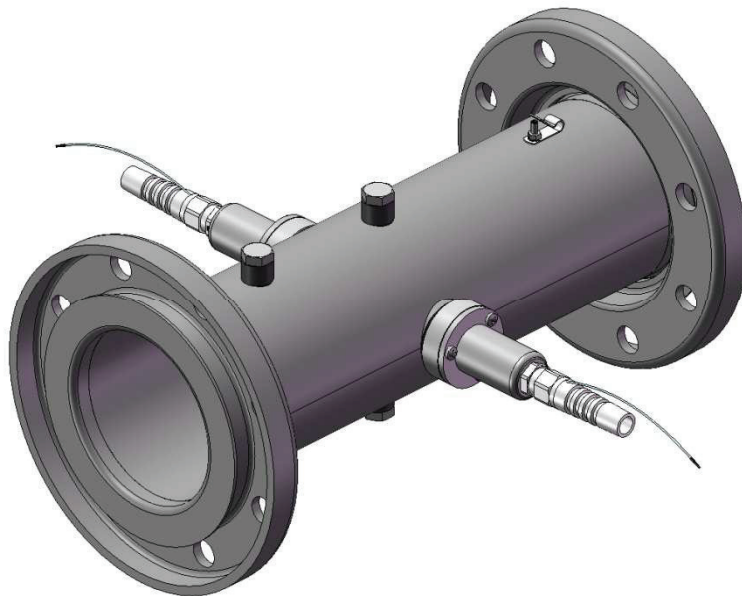


REACTORS USING MEDIUM PRESSURE LIGHT
MPL030 EL



INSTALLATION AND MAINTENANCE
MANUAL



CERTIFICATE OF CONFORMITY



BIO-UV hereby declares that the following products

BIO-UV MP EL Range

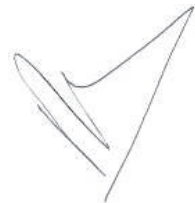
comply to the following standards:

NF EN 60439-1 (2000)
CEM: EN55015 (Ed.00) + A1 (Ed.01)

Number and year of EC stamp:

CG-03-006 dated 29/01/2003
LS-03-51003/NL dated 20/02/03

Benoît GILLMANN
Chairman and Managing Director of BIO-UV



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www.bio-uv.com Email : export@bio-uv.com

We thank you for choosing a BIO-UV reactor.

Our equipment has been designed to give you reliable and safe operation for many years to come.

The BIO-UV reactors have been designed for speed and ease of installation.

Their design also makes them easy to maintain..

Read these instructions carefully in order to optimise the operation of your reactor.

<u>CONTENTS :</u>	pages
A. TECHNICAL CHARACTERISTICS	4
B. MAINTENANCE FILE	5
C. WARNINGS AND SAFETY	6
D. INSTALLATION OF THE REACTOR.....	8
E. CONNECTION OF THE ELECTRICAL CABINET	9
F. ADVICES FOR THE INSTALLATION AND STARTING UP.....	10
G. USE AND MAINTENANCE OF THE UV REACTOR	11
H. ELECTRICAL CABINET.....	15
I. BLOWN UP VIEW	16

ANNEX 1 : Clearance dimensions – Blown up view – Designation

ANNEX 2 : Electrical diagrams

A. TECHNICAL CHARACTERISTICS

	MPL030 EL 400	MPL030 EL 600	MPL030 EL 1kW
REACTOR			
Material	316L stainless steel		
Diameter in mm	114		
Length in mm	396		
Weight in kg	4		
Connection type	flange		
Connection	DN100		
Surface finish	micro-blasted steel		
Pickling/passivation	included		
Top air bleed	yes		
Bottom drain	yes		
Temperature sensor	no		
Maximum operating pressure	3 bars		
Orientation (V/H)	horizontal / vertical		
Manual wiper system	no		
Automatic wiper system	no		
Head loss	<0,1 bar		
ELECTRICAL CABINET			
Material	painted steel		
Dimensions in mm	500x400x250		600x600x300
Cable length between cabinet/reactor in m	10		
Weight in kg	16		44
Cabinet ventilation	yes		
Filters	grills		
Power supply	220-240V		
Frequency	50-60Hz		
Cable type/cross-section	2x1.5 mm ²		
Earth cable cross-section	6mm ²		
Absorbed power in W	440	660	1100
Hours run counter	yes		
Differential protection in mA	40		30
Thermo-magnetic protection	10A 2Pole		
Circuit breaker tripping curve	C		
On/Off switch	yes		
Power on indicator light	yes		
Lamp indicator light	yes		
Protection index	IP54		
Timing/Restart	yes / 30 mn		
UV LAMPS			
Number of lamps	1		
Electrical power per lamp	0,4 kW	0,6 kW C	1 kW
Lamp type	medium pressure		
UV power per lamp in W	60	90	150
Total UV power in W	60	90	150
Average life expectancy in hours	6 000 to 9 000		
CONTROLS			
Millenium with temperature sensor	no		yes
Power regulation	manual standard in range		
POSSIBLE OPTIONS			
Flowmeter	no		
UV sensor	no		
4-20 mA output	no		
Stainless steel outlet filter	no		

* operating continuously with one on/off per day.



