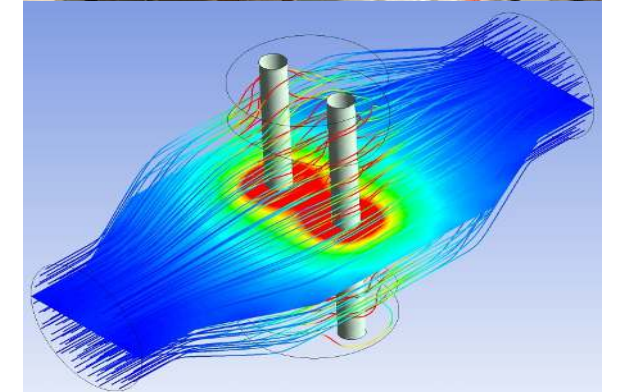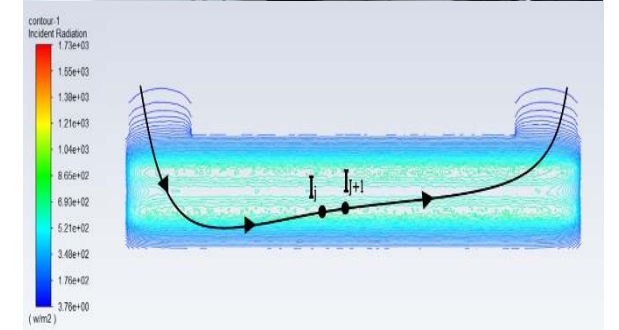UV

O₃   AOP

Advanced Treatment
Technologies

# ESCO
## International

# Ultraviolet Technology

## TREATING WATER NATURALLY

# CONTENTS

# APPLICATIONS

Our UV systems can be used in a variety of industrial and commercial applications


Drinking Water


Waste water Systems
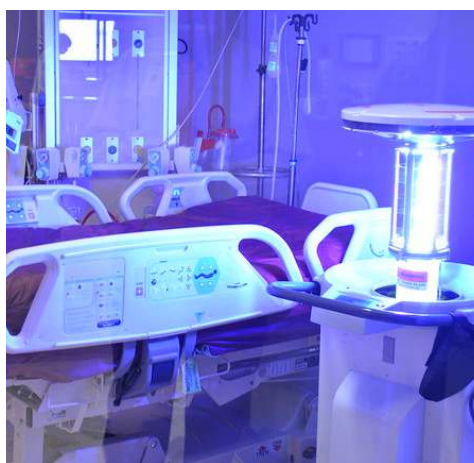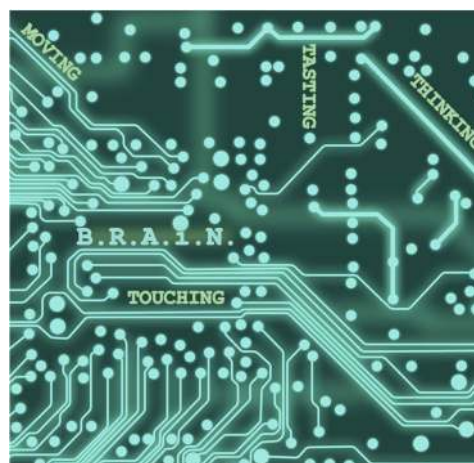

Food & Beverage Industry


Pharmaceutical Industry


Agriculture & Horticulture


Spa' and Swimming pools


Surface and Air Disinfection


Microelectronics


Fish Farms & Aquariums

# UV SYSTEMS

**UV** Technology is a clean, robust way to address the decontamination of water in industrial and domestic processes. Having been proven to be effective against bacteria, viruses, protozoa, TOC and many organic compounds.

