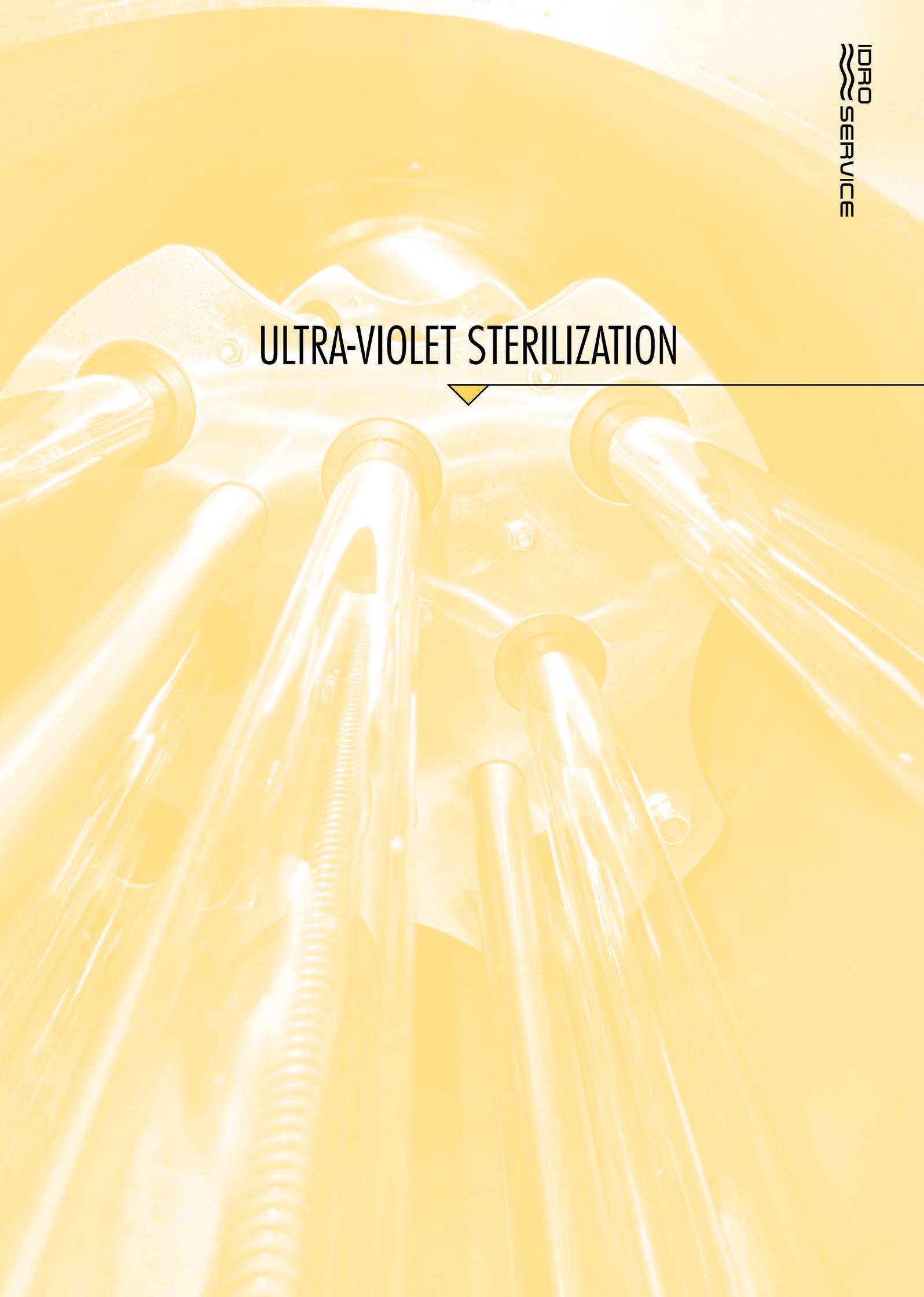


# ULTRA-VIOLET STERILIZATION

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## UV STAR Technology

UVC disinfects water by ultraviolet radiation at a wavelength of 254nm. In particular, UVC deactivates and/or destroys the DNA of viruses and bacteria, rendering them ineffective and not harmful to human health, which is the case with other methods of chemical disinfection (e.g. chlorine, ozone, etc.). Not all organisms respond in the same way if placed under ultraviolet radiation, some become inactive with relatively low doses while others need higher rates to obtain the desired inactivation.

This example, indicates the doses of UVC shown in literature which are used experimentally to inactivate some of the most common organisms:

Micro-organisms	Dose $\mu\text{Ws}/\text{cm}^2$	Deactivate percentage	
		90%	99%
Escherichia Coli		2140	4100
Legionella pneumophila		3100	5000
Pseudomonas aeruginosa		5500	10500
Salmonella paratyphi enteritidis		3200	6100
Vibrio cholerae		3375	6500
Staphylococcus aerius		2600	6600
Streptococcus viridians		2000	3800

Finally to erase all doubts about the efficiency of their products, UV STAR sterilizers are designed and sized to ensure an average dose of UV-C at a wavelength of 254nm at least 40,000  $\mu\text{Ws}/\text{cm}^2$ .



## Factors affecting the UV disinfection

The proper use of the UV STAR sterilizer helps to eliminate over 99% of the microbial load in the water.

For sizing the equipment to ultraviolet rays and provide any pre-treatment of raw water some important factors must be taken into account as these could affect up to 20%-40% of the germicidal system capacity:

### → TRANSMITTANCE

This is the transparency of the water to the ultraviolet radiation with a wavelength of 254 nm.