Turning UV lamps on and off reduces their lifespan. A **minimum time delay of 30 minutes** must be observed before turning a lamp back on again

C. WARNINGS AND SAFETY

BIO-UV reactors are ready to install, no works is required inside the reactor.

Read all the instructions in this manual before switching on the BIO-UV appliance.

INSTALLATION

RECOMMANDATIONS

The reactor must be installed:

- in a technical room, protected from light and rain,
- after the filter(s),
- in a dry zone, ambient humidity must be < 80%.

The installation zone temperature must be within 0°C and 40°C.

Keep any sources of hydrochloric acid vapours away from the installation.

The electrical unit should be positioned:

- so that it is protected from water,
 - at eye level.
- **The air vent** of fan must not be obstructed.
 - **The cable length** between the UV reactor and its electrical unit must not be modified.
 - **Provide for sufficient space** for reactor maintenance.
 - **The reactor must be installed so that the UV lamp is in a horizontal position.**



- **The equipment must always be filled with water when operating** and the air must be bled out of it.
We recommend the presence of a by-pass.



- **Before accessing the connection terminals, ensure that all supply circuits are disconnected.**
- The reactor installation as a whole must be protected with a **suitably adapted circuit breaker**.
(See A. Technical characteristics)
- Check that cable complies with legislation and the required power level.
(See A. Technical characteristics)
- If, for installation reasons, the power supply cables connecting the cabinet to the reactor have to be shortened, **take care to fully crimp the new end fittings at each end of the cables.**

USE AND MAINTENANCE



- Allow the ultraviolet lamp to cool for at least 30 minutes before handling.



Never look at the ultraviolet lamps when lit. This may cause severe injuries or burns and may even lead to loss of eyesight.



- Do not touch the ultraviolet lamp with bare hands, as these would leave impurities that shorten the life of the lamp. If you do touch it: clean with alcohol or white vinegar.



- Never unscrew the quartz tube sealing nut **when the reactor is on load** as the quartz tube could be blown out of the reactor with force and injure you.

- Do not use the reactor if the **power supply wire is worn or damaged**. In this case it should be replaced.

- If the connecting cable between the reactor and the electrical cabinet is damaged, it must be replaced by a special cable available as a spare part.

- **Even when stopped, power is present in the electrical unit** so make sure that the main power supply upstream of the electrical cabinet is switched off before carrying out any work on the equipment.



- To avoid electric short-circuits, do not place the electric wires or the reactor in the pool water or in any other maintenance or cleaning fluid.

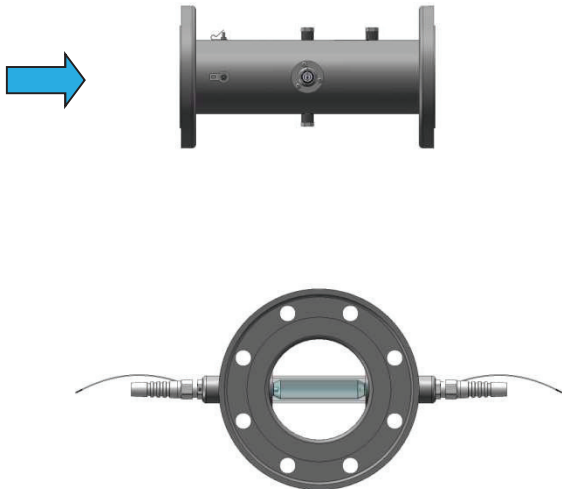
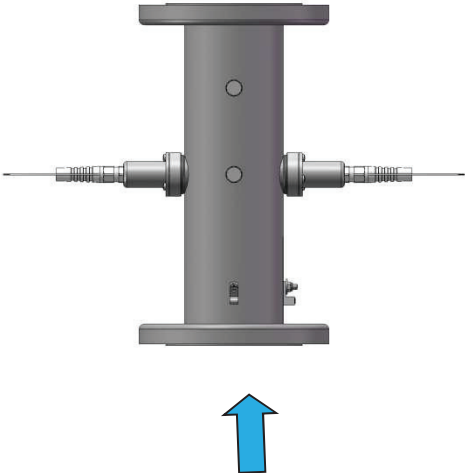
- Do not restart the system until the electric unit, the covers exterior elements of the reactor are correctly back in place.