## Why Ultraviolet (UV) light?

The natural disinfection properties of sunlight are attributable to UV radiation. UV radiation is a section within the energy band known as the electromagnetic spectrum shown in **figure 1 below.**
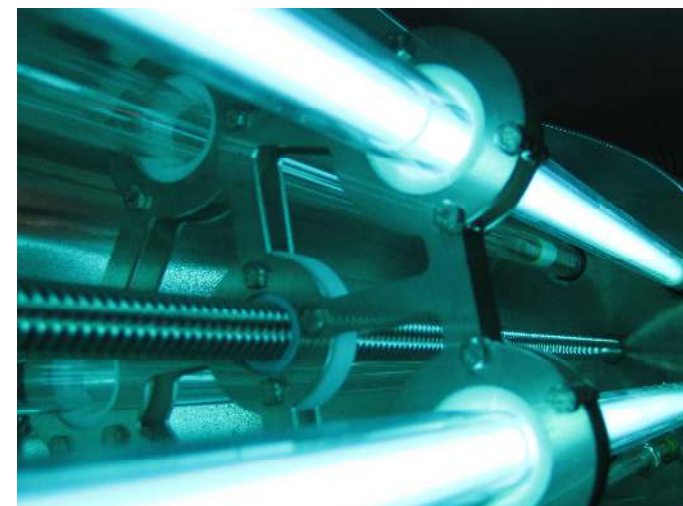


We at ESCO international, harness the power of the UV spectrum and enhance it to allow for excellent control of microbiological activity, and through targeted wavelength selection, destruction of specific organic compounds and TOC.

## How does UV reduce contaminants?

Germicidal UV at a wavelength of 200 - 280 nm is known to effect a change in the molecular DNA of microorganisms preventing the cells from metabolising and reproducing.



UV radiation can also be targeted to remove organic compounds as it can break certain chemical bonds through photolytic reactions. As a result non-polar organics become charged and subsequent removal is made trivial through various methods such as ion exchange.

## Applications

Some of the applications of UV have been mentioned in the previous page. However, this is only a fraction of the potential applications, as this technology may be used in general applications that cover the following functions:

- Germicidal Disinfection
- Ozone, Chlorine and Chloramines Destruction
- Total Organic Carbon (TOC) reduction
- Photochemical/ Photo-oxidation processes
- Advanced oxidation processes

ESCO International provides a complete solution coupling our expertise with our top of the line UV products for your process.

Furthermore, our technical consultancy can provide excellent support with your special applications or process requirements. This involves the provision of custom designed and tested UV systems to meet your needs.
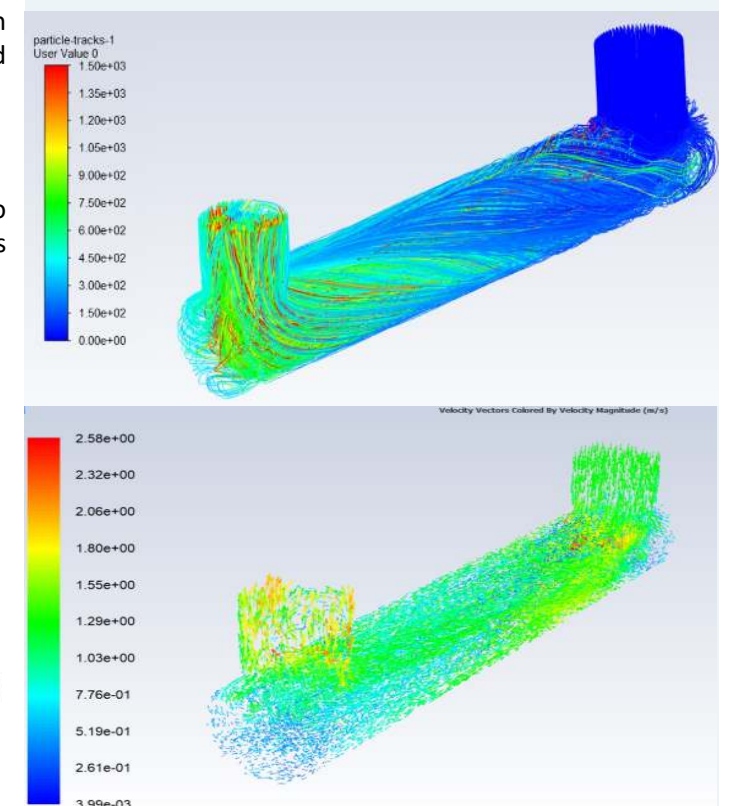
## General Features and Benefits of our UV Systems

Our standard UV systems can unlock significant benefits for your process. Furthermore, numerous optional features are provided, which are designed to provide greater operational control and flexibility.