By way of illustration, consider that demineralised water has a transmittance of 99%; tap water or filtered well water has a transmittance of about 90-95%, whereas filtered sewage water has a transmittance equal to 60-65%;

The transmittance essentially depends on:

a) Suspended solids, algae, turbidity and organic substances. Suspended particles reflect UV rays (acting as a protective umbrella for microorganisms), or could contain germs which would thus diminish the capacity of sterilizing radiation. It is appropriate that the water entering the UV sterilizers for drinking water has a maximum turbidity of 1 NTU and a maximum of 3 mg/l of suspended solids. Even apparently clear water can filter out UVC rays at 254 nm.

b) T.D.S. or salinity of water. Waters full of salts (brackish water and sea water) have the ability to absorb UVC rays, reducing the transmittance.

c) Chemical composition of water, hard water (> 35 $^{\circ}\text{f}$ ), with the presence of iron, manganese, phosphorus, aluminium and biofilm. Within a few days this can make the quartz sleeves opaque, so it is therefore necessary for this to be cleaned periodically to remove any deposits that restrict the propagation of the rays.



### → RADIATION

This is the amount of energy radiated by UV lamps and is calculated by the designer of the UV. This energy can vary depending on work conditions:

a) Ageing of the lamps: after more than 13,000 hours (16,000 for the amalgam lamps) the UV intensity is reduced by at least 20%. Lamps should be replaced even if they continue to stay alight.

b) The operating temperature of the lamps: low pressure lamps reach maximum performance in a temperature range between 20 $^{\circ}$  and 50 $^{\circ}\text{C}$ . It is obviously necessary to wait for a few minutes (warm up) before achieving maximum germicide capacity. Similarly, if the lamps are working at temperatures greater than 50 $^{\circ}\text{C}$  there will be reduced efficiency.

The UV STAR installations were rated for raw water with the following chemical-physical parameters:

Turbidity	< 1 NTU
Suspended solids	< 3 mg/l
Colour	Absent
Iron	< 0.3 mg/l
Manganese	< 0.05 mg/l
Hardness	< 35 $^{\circ}\text{F}$
T.D.S.	< 2000 mg/l



**UV STAR ECO Series**

ECO series UV systems are very simple and extremely cheap at the same time they are excellent quality products. Italian product tested and certified in accordance with drinking water regulations. Electric panel according CE standards.

**Construction characteristics**

- Operating temperature: 2 - 45°C environment, 2 - 75°C water
- Max Pressure: 8 bar
- Pressure drop at max flow rate: 0.2 bar
- Germicidal lamps low pressure and high-efficiency 254 nm UVC rays
- Rated Lamp Life: 9.000/13.000 h
- Sleeves of pure quartz with high transmittance to UVC
- Collector in stainless steel AISI 304 polished and TIG welded
- Electric power supply: 230V-50Hz
- Protection rating of electric panel: IP 20
- Electronic ballast with LED alarm / fault lamp



★ **ECO MINISTAR**



★ **ECO MIDISTAR**

**HANDY  
SIMPLE  
RELIABLE  
CHEAP**



★ **ECO 1 STAR**



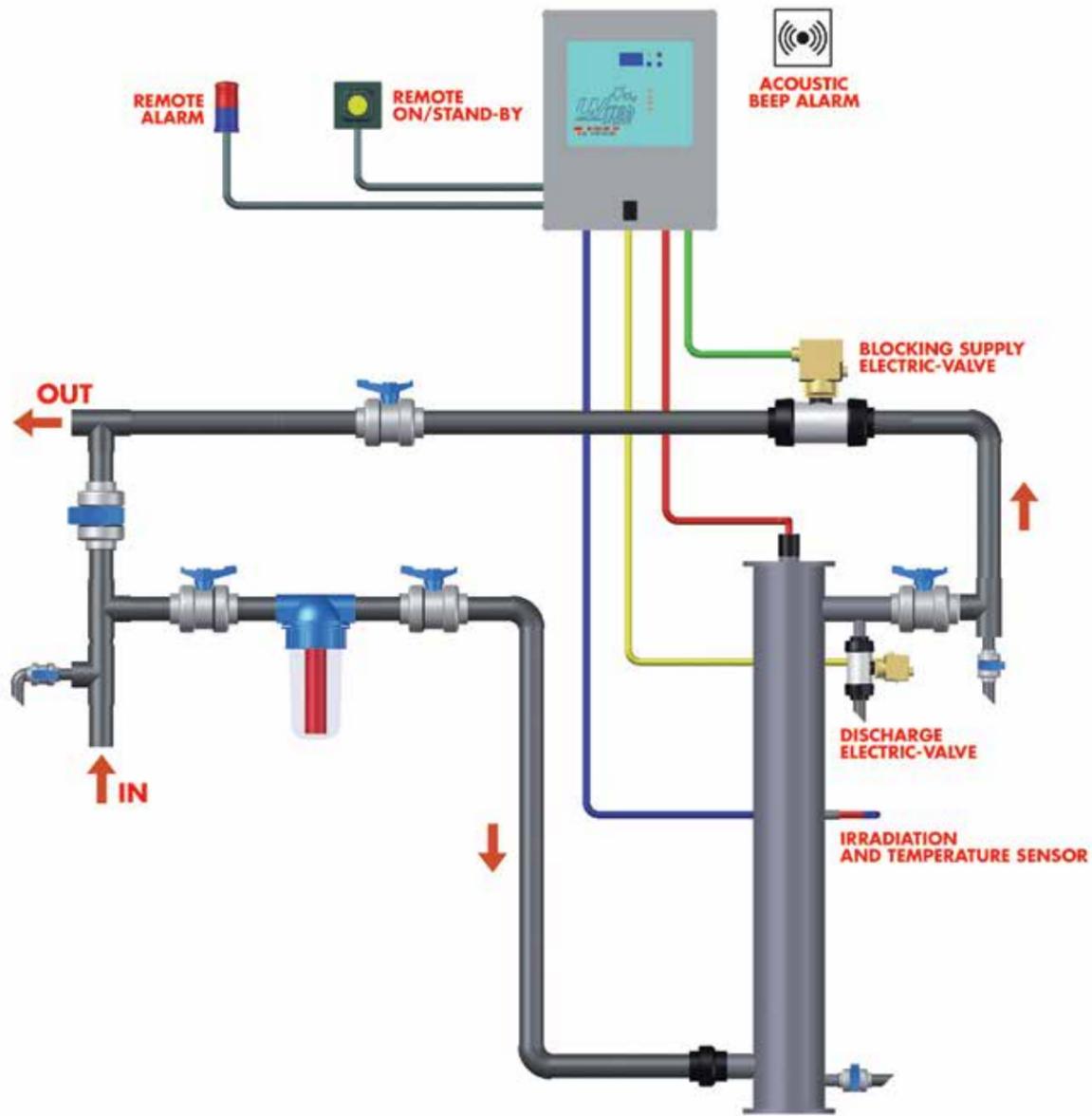
Code	Euro
ECO-MINISTAR	116,00
ECO-MIDISTAR	350,00
ECO1 STAR	450,00