- Do not use the BIO-UV reactor for any other use than that for which it was designed.

D. INSTALLATION OF THE REACTOR

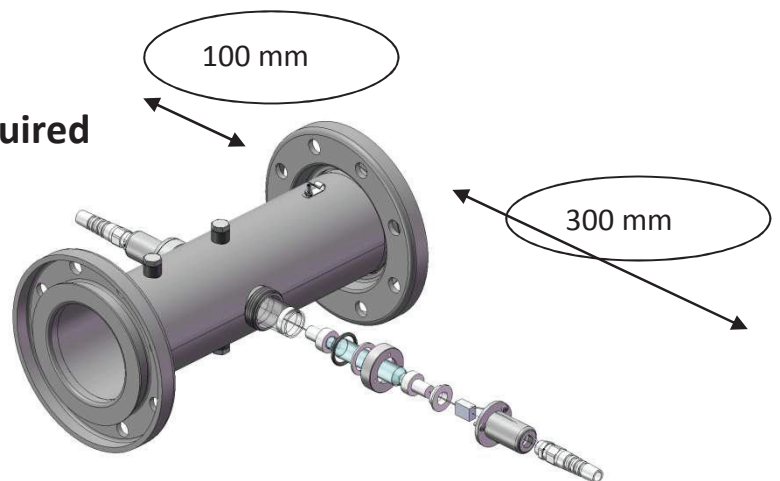
Overview of the installation

Reactor in a horizontal position	Reactor in a vertical position
	



LAMPS must be HORIZONTAL

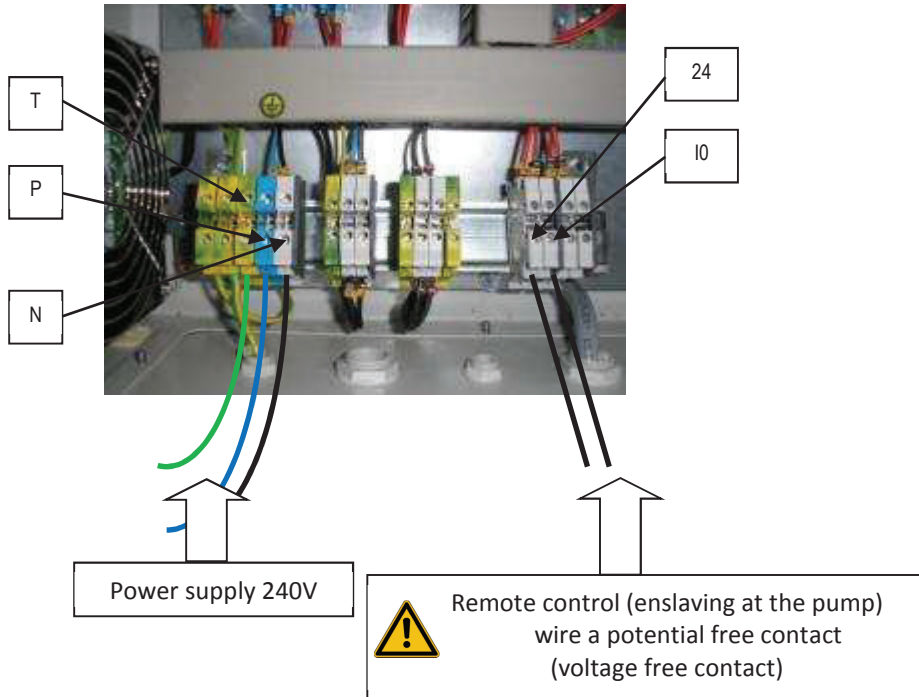
Clearance zone (mm) required to work on the reactor