### Features

- Manual or automatic cleaning systems.
- Chemical cleaning system.
- Magnetic or electronic ballasts and pace control operation, offers flexibility in mode of operation.
- PLC control panels providing automatic system control and convenient at-a-glance feedback of operational information. (with touch screen options) (other options).
- Industry standard UV intensity monitoring and control.
- Reactor temperature control.
- Alarms that signify faults and maintenance requirements.
- Special anti-corrosion coating
- Extended lamp life times

### Benefits

- Decades of experience providing technical consultancy and bespoke UV solutions to happy customers.
- Minimal plant space requirements, with designs that facilitate simple installation.
- Optimised chamber designs allow for easy operation of cost-effective multi-lamp arrays in compact spaces.
- Lower in capital investment, with guaranteed efficiency gains, making UV a great investment.
- Lower maintenance and operation costs.
- Avoid unexpected failures and system downtimes.
- UV systems designed for operation for 24 hours, 365 days a year.



### Safety

Safety is an intrinsic feature in our designs. Ensuring best practice is followed at all times. Furthermore, alarm systems are provided with all of our UV system designs, which alert the user to any faults, maintenance requirements and out of order reaction conditions.

### Quality

We at ESCO guarantee quality, using only industry standard materials of the highest quality and complying to all of the relevant regulations.

Our products are CE approved and designed in accordance with ISO 9001/2000 standards.

### Performance

UV lamps within the UV systems are designed to ensure cost effectiveness, particularly at higher flowrates. Peace of mind is also provided through our industry standard monitors that provide accurate intensity monitoring to ensure that the correct UV dose is provided at all times, whether it is for ultra-pure water, drinking water or waste water purification.

Low pressure high output lamp performance is independent of water temperatures from 5—50$^\circ$C and lamp output may be integrated to automatically vary energy use, whilst maintaining the required UV dose. As a result, power consumption and costs relating to this are continuously optimised.

Medium pressure UV systems are practically independent of process temperature. Furthermore, note our lamp lifetimes span from 9,000 to 16,000 hours.

The following catalogue presents our full UV system design range to suit your specific applications. Alternatively, contact us for any queries or custom design requirements at info@escouk.com.
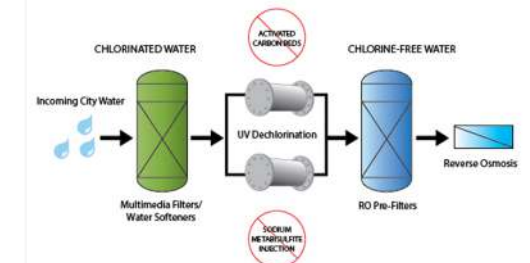


# UV PRODUCT RANGE

- The domestic series are the smallest UV systems in our catalogue, both with respect to dimensions and water treatment capacity.

- They are characterized by their compactness, easy installation and operation. The main application for the following systems is the treatment of potable water.

- These systems are ideal for single users, flats or for use in combination with small scale water applications, such as reverse osmosis systems, coolers, water dispensers, pilot plants and so much more.

# ECO Series

| | ECO-05A | ECO-10A |
|---|---|---|
| Max. Flow rate (l/min) | 5 | 10 |
| Number of Lamps | 1 | 1 |
| Lamp Lifetime (hours) | 9000 | |
| Power Consumption (W ± 2%) | 12 | 16 |
| UV-C dose (mJ/cm$^2$) @ UVT 99% - 1cm | >30 | |
| Manifold Material | SS 304 or SS316L | |
| Max. Pressure (bar) | 10 | |
| In - out connection | ⅛"F | ½"M |
| Electrical Supply | 230 V 50/60 Hz (others available upon request) | |

| ECO Series | ECO-20A/B | ECO-30A/B | ECO-45A/B | ECO-60A/B | ECO-85A/B |
|---|---|---|---|---|---|
| Max. Flow rate (l/min) | 20 | 30 | 45 | 60 | 85 |
| Lamps | 1 | 1 | 1 | 1 | 1 |
| Lamp Lifetime (hours) | 9000 | | | | |
| Power Consumption (W ± 2%) | 30 | 33 | 40 | 40 | 80 |
| UV dose (mJ/cm2) @ UVT 99% - 1cm | 30 | | | | |
| UV chamber Material | SS304 or SS316L | | | | |
| Max. Pressure (bar) | 10 | | | | |
| In - out connections | 3/4"M | 3/4"M | 1"M | 1 1/2" M | 1 1/2"M |
| Electrical Supply | 230 V 50/60 Hz (others available upon request) | | | | |

| Electrical Panel | Type A | Type B |
|---|---|---|
| Digital display | No | Yes |
| Day counter | No | Yes |
| Resettable day counter | No | Yes |
| Alarm red LED | Yes | No |
| Acoustic Buzzer | No | Yes |
| Electrical Plug | UK/ No plug | |