Specifications	ECO MINISTAR	ECO MIDISTAR	ECO 1 STAR
Flow / radiation / transmittance	m <sup>3</sup> /h	m <sup>3</sup> /h	m <sup>3</sup> /h
Dose 40,000 μWs/cm <sup>2</sup> - UVT 95%	0,30	1,2	2,7
Dose 40,000 μWs/cm <sup>2</sup> - UVT 99%	0,39	1,5	3,2
N° lamps	1x10W	1x21W	1x41W
Power consumption (W/h)	12	30	45
Connections IN - OUT	1/4"	3/4"	1"
Wheelbase connections (mm)	165	380	790
Lamp housing size: Height (mm)	250	510	930
Ø (mm)	60	60	60
Transformer size h x W x D (mm)	30x80x57	30x80x57	30x80x57

### Electric Panel LCD

The newest electric panel LCD 2015 are made by the experience of our technicians UVSTAR/Idroservice in the field of ultra-violet sterilization R.U.V.  
The target was to create a control panel of the plant UV with an hardware reliable and unassailable of the electrical/electronic issues and an extremely easy software and user friendly but able to satisfy (almost) all the plants needs and to have a full control of the plant R.U.V.

- RELIABLE
- LCD 16 CHARACTERS
- PROFESSIONAL SOFTWARE
- HARDWARE HEAVY DUTY



- All the models of UV with the LCD panels will be equipped:
- microchip of the control board with the backlighted LCD display 16 characters x 2 lines;
  - switch/isolator ON/OFF
  - socket type shuco;
  - power supplies/ballast of the lamps separated by the control board (1 ballast each lamp);
  - relays for the management of s.v. lock dispensing raw water;
  - relays for the management of s.v. drain / cold water intake (to avoid overheating of the collector UV with no water flowing);
  - volt-free contact for remote alarm;
  - analogue input for the temperature sensor and irradiation;
  - input for on/off lights remotely (in shutdown delay settable);
  - acoustic alarm for anomalies;
  - relays and inputs for system cleaning lamps;
  - lamps total counter total and to decrease;
  - software of alarm management for run out lamps, off, low irradiation, high temperature, anomalies of the clean cycle;
  - module for the insertion of the support telephone number



**UV STAR LCD Series**

The new UV sterilizers series LCD, with microprocessor card is suitable to control and view the status of the lamps, the remaining useful life, the total hours of use of the installation, the percentage of radiation (if optional probe is used), the temperature of the lamp (if optional probe is used) and the related alarms with adjustable set point. There is also the possibility for the dealer to put his phone number on display on the LCD panel for any service calls from the client.

In the terminal there are 2 output relays for remote alarm management. Water supply turn off option in case of system alarm. Italian product tested and certified in accordance with drinking water regulations. Electric panel according CE standards.

**Construction characteristics**

- Operating temperature: 2 - 45 °C environment, 2 - 75 °C water
- Max Pressure: 8 bar
- Pressure drop at max flow rate: 0.2 bar
- Germicidal lamps Low pressure and high-efficiency 254 nm UVC rays
- Rated Lamp Life: 13.000h
- Sleeves of pure quartz with high transmittance to UVC
- Lamp housing in S.S. AISI 304 polished and TIG welded
- Electric power supply: 230V-50Hz
- Protection rating of electric panel: IP 55
- Electronic ballast with LED alarm /fault
- Electronic board with microprocessor and LCD display

- ➔ status lamps (Led fault);
- ➔ total lamp on counter (increasing);
- ➔ partial counter (resettable) with lamp's remaining life (decreasing);
- ➔ generic alarm for maintenance with service phone number set on the display;
- ➔ % radiation control to set point percentage with alarm output;
- ➔ temperature control °C with set point and alarm output;
- ➔ generic alarm relay / dry contact NO/NC;
- ➔ alarm relay 230V-50Hz NO/NC 2A max;
- ➔ equipped with Long Life Lamps 13,000h
- ➔ shutdown for high temperature lamp;
- ➔ shutdown for low radiation / light anomaly;
- ➔ Option blocking water supply for alarm system;