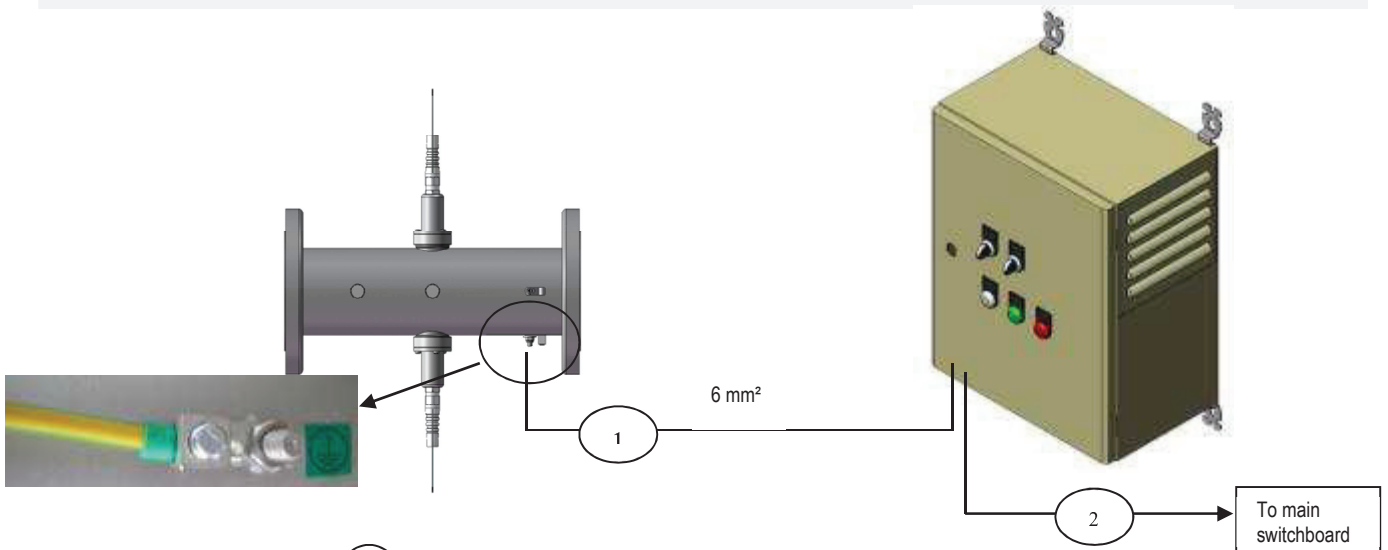
E. CONNECTION OF THE ELECTRICAL CABINET



THE REACTOR MUST BE SLAVED AT THE FILTRATION PUMP AND MUST OPERATE AT THE SAME TIME



THE REACTOR MUST BE PROPERLY CONNECTED TO EARTH AS PER THE DIAGRAM BELOW



The earth wires marked **1** is supplied with the UV reactor.

The earth wires marked **2** must be connected when the reactor is installed on site (6 mm² minimum COMPULSORY)



Any earthing fault of the reactor will lead to an exclusion of the guarantee in the event of electrolytic corrosion.

F. ADVICES FOR THE INSTALLATION AND STARTING UP

COMPULSORY INSTALLATION INSTRUCTIONS

It's better to install the UV reactor in **By-Pass** and this reactor must be slaved at the pump operations.

Instruction N°1 : The UV lamp must be HORIZONTAL whatever the position of the reactor.

Instruction N°2 : The reactor must be correctly linked to the earth with a suitable wire of 6 mm² minimum

Instruction N°3 : Fully observe instructions for the removal of lamps and quartz sleeves.

Instruction N°4 : The UV sensor (in option) MUST be uppermost when the UV reactor is horizontal.

Instruction N°5 : If the UV reactor is installed vertically, give preference to the input of water through the bottom of the reactor and make sure that the purge valves are in the lower position.

Instruction N°6 : Distance chemical products from the reactor to avoid any risk of corrosion.

Instruction N°7 : Slave the UV reactor to the filtration pump operation because the UV lamp must not light when the flow rate stops (this would cause damage on the reactor).

UV REACTOR COMMISSIONING PROCEDURE

Action N°1 : Fill the reactor with water and purge the air.
Check the absence of hydraulic leaks

Action N°2 : Check the tightness of electrical terminal blocks and connectors.

Action N°3 : Turn on the lamps and check that they are working when the water passes through the reactor

Action N°4 : Check that the enslaving at the filtration pump correctly works

Action N°5 : **Fill in the maintenance sheet page 5**



Reminder : If the UV lamps are turned off with the switch or the mains switch,
Wait 30 minutes before any restart of UV lamp to avoid penalizing its lifetime.

G. USE AND MAINTENANCE OF THE UV REACTOR

In the event of work on the UV reactor, ensure that personnel are qualified and authorised.