# ECO LCD Series

| EC0 LCD Series | ECO-20 | EC0-30 | ECO-45 | ECO-60 | ECO-75 | EC0-85 | ECO-100 | EC0-200 |
|---|---|---|---|---|---|---|---|---|
| Max. Flow rate (l/min) | 20 | 30 | 45 | 60 | 75 | 85 | 100 | 200 |
| Number of Lamps | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 2 |
| Lamp Lifetime (hours) | 9000 | | | | | | | |
| Power Consumption (W ± 2%) | 30 | 35 | 40 | 40 | 80 | 80 | 80 | 160 |
| UV dose (mJ/cm2) @ UVT 99% | 30 | 30 | 30 | 30 | 30 | 30 | 40 | 40 |
| UV Chamber Material | SS304 or SS316L | | | | | | | |
| Max. Pressure (bar) | 10 | | | | | | | |
| In - out connections | 3/4"M | 3/4"M | 1"M | 1 1/2" M | 1"M | 1 1/2"M | 1 1/2"M | 1 1/2"M |
| Electrical Supply | 230 V 50/60 Hz (others available upon request) | | | | | | | |
| Manual Cleaning System | No | No | No | Optional | No | Optional | Optional | Optional |
| Electrical Panel Dimensions (mm) | 215 x 215 x 90 | | | | | | | |

| Electrical Panel | LCD Type |
|---|---|
| Protection degree | IP 55 |
| LCD Display (microprocessor control) | Yes |
| Total hour meter | Yes |
| Resettable count down hour meter | Yes |
| Alarm red LED | Yes |
| Alarm relay free contact NO/ NC | Yes |
| Alarm relay 230 V NO/ NC outlet - 2A max | Yes |
| On/ Off timer | Yes |
| Remote On/ Off contact | Yes |
| Display of Irradiation/ temperature control | LCD P-model only* |
| Shutdown for high temperature UV Chamber | LCD P-model only* |
| 4/20 mA output | Optional for LCD P-model only* |
| Audio alarm | Optional |

* P-model: UV system with UV monitor

LCD Panel  Black PP

# EC1 R-LCD Series

- The UV R-LCD series uses more powerful 80W low pressure lamps, within a UV chamber composed of polished stainless steel and a control panel with a microprocessor included.

- This system initiates our industrial scale series.

- Recommended applications for this UV system include potable water treatment and the food and beverage industry among others.

| EC1 R-LCD Series | EC1-20R-LCD | EC1-30R-LCD | EC1-R-LCD |
|---|---|---|---|
| Max. Flow rate (m$^3$/h) | 20 | 30 | 40 |
| Number of Lamps | 3 | 4 | 5 |
| Lamp Lifetime (hours) | 9000 | | |
| Power Consumption (W ± 2%) | 240 | 320 | 400 |
| UV dose (mJ/cm2) @ UVT 99% - 1cm | > 40 (for 9000 h) | | |
| UV Chamber Material | SS304 or SS316L | | |
| Max. Pressure (bar) | 10 | | |
| In - out connections | 2"M | DN80 | DN80 |
| Electrical Supply | 230 V 50/60 Hz (others upon request) | | |
| Manual Cleaning System | Optional | Optional | Optional |
| Electrical Panel Dimensions (mm) | 215 x 215 x 90 | | |

| Electrical Panel | R-LCD Type |
|---|---|
| Enclosure Material | Paint steel* |
| Protection degree | IP 54 |
| LCD Display (microprocessor control) | Yes |
| Total hour meter | Yes |
| Resettable count down hour meter | Yes |
| Alarm red LED | Yes |
| Alarm relay free contact NO/ NC | Yes |
| Alarm relay 230 V NO/ NC outlet - 2A max | Yes |
| On/ Off timer | Yes |
| Remote On/ Off contact | Yes |
| Display of Irradiation/ temperature control | LCD P-model only ** |
| Shutdown for high temperature UV Chamber | LCD P-model only ** |
| 4/20 mA output - LCD P-model only** | Optional |
| Audio alarm | Optional |

*Stainless steel 304/316L upon request
**P-model: UV system with UV monitor

# AMD Series

- The main feature of the UV AM series is the powerful amalgam lamp, which are provided with IP65 protection, preventing damage from water, dust or humidity. Furthermore, The AM series works exceptionally at high flowrates with minimal lamp requirements and the "L" shaped configuration allows for compact horizontal or vertical installation.