**FUNCTIONS OF LCD PANEL**



★ **UV MIDISTAR LCD**



★ **UV 1 STAR LCD**

Specifications	UV MIDISTAR LCD	UV 1 STAR LCD
Flow / radiation / transmittance	m <sup>3</sup> /h	m <sup>3</sup> /h
Dose 40,000 µWs/cm <sup>2</sup> - UVT 95%	1,2	2,7
Dose 40,000 µWs/cm <sup>2</sup> - UVT 99%	1,5	3,2
N° lamps	1x21W	1x41W
Irradiation/temperature sensor	optional	optional
Power consumption (W / h)	30	45
Connections IN - OUT	3/4"	1"
Wheelbase connections (mm)	380	790
Lamp housing size	Height (mm)	510
	Ø (mm)	60
Electric Panel Size h x W x D (mm)	360x270x125	360x270x125

Code	Euro
UV-MIDISTAR-LCD	
UV1-STAR-LCD	

UV STAR LCD Series



UV 1X80 LCD



UV 2X80 LCD

FUNCTIONS OF LCD PANEL

- ➔ status lamps (Led fault);
- ➔ total lamp on counter (increasing);
- ➔ partial counter (resettable) with lamp's remaining life (decreasing);
- ➔ generic alarm for maintenance with service phone number set on the display;
- ➔ % radiation control to set point percentage with alarm output;
- ➔ temperature control °C with set point and alarm output;
- ➔ generic alarm relay / dry contact NO/NC;
- ➔ alarm relay 230V-50Hz NO/NC 2A max;
- ➔ equipped with Long Life Lamps 13,000h
- ➔ shutdown for high temperature lamp;
- ➔ shutdown for low radiation / light anomaly;
- ➔ Option blocking water supply for alarm system.



Specifications	UV1X80 LCD	UV2X80 LCD
Flow / radiation / transmittance	m <sup>3</sup> /h	m <sup>3</sup> /h
Dose 30,000 μWVs/cm <sup>2</sup> - UVT 99%	5,2	12,0
Dose 40,000 μWVs/cm <sup>2</sup> - UVT 99%	4,8	11,2
Dose 40,000 μWVs/cm <sup>2</sup> - UVT 95%	4,5	9,9
N° lamps	1 x 80W	2 x 80W
Irradiation/temperature sensor	optional	optional
Power consumption (W / h)	80 W	160 W
Connections IN - OUT	1"1/4	1"1/2
Wheelbase connections (mm)	760	720
Lamp housing size	Height (mm)	930
	Ø (mm)	60
		115
Electric Panel Size h x W x D (mm)	360x270x125	360x270x125



Code	Euro
UV1X80-LCD	
UV2X80-LCD	

**UV STAR LCD Series**



**UV 3X80 LCD**

- ➔ status lamps (Led fault);
- ➔ total lamp on counter (increasing);
- ➔ partial counter (resettable) with lamp's remaining life (decreasing);
- ➔ generic alarm for maintenance with service phone number set on the display;
- ➔ % radiation control to set point percentage with alarm output;
- ➔ temperature control °C with set point and alarm output;
- ➔ generic alarm relay / dry contact NO/NC;
- ➔ alarm relay 230V-50Hz NO/NC 2A max;
- ➔ equipped with Long Life Lamps 13,000h
- ➔ shutdown for high temperature lamp;
- ➔ shutdown for low radiation / light anomaly;
- ➔ Option blocking water supply for alarm system;

**FUNCTIONS OF LCD PANEL**



**UV 4X80 LCD**

Specifications	UV3X80 LCD	UV4X80 LCD
Flow / radiation / transmittance	m <sup>3</sup> /h	m <sup>3</sup> /h
Dose 30,000 μWVs/cm <sup>2</sup> - UVT 99%	21,6	38,0
Dose 40,000 μWVs/cm <sup>2</sup> - UVT 99%	19,8	29,0
Dose 40,000 μWVs/cm <sup>2</sup> - UVT 95%	15,4	21,5
N° lamps	3 x 80W	4 x 80W
Irradiation/temperature sensor	optional	optional
Power consumption (W / h)	240 W	320 W
Connections IN - OUT	2"	3"
Wheelbase connections (mm)	720	720
Lamp housing size		
Height (mm)	950	950
Ø (mm)	115	140
Electric Panel Size h x W x D (mm)	360x270x125	360x270x125