RECOMMENDATIONS FOR VERIFYING OPERATION AND USE

The following points must be **regularly** checked in order to make sure that the UV reactor is operating perfectly:

- **Lamp operation** check: Green light on

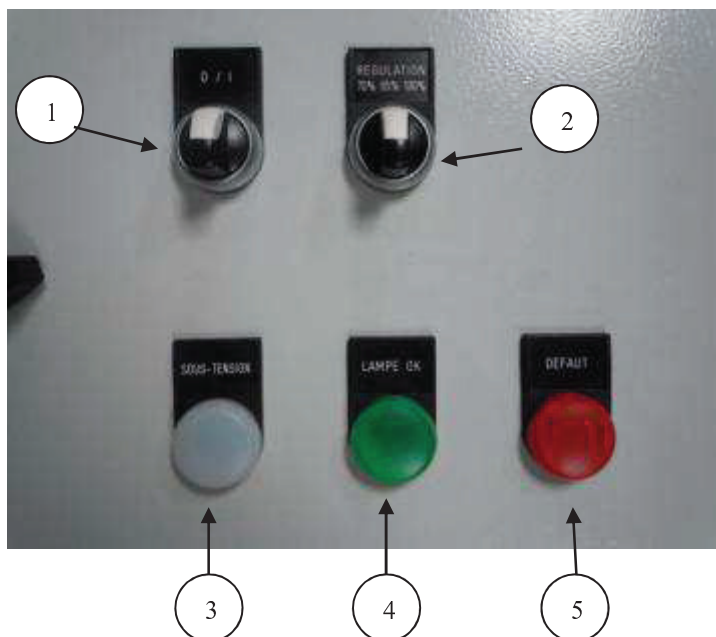


- Check the correct operation of electrical cabinet **ventilators** in order to avoid all risk of overheating.
Check that the grills are not blocked.

RECOMMENDATIONS FOR CONTROL AND PREVENTIVE MAINTENANCE

0	Changing UV lamps	At the end of their life span : - either once a year, - or combined chlorine rate in the pool	
	OPERATIONS	EACH UV LAMP REPLACEMENT	AT LEAST ONCE A YEAR
	Checking the general state of the UV reactor		
1	Replacement of quad ring seals	Compulsory	Compulsory
2	Cleaning or replacement of the quartz sleeve	Compulsory	
3	Check the operation of ventilators: - grills' cleaning	Recommended	Compulsory
4	Check the earthing of the reactor		
5	Check the operation of the circuit breaker	Recommended	
6	Check the tightening : - of terminal blocks in the cabinet - of connectors - of UV lamp connections	Recommended	

G.1 OPERATING OF THE UV REACTOR



1. Switch on the UV reactor thanks to the switch (1)

The white light indicator (3) is on.

After 30mn, the UV lamp starts and the green light indicator (4) should be on, only if the filtration pump is working (see the chapter about enslaving)

In the case of a defect on the UV lamp or on the ballast, the red light indicator (5) is on.

In all cases, after the UV lamp has been switched off, there will be a lapse of 30mn after the next switch on of the lamp, in order to enhance its life expectancy.

2. Operating of the dimming

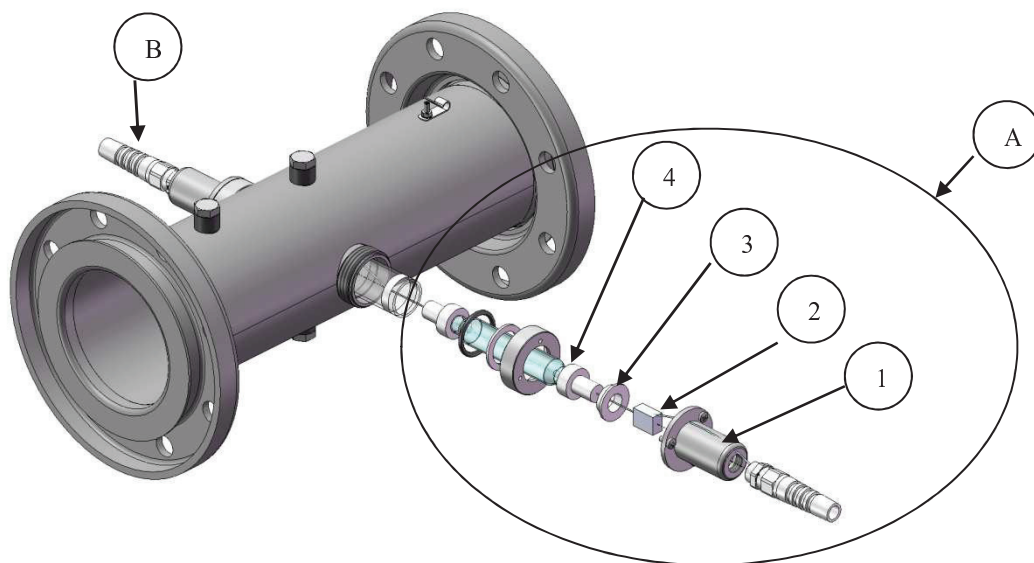
The dimming is managed manually by the switch (2)

3 power levels are possible: 70%, 85% and 100% that match with the 3 positions of the switch.