- Recommended applications for these UV systems include potable water treatment, food and beverage industry, pharmaceuticals and the horticulture/agricultural industry, among others.

| AMD Series | 24L | 50L | 60L | 96L | 125L | 160L |
|---|---|---|---|---|---|---|
| Max. Flow rate (m$^3$/h) | 20 | 50 | 60 | 96 | 125 | 160 |
| Number of Lamps | 1 | 2 | 2 | 3 | 4 | 4 |
| Lamp Lifetime (hours) | 14000 | | | | | |
| Power Consumption (W ± 2%) | 220 | 440 | 440 | 660 | 880 | 880 |
| UV dose (mJ/cm2) @ UVT 98% | > 40 (for 14000 h) | | | | | |
| UV Chamber Material | SS316L | | | | | |
| Max. Pressure (bar) | 10 | | | | | |
| In - out connections (PN 10) | 2"M | DN80 | DN80 | DN100 | DN150 | DN150 |
| Openable side | No | No | No | Yes | Yes | Yes |
| Manual cleaning system | Optional | No | Optional | No | No | No |
| Automatic wiper | Optional | | | | | |
| Electrical panel | R-LCD Type | | | Touch screen or ECOLINE | | |
| Electrical Supply | 230 V 50/60 Hz (others available upon request) | | | | | |
| Electrical Panel Dimensions (mm) | 400 x 300 x 200 | | 400 x 500 x 250 | | 750 x 400 x 250 | |



TS Panel
AMD 96-125-160

R-LCD/ ECOLINE Panel
AMD24-50-60-96-125-160

| Electrical Panel | R-LCD Type | Touch Screen Type |
|---|---|---|
| Enclosure Material | Painted Steel* | Painted Steel* |
| Protection degree | IP 54 | IP54 |
| LCD Display (microprocessor control) | Yes | No |
| Touch Screen (65K ) | No | Yes |
| Multi-Language display | No | Yes |
| Hour meters (system and lamp life) | Yes | Yes |
| Digital Outputs | No | Yes |
| Red fault LED | Yes | No |
| Alarm relay free contact NO/ NC | Yes | Yes |
| Alarm relay 230 V NO/ NC outlet - 2A max | Yes | Yes |
| Remote On/Off | Yes | Yes |
| On/ Off timer | Yes | Yes |
| Display of Irradiation/ temperature control | Only LCD P-model or ECOLINE | Yes |
| CAN, Ethernet, USB, Serial (modbus. TCP/IP, CANopen) | No | Yes |
| Remote access with App or Webgate | No | Yes |
| 4/20 mA output , Audio alarm | Optional | Yes |
| Datalog - Events | No | Yes |
| UV dose calculation | No | Optional |
| Lamp power regulation | Optional | Optional |

*Stainless steel 304/316L upon request



# EC400 Series

- The main feature of the EC400 series is the powerful amalgam lamp, which is more powerful than the AMD series and can treat flowrates up to 1350 $m^3$/h, representing a significant upgrade in terms of capacity. These reactors are composed of 316L stainless steel material and are provided in a horizontal configuration.

- Recommended applications for these UV systems are similar to the AMD series, with the capacity for much larger scale industrial operations. For higher flow rates, please contact us.