Code	Euro
UV3X80-LCD	
UV4X80-LCD	

UV STAR LCD Series

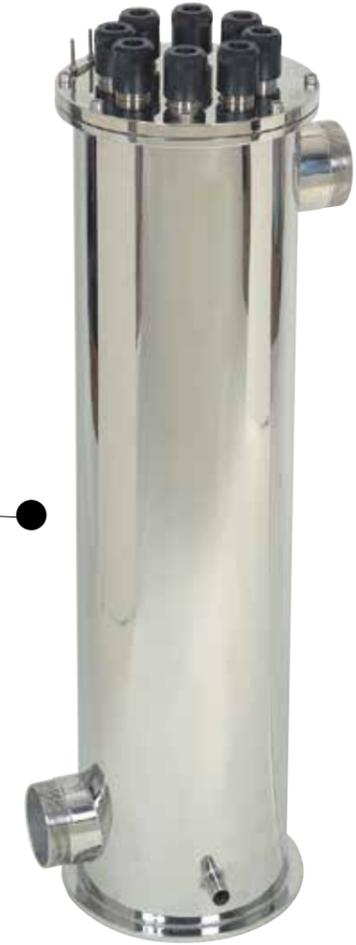


UV 6X80 LCD



FUNCTIONS OF LCD PANEL

- ➔ status lamps (Led fault);
- ➔ total lamp on counter (increasing);
- ➔ partial counter (resettable) with lamp's remaining life (decreasing);
- ➔ generic alarm for maintenance with service phone number set on the display;
- ➔ % radiation control to set point percentage with alarm output;
- ➔ temperature control °C with set point and alarm output;
- ➔ generic alarm relay / dry contact NO/NC;
- ➔ alarm relay 230V-50Hz NO/NC 2A max;
- ➔ equipped with Long Life Lamps 13,000h
- ➔ shutdown for high temperature lamp;
- ➔ shutdown for low radiation / light anomaly;
- ➔ Option blocking water supply for alarm system;



UV 8X80 LCD

Specifications	UV6X80 LCD	UV8X80 LCD
Flow / radiation / transmittance	m <sup>3</sup> /h	m <sup>3</sup> /h
Dose 30,000 µWs/cm <sup>2</sup> - UVT 99%	62,0	86,0
Dose 40,000 µWs/cm <sup>2</sup> - UVT 99%	49,0	72,0
Dose 40,000 µWs/cm <sup>2</sup> - UVT 95%	33,4	46,6
N° lamps	6 x 80W	8 x 80W
Irradiation/temperature sensor	optional	optional
Power consumption (W / h)	480 W	640 W
Connections IN - OUT	4"	4"
Wheelbase connections (mm)	640	640
Lamp housing size	Height (mm) Ø (mm)	950 220
Electric Panel Size h x W x D (mm)	500x500x200	500x500x200



Code	Euro
UV6X80-LCD	
UV8X80-LCD	

ULTRA-VIOLET STERILIZATION

UV STAR LCD Series



UV 12X80 LCD



FUNCTIONS OF LCD PANEL

- ➔ status lamps (Led fault);
- ➔ total lamp on counter (increasing);
- ➔ partial counter (resettable) with lamp's remaining life (decreasing);
- ➔ generic alarm for maintenance with service phone number set on the display;
- ➔ % radiation control to set point percentage with alarm output;
- ➔ temperature control °C with set point and alarm output;
- ➔ generic alarm relay / dry contact NO/NC;
- ➔ alarm relay 230V-50Hz NO/NC 2A max;
- ➔ equipped with Long Life Lamps 13,000h
- ➔ shutdown for high temperature lamp;
- ➔ shutdown for low radiation / light anomaly;
- ➔ Option blocking water supply for alarm system;



Specifications	UV12X80 LCD
Flow / radiation / transmittance	m <sup>3</sup> /h
Dose 30,000 µWs/cm <sup>2</sup> - UVT 99%	132,0
Dose 40,000 µWs/cm <sup>2</sup> - UVT 99%	115,0
Dose 40,000 µWs/cm <sup>2</sup> - UVT 95%	75,0
N° lamps	12 x 80W
Irradiation/temperature sensor	optional
Power consumption (W / h)	960 W
Connections IN - OUT	DN 125
Wheelbase connections (mm)	640
Lamp housing size Height (mm)	950
Ø (mm)	285
Electric Panel Size h x W x D (mm)	800x600x250



Code Euro  
UV12X80-LCD

## Plants R.U.V. High voltage

The newest R.U.V. with amalgam lamps low pressure are intended for applications where is necessary sterilised water and high flow rates.

The generous dosage UV equal to 35,000  $\mu\text{W}/\text{cm}^2$  at 254 nm, it guarantees the inactivation over 99.9% of microorganisms present in the water and in particular of Escherichia Coli and Salmonella.

The plants are equipped as follow:

- stainless steel collector welded TIG and polished as a mirror, completed with sampling valves, fittings in/out to make a chemical wash of the sheath quartz;
- amalgam lamps at high voltage (190W,400W,600W) with ray emission UV at 254 nm more efficient to sterilize the water, life power of 16000 hours (double of the normal lamps at low pressure);
- the purest quartz sheaths with the highest transparency to UV at 254nm ray;
- electronic ballads heavy duty, reliable and powerful, suitable to feed effectively the lamps at the lower energetic cost;



- electronic panel characterised by the newest control board UV STAR with LCD display 16 characters x 2 lines; able to control and visualise the dosage values of the UV %, water/lamps temperature in  $^{\circ}\text{C}$ , full hours for the utility of the plant, the functional hours of the lamps, fault status of the lamps.

- Irradiation and temperature sensor.

In particular, the new control board UV STAR will be able to work out the data coming from the sensors and lamps that gives the input to the alarm and pre-alarm temperature, irradiation, life ending lamps, with adjustable set point and eventually blocking the water flow (ex. through an electro-valve), cool the lamps, remote the alarm or set up and put on stand by the installation through the remote control (ex. coming from the flow switch or from the PLC).

Italian product, certified from Italian law D.M. 174/04 and control panel UNI and CE standards.