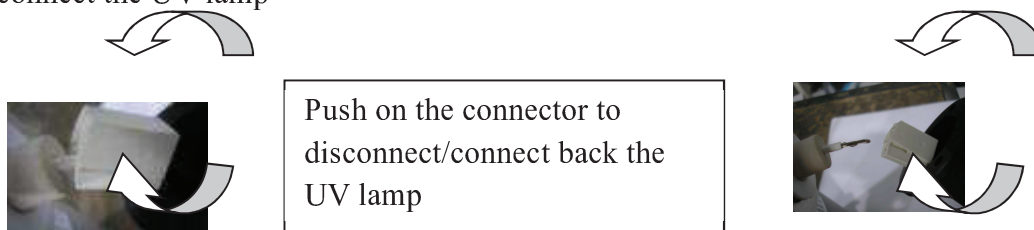
When the lamp is new, it's possible to set the power to 70%. Afterwards, the checking of the chloramines level in the water helps to decide the setting to 85% and to 100%.

If the chloramines level is higher for a long time, it means if this high level is not linked to a temporary high number of visitors for example, then the lamp power has to be progressively increased in order to compensate its ageing and to extend its life expectancy.

G.2 REPLACEMENT OF THE UV LAMP



1. Unscrew and remove the cover (1) there are 3 screws
2. Unplug the lamp connector (2)
3. Remove the spacing washer (3)
4. Do the same operations on both side of the lamp (A) and (B)
5. Disconnect the UV lamp



6. Take out carefully the lamp (4) and place it on a clean and soft place.
Carry out this operation CAREFULLY taking care not to place your fingers outside the cap.
7. To place back all these parts, do the same steps in reverse order.

To replace the parts, please see the table on page 11.

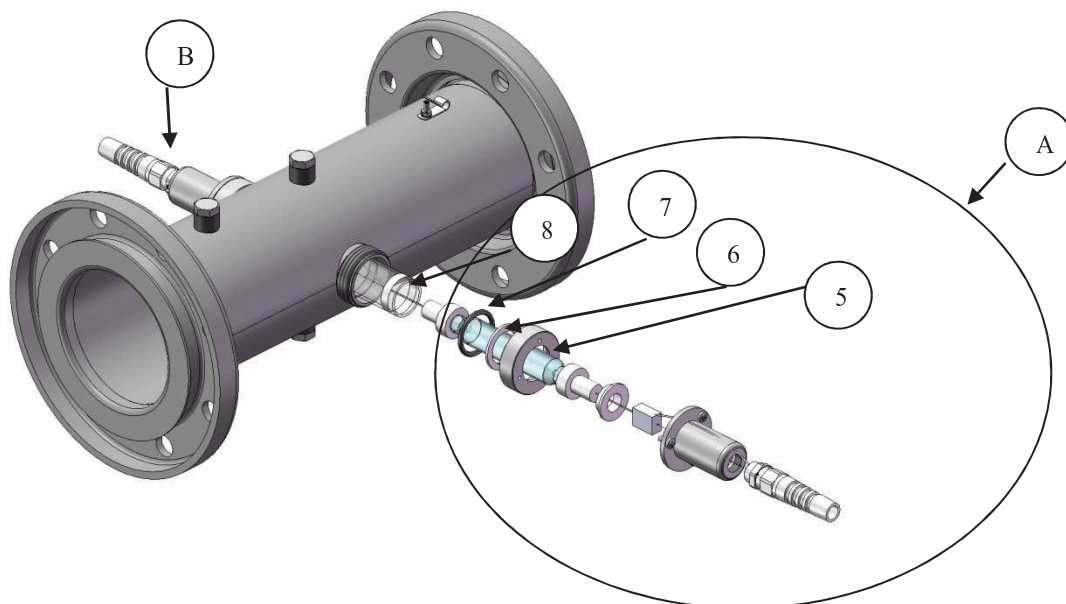



SWITCH OFF the reactor before starting these operations



Make sure that the UV lamp is cooled enough before handle it

G.3 REPLACEMENT OF THE QUARTZ SLEEVE



1. Follow the instructions on the page 13 to take out the UV lamp
2. Unscrew the tightness nut (5)
3. Remove the seal (6)
4. Remove the tightness seal (7)
5. Do the same operations on both side of the lamp (A) and (B)
6. Take out carefully the quartz sleeve: Push one end of the quartz sleeve in order to pull the other end.
7.  **Clean the quartz sleeve** with acid or white vinegar or replace it if necessary
8. To place back all these parts, do the same steps in reverse order.
Centre the quartz sleeve; it should stick out equally on both sides



Put the installation back in pressure **before** the reassembly of lamps and **check that there is no leakage in the quartz sleeve.**

9. Place back the UV.

To replace the parts, please see the table on page 11.