| EC400 Series | 1-TS | 2-TS | 3-TS | 4-TS | 5-TS | 6-TS | 8-TS | 10-TS | 12-TS | 15-TS |
|---|---|---|---|---|---|---|---|---|---|---|
| Max. Flow rate ($m^3$/h) | 50 | 100 | 150 | 250 | 300 | 420 | 600 | 830 | 980 | 1350 |
| Lamps | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 15 |
| Lamp Lifetime (hours) | 16000 | | | | | | | | | |
| Lamp power regulation | (50-100%) only on TS panels | | | | (50-100%) only on TS panels | | | | | |
| Power Consumption (W ± 2%) | 440 | 880 | 1300 | 1750 | 2180 | 2600 | 3500 | 4400 | 5300 | 6600 |
| UV dose (mJ/cm2)  UVT 97% | > 40 (for 16000 h) | | | | | | | | | |
| UV Chamber material | SS 316 L | | | | | | | | | |
| Max. Pressure (bar) | 10 | | | | | | | | | |
| In - out connections (PN 10) | DN80 | DN100 | DN150 | DN200 | DN200 | DN250 | DN250 | DN300 | DN350 | DN400 |
| Openable side | Yes | | | | | | | | | |
| Automatic wiper | Optional | | | | | | | | | |
| Electrical panel | Touch screen or ECOLINE | | | | Touch screen (TS) | | | | | |
| Electrical Supply | 230 V 50/60 Hz (380/400V 50/60 Hz) | | | | | | | | | |
| Electrical Panel Dimensions (mm) | 400x500x250 | | 400x750x250 | | 600x800x300 | | | 800x1000 x300 | 800x1200x300 | |

| EC400 Series | 20-TS | 25-TS | 30-TS | 35-TS | 40-TS | 50-TS | 60-TS | 70-TS | 80-TS | 100-TS |
|---|---|---|---|---|---|---|---|---|---|---|
| Max. Flow rate ($m^3$/h) | Please contact us for details | | | | | | | | | |
| Lamps | 20 | 25 | 30 | 35 | 40 | 50 | 60 | 70 | 80 | 100 |
| Lamp Lifetime (hours) | 16000 | | | | | | | | | |
| Lamp power regulation | (50-100%) only on TS panels | | | | (50-100%) only on TS panels | | | | | |
| Power Consumption (KW) | 8.8 | 11.0 | 13.2 | 15.4 | 17.6 | 22.0 | 26.4 | 30.8 | 35.2 | 44.0 |
| UV dose (mJ/cm2)  UVT 97% | > 40 (for 16000 h) | | | | | | | | | |
| UV Chamber material | SS 316 L | | | | | | | | | |
| Max. Pressure (bar) | 10 | | | | | | | | | |
| In - out connections (PN 10) | Please contact us for details | | | | | | | | | |
| Openable side | Yes | | | | | | | | | |
| Automatic wiper | Optional | | | | | | | | | |
| Electrical panel | Touch screen  (TS) | | | | | | | | | |
| Electrical Supply | 230 V 50/60 Hz (380/400V 50/60 Hz) | | | | | | | | | |
| Electrical Panel Dimensions (mm) | Please contact us for details | | | | | | | | | |

TS Panel
EC400-1TS -

R-LCD ECOLINE Panel
EC400-1ECO - EC400-4ECO

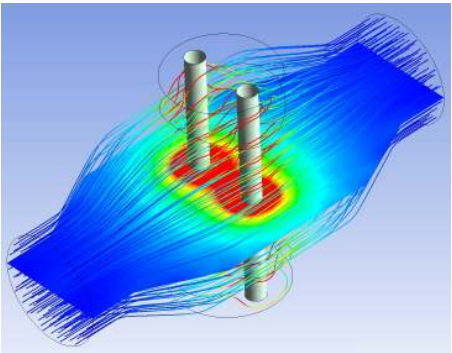| Electrical Panel | ECOLINE | TC |
|---|---|---|
| Enclosure Material | Painted Steel* | Painted Steel* |
| Protection degree | IP 54 | IP54 |
| LCD Display (microprocessor control) | Yes | No |
| Touch Screen (65K) | No | Yes |
| Multi-Language display | No | Yes |
| Hour meters (system and lamp life) | Yes | Yes |
| Digital Outputs | No | Yes |
| Red fault LED | Yes | No |
| Alarm relay free contact NO/ NC | Yes | Yes |
| Alarm relay 230 V NO/ NC outlet - 2A max | Yes | Yes |
| Remote On/Off | Yes | Yes |
| On/ Off timer | Yes | Yes |
| Display of Irradiation/ temperature control | Yes | Yes |
| CAN, Ethernet, USB, Seriale (modbus. TCP/IP, CANopen) | No | Yes |
| Remote access with App or Webgate | No | Yes |
| 4/20 mA output, audio alarm | Optional | Yes |
| Datalog - Events | No | Yes |
| UV dose calculation | No | Optional |
| Lamp power regulation | Optional | Yes |

*Stainless steel 304/316L upon request

# SMP ECOLINE Series

- The SMP ECOLINE series was designed to accommodate the requirements for a high quality product in the public pool market. Using our expertise in providing the correct system for your requirements. This medium pressure UV system has dual effect in terms of both disinfection of water and reduction of Chlorine as UV-C rays are also effective in chlorine and chloramines removal.