UV lamps vessel 190 W



Code	Euro
UV4X190	
UV6X190	
UV8X190	
UV4X400	
UV6X400	
UV8X400	
UV6X600	
UV8X600	

Specifications	UV4X190	UV6X190	UV8X190	UV4X400	UV6X400	UV8X400	UV6X600	UV8X600
Flow rate	m <sup>3</sup> /h							
Dose 40.000 µWVs/cm <sup>2</sup> - 99% UVT	135	190	265	280	420	600	-	-
Dose 40.000 µWVs/cm <sup>2</sup> - 95% UVT	110	155	198	215	325	460	520	680
Dose 35.000 µWVs/cm <sup>2</sup> - 65% UVT	38	51	68	71	105	139	160	208
Dose 35.000 µWVs/cm <sup>2</sup> - 60% UVT	33	43	57	62	92	122	138	180
Dose 35.000 µWVs/cm <sup>2</sup> - 55% UVT	30	37	49	53	80	106	120	158
Max pressure (bar)	8	8	8	8	8	8	8	8
N° lamps	4 x 190W	6 x 190W	8 x 190W	4 x 400W	6 x 400W	8 x 400W	6 x 600W	8 x 600W
Irradiation sensor	as standard							
Temperature sensor	as standard							
Chemical cleaning arrangement	as standard							
Sample taking	as standard							
Power consumption (W / h)	0,80	1,20	1,60	1,70	2,50	3,30	3,80	5,00
Power supply	230V/50 Hz	on request	on request	on request				
Connections IN - OUT	DN 100	DN 125	DN 150	DN 150	DN 200	DN 250	DN 250	DN 250
Wheelbase connections (mm)	1900	1900	1900	1900	1900	1900	1900	1900
Lamp housing size Height/ length (mm)	1210	1200	1190	1190	1170	1150	1150	1150
Electric Panel Size H x W x D (mm)	500x500x200	500x500x200	800x600x250	500x500x200	800x600x250	800x600x250	1000x800x300	1000x800x300

Price on request

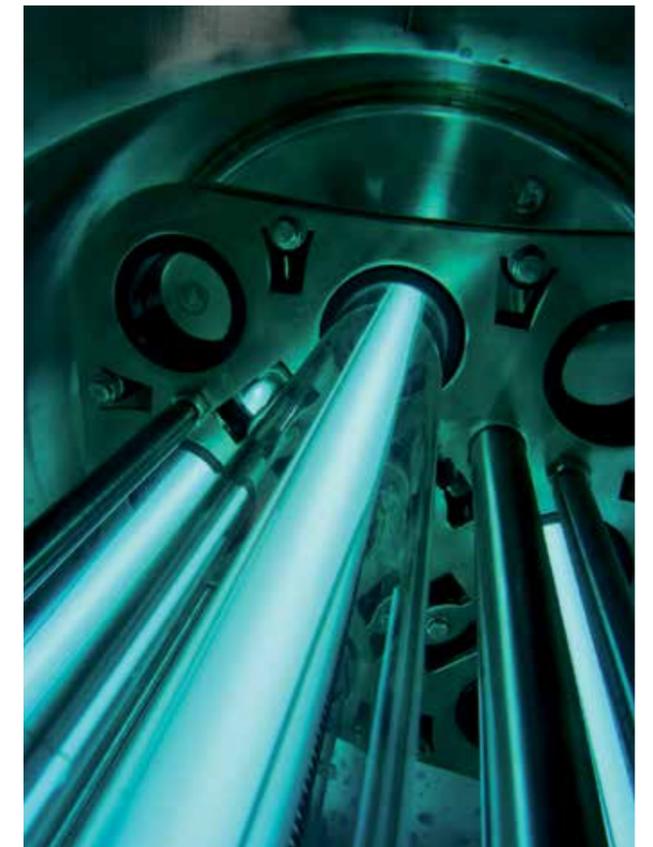
## Plants R.U.V HIGH FLOW RATE with automatic cleaning system

The adoption of UV light for the disinfection of the waste water has increased considerably in recent decades.

Today, over 20% of the waste water treatment in the developed countries utilises this innovative and ecological technology.

Lots of town hall changed the chemical disinfection that was based with the ozone or chemical substances such as sodium hypochlorite, peracetic acid, chlorine dioxide with the UV-ray disinfection, for ecological advantages, security, simple conduction, and low cost of investment and management.

The disinfection with UV lamps at low pressure represent today the finest disinfection system for the civilian waste water thanks to the functional efficiency and absence of co-products in the treated final



water with no risk of over-dosage.

Italian legislation (3 D. lgs 152/99) provides for the discharge in surface water the control of the Escherichia Coli micro-organisms. The maximum level of the discharge limits are fixed from the local authority, in relation of the environmental situation and hygienic sanitary of the water body receiver, however, has to be less than 5000 UFC/100ml.

To re-use of the waste water in agricultural sector, civilian and industrial, the Italian legislation, D. lgs. 185/03 provides as a parameter of Escherichia Coli the limit value of 10 UFC/100ml (refers to 80% of samples) with a maximum value of 100 UFC/100ml. Salmonella has to be absent.



## Plants R.U.V. High voltage with automatic washing system

The new sterilizers R.U.V. with automatic cleaning system (SPA) and low pressure amalgam lamps are designed for applications where needs absolutely sterile water and high flow, coming from municipal waste water. The UV dosage equal to 35000  $\mu\text{W}/\text{cm}^2$  at 254nm that guarantees the inactivation of the micro-organisms at 99,9% present in the water and especially of the Escherichia Coli and Salmonella, generally present in the waste-water.