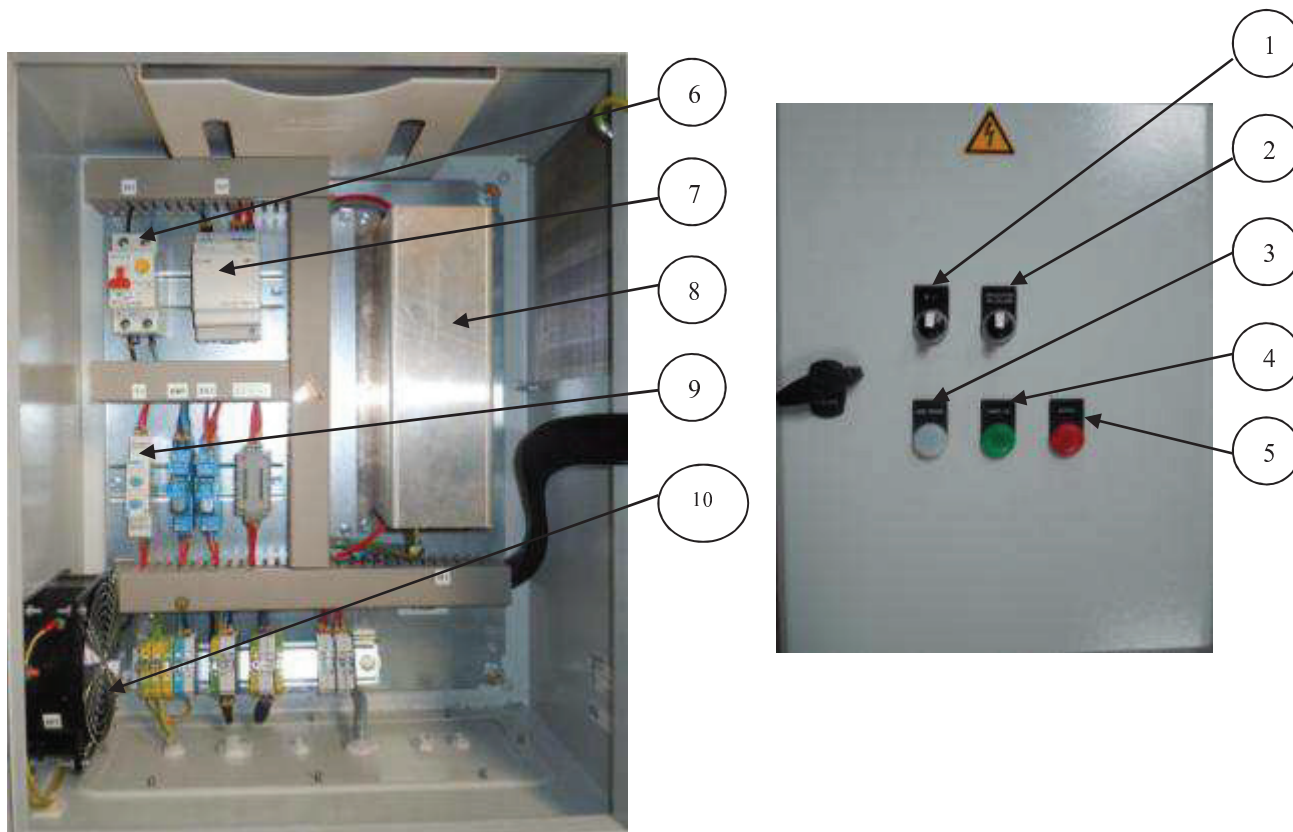


SWITCH OFF the reactor, **CUT** the **POWER** source and **EMPTY** the chamber before starting these operations.