To design the UV's system is necessary to know the transmittance of water to treat. If there isn't any data, it's possible to consider an approximation that the output effluent from a purifier of active sludge (secondary effluent) has a transmittance between 50% and 60%; the output effluent from the plants after the active sludge and after sedimentation and/or rolling filters and/or sand/activated carbon (tertiary effluent) has a transmittance between 60 and 70%.

All the UV SPA's systems are equipped with a automatic cleaning system with



Quartz cleaning system

scrape rings sleeves actuated from a endless screw and gear motor because the water to sterilise are generally full of substances that in a long run make dirty the quartz sleeves. With this system it's possible to maintain the irradiation level and minimise the opacity of the quartz sleeve given from the passage of the dirty water.

The UV-ray's plants are equipped as follow:

- stainless steel collector welded TIG, with the mirror polishing, completed with sampling valves, fittings in/out to make a chemical wash of the quartz sleeve;
- automatic cleaning system operated from a gear motor based on a cleaning water cycle programmed on the basis of quartz sleeves dirtiness or on time.
- highest voltage of the amalgam lamps at (190W, 400W, 600W) with emission of UV-ray at 254 nm (the more efficient UV radiation to sterilise the water) provided a medium life equal to over 16000 hours (double of the normal low pressure lamps)
- the purest quartz sleeve at highest transparency of UV at 254 nm rays.
- electronic ballasts, heavy duty, reliable and powerful, suitable to feed lamps with efficiency and at energetic low cost;
- electric panel, characterised from the newest control board UV STAR with LCD display 16 characters x 2 lines; able to control and visualise the dosage values of UV% temperature in C° of the water/lamps, the total hours of the plant's utilised, the residual battery life, the operating state/lamps anomalies and cleaning cycle;
- irradiation and temperature sensor.

In particular, the newest UV STAR control board will be able to elaborate the data coming from the sensors and lamps that gives the input to the alarm and pre-alarm temperature, irradiation, life ending lamps, cleaning cycle anomalies, with adjustable set point and eventually blocking the water flow (ex. through an electro-valve), cool the lamps, remote the alarm or set up

and put on stand by the installation through the remote control (ex. coming from the flow switch or PLC).

Italian product, certified from Italian law D.M, 174/04 and control panel UNI and CE standards.



Specifications	UV4X190SPA	UV6X190SPA	UV8X190SPA	UV4X400SPA	UV6X400SPA	UV8X400SPA	UV6X600SPA	UV8X600SPA
Flow rate	m <sup>3</sup> /h							
Dose 40.000 $\mu\text{W}/\text{cm}^2$ - 99% UVT	135	190	265	280	420	600	-	-
Dose 40.000 $\mu\text{W}/\text{cm}^2$ - 95% UVT	110	155	198	215	325	460	520	680
Dose 35.000 $\mu\text{W}/\text{cm}^2$ - 65% UVT	38	51	68	71	105	139	160	208
Dose 35.000 $\mu\text{W}/\text{cm}^2$ - 60% UVT	33	43	57	62	92	122	138	180
Dose 35.000 $\mu\text{W}/\text{cm}^2$ - 55% UVT	30	37	49	53	80	106	120	158
Max pressure (bar)	8	8	8	8	8	8	8	8
N° lamps	4 x 190W	6 x 190W	8 x 190W	4 x 400W	6 x 400W	8 x 400W	6 x 600W	8 x 600W
Irradiation sensor	as standard							
Temperature sensor	as standard							
Quartz cleaning system	as standard							
Chemical cleaning arrangement	as standard							
Sample taking	as standard							
Power consumption (W/h)	0,9	1,3	1,7	1,8	2,6	3,4	3,9	5,1
Power supply	230V/50 Hz	on request	on request	on request				
Connections IN - OUT	DN 100	DN 125	DN 150	DN 150	DN 200	DN 250	DN 250	DN 250
Wheelbase connections (mm)	1900	1900	1900	1900	1900	1900	1900	1900
Lamp housing size Height/ length (mm)	1210	1200	1190	1190	1170	1150	1150	1150
Electric Panel Size H x W x D (mm)	500x500x200	500x500x200	800x600x250	500x500x200	800x600x250	800x600x250	1000x800x300	1000x800x300

Price on request

UV STAR SPARE PARTS



UVC LAMPS UVSTAR

Low pressure mercury arc germicidal lamps, with quadripin socket only on one side. Dosage guaranteed at a wavelength of 254 nm (most effective for disinfection) with efficiency greater than 90%. Duration of more than 13000 hours for Long Life Lamps thanks to a special and exclusive treatment. Duration more than 16000 hours for the amalgam lamps.

Code	Euro
LONG-LIFE10W	
LONG-LIFE21W	
LONG-LIFE40W	
LONG-LIFE80W	
GPHVA1554T5L	



Caratteristiche tecniche	LONG-LIFE10W	LONG-LIFE21W	LONG-LIFE40W	LONG-LIFE80W	GPHVA1554T5L
Specifications	GPH212T5L Long Life	GPH436T5L Long Life	GPH843T5L Long Life	GPH0843T5L Long Life	GPHVA1554T5L
			G36T5L Long Life	GHO36T5L Long Life	
Power (W)	10 W	21W	40W	80W	190W
Lamp current (mA)	425 mA	425 mA	425 mA	800 mA	1200 mA
Rated life (h)	13000	13000	13000	13000	16000
Socket	quadripin	quadripin	quadripin	quadripin	quadripin
Lamp diameter (mm)	15 mm	15 mm	15 mm	15 mm	15 mm
Lamp Length (mm)(without pins)	212 mm	436 mm	843 mm	843 mm	1554 mm



QUARTZ SLEEVES

Pure quartz sleeves produced by electrofusion. This process allows to maximize transparency to UVC rays and minimize the impurity content.

Code	Euro
UVS-Q235	
UVS-Q485	
UVS-Q900	
UVS-Q1600	
UVS-Q1600-38	

Caratteristiche tecniche	UVS-Q235	UVS-Q485	UVS-Q900	UVS-Q1600	UVS-Q1600-38
Ref model UV	MINISTAR	MIDISTAR	UV1>UV12	UV x190	UV x400W
Outer diameter (mm)	23	23	23	23	38
Length (mm)	250	495	900	1600	1600

Electric boards and control panels

Code	Description	Euro
UVS-LCD-8X2-V2	LCD Board 8x2 for ballast UV	
UVS-SE40W-V2	Electric lamp board UV 40W/425mA	
UVS-SE80W-V2	Electric lamp board UV 80W/800mA	
UVSTARLCD-16X2-V3	Ballast controller UV c/LCD 16x2	
UVSTAR425-40	Power supply lamp UV 10/40W full in box	
UVSTAR40W-V3	Electronic ballast lamps max 40W/425mA	
UVSTAR80W-V3	Electronic ballast lamps max 80W/800mA	
UVS-SE190W	Electronic ballast lamps max 190W/1200mA/2100mA	
UVS-QU40W-LCD-V2	LCD electric panel 40W	
UVS-QU1X80W-LCD	LCD complete electric panel single lamp 80W	
UVS-QU40W-LCD-V3	LCD complete electric panel single lamp 40W	



UVSTAR40W-V3



UVS-QU1X80W-LCD



UVSTAR425-40



UVS-SE40W-V2



UVS-LCD-8X2-V2



UVS-SE80W-V2

Other spare parts

Code	Description	Euro
UVS-01	Four-pin w/end cap and 1,5 cable	
UVS-02	Black sleeve screw cap	
UVS-04	Yellow O'ring	
UVS-SO-IRR-TEMP	Irradiation and temperature probe	



UVS-04

UVS-02



UVS-01

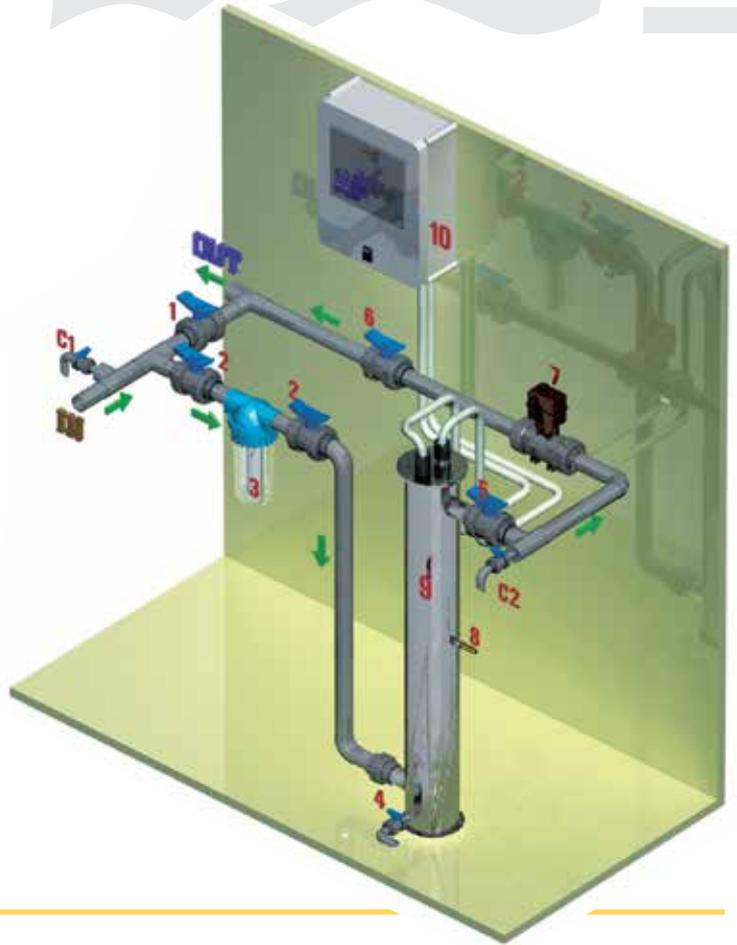


UVS-SO-IRR-TEMP

## LAYOUT OF UV PLANT - DIRECT FLOW

### INFORMATIONS

1. Bypass valve
2. Cartridge filter valve
3. Cartridge filter
4. UV sterilizer drain
5. UV shut-off valve
6. UV shut-off valve
7. Solenoid valve for blocking water supply with system alarm
8. UVC sensor
9. UV sterilizer
10. Electrical panel
- C1. Raw water sample valve
- C2. Sterile water sample valve



## LAYOUT OF UV PLANT - SYSTEM WITH STORAGE TANK

### INFORMATIONS

1. Raw water inlet
2. Raw water storage tank
3. Booster pump
4. Quartz sand/activated carbon automatic filter
5. Cartridge filter
6. Cartridge filter valve
7. Bypass valve
8. UV shut-off valve
9. UV sterilizer
10. Solenoid valve for blocking water supply with system alarm
11. UVC sensor
12. Electric panel
13. Filter drain
- C1. Sterile water sample valve
- C2. Filtered water sample valve