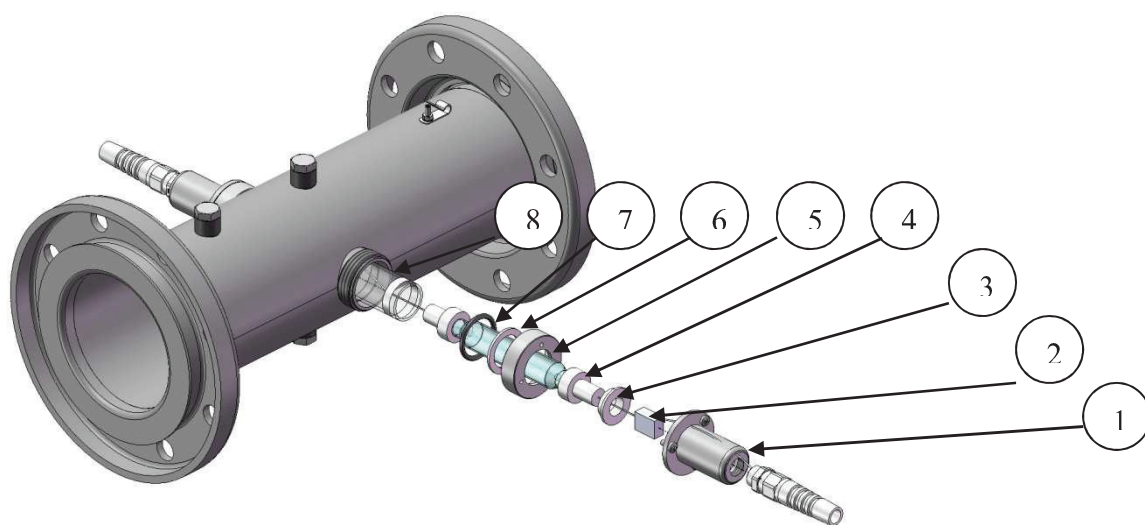
Make sure that the UV lamp is cooled enough before handle it

H. ELECTRICAL CABINET



N°	DESCRIPTION	Tag	MPL030 EL 400W	Qty	MPL030 EL 600W	Qty
1	ON/OFF switch	S1	ELE000271	1	ELE000271	1
	NO Contact		ELE000275	1	ELE000275	1
2	Switch for dimming	S2	ELE001947	1	ELE001947	1
	NO Contact		ELE000275	2	ELE000275	2
	NF Contact		ELE000642	1	ELE000642	1
3	Hide light white	H1	ELE000297	1	ELE000297	1
	LED white		ELE000274	1	ELE000274	1
4	Hide light green	H2	ELE000296	1	ELE000296	1
	LED green		ELE000272	1	ELE000272	1
5	Hide light red	H3	ELE001016	1	ELE001016	1
	LED red		ELE001303	1	ELE001303	1
6	Differential Circuit breaker	D1	ELE000186	1	ELE000186	1
7	Power supply 24V	U1	ELE002161	1	ELE002161	1
8	Electronic Ballast	B1	BAL004389 400W	1	BAL004389 600W	1
9	Delayed relay	T1	ELE000419	1	ELE000419	1
10	Fan	M1	ELE000189	1	ELE000189	1

I. BLOWN UP VIEW



N°	DESIGNATION	MPL030 EL 400W	MPL030 EL 600W
1	Protection cover	USI001347	USI001347
2	UV lamp connector	ELE006976	ELE006976
3	Spacing washer	USI006738	USI006738
4	UV Lamp	LPE006975	LPE006974
5	Tightness nut	USI000019	USI000019
6	Washer	USI006737	USI006737
7	Seal	JTS000230	JTS000230
8	Quartz sleeve	QUA006980	QUA006980

WARRANTIES

Units in the BIO-UV range are guaranteed subject to the following conditions:

- **5 years** for the stainless steel reactor (materials and welding) except in the event of use in a highly corrosive environment (brackish or very salty, e.g.: seawater, storage near to acid and corrosive products , use of hydrochloric acid).

Warranties exceptions:

Exceptional cases of corrosion in particular electrolytic

Damages caused by overpressure

Overtaking of the maximum operating pressure

No respect of the installation recommendations

Reactor that has run without water

- **2 years** for all electrical components excepting the UV lamp (consumable).

Warranties exceptions:

Electrical components are not guaranteed against overvoltage and lightning damage

Modification and add of components within the electrical cabinet

Use of parts that don't come from BIO-UV

No respect of the installation recommendations

A reactor that has run without water

No respect of the use and maintenance recommendations.



Caution: the quartz tube and the lamp are not guaranteed against breakage.

- **Faulty parts must be returned to BIO-UV**, with details of the **unit type** and **serial number**, for exchange after technical evaluation.
- **Shipping costs will be shared** between the retailer and BIO-UV.
- **The guarantee** runs from the day of installation: this date must be notified to BIO-UV by returning the guarantee validation form by post or fax.



Caution: If the guarantee validation form is not returned within one month following purchase of the unit, BIO-UV will use the month and year of manufacture of the unit as the guarantee start date

- **If the instructions for installation and use are not followed**, BIO-UV cannot accept responsibility and the guarantees will be considered null and void.

How to contact the BIO-UV Team.

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ANNEX 1

Clearance dimensions

Blown up view

Designation



ANNEX 2

Electrical diagrams