- This system will significantly increase ambient water quality, minimise requirements for chemical cleaning and decreasing pool maintenance costs, which is a key factor in publicly owned pools.

| SMP ECO series | 6 XL | 10 XL | 20 XL | 25 XL | 35 XL |
|---|---|---|---|---|---|
| Max. Flow rate (m$^3$/h) | 33 | 55 | 120 | 170 | 333 |
| Lamps | 1 | 1 | 1 | 1 | 1 |
| Lamp Lifetime (hours) | 6000 | | | | |
| Power Consumption (kW ± 2%) | 0.66 | 1.1 | 2.2 | 2.7 | 3.9 |
| UV-C dose (mJ/cm2) @ UVT 97% | 60 | | | | |
| UV chamber materila | SS 316L | | | | |
| Max. Pressure (bar) | 10 | | | | |
| In - out connections (PN 10) | 2 $\frac{1}{2}$"M | DN100 | DN150 | DN200 | DN200 |
| Manual wiper | Optional | | | | |
| Electrical panel | ECOLINE Type | | | | |
| Electrical Supply | 230 V 50/60 Hz | 400 V 3PH + N + GND 50/60 Hz | | | |
| Electrical Panel Dimensions (mm) | 400x500x250 | 400x750x300 | | | |

SMP ECOLINE Panel

| Electrical Panel | ECOLINE Type |
|---|---|
| Enclosure Material | Painted Steel |
| LCD Display (microprocessor control) | Yes |
| Total hour meter | Yes |
| Resettable Count down hour meter | Yes |
| Alarm red LED | Yes |
| Alarm relay free contact NO/ NC | Yes |
| Alarm relay 230 V NO/ NC outlet - 2A max | Yes |
| Remote On/Off Contact | Yes |
| On/ Off timer | Yes |
| Display of Irradiation/ temperature control | Yes |
| Shutdown for high temperature UV Chamber | Yes |
| 4/20 mA output | Optional |
| Audio alarm | Optional |
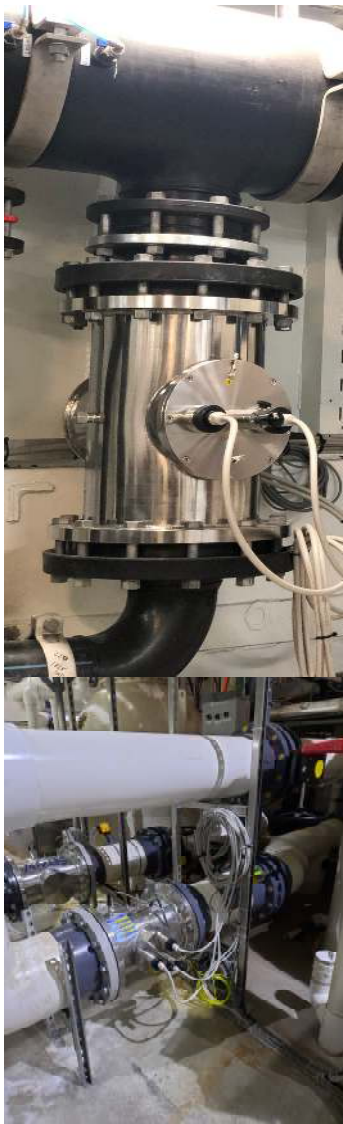
# SMP Series with Power Regulation

- There is a wide range of products in the SMP PR series, covering various functions. One of the key factors involving this series is the fact that it represents one of the biggest units provided by us, with flow rates ranging up to 4000 m$^3$/h and a power rating up to 100 kW.

- All the PR units are designed with minimal medium pressure lamps and optimised performance for your needs. This includes electronic ballasts capable of automatically controlling lamp power (50-100%) as per requirements, an excellent human machine interface with a impact graphic display available in two formats and finally, a compact design allowing for easy installation in tight spaces such as vessels.

- This series also covers a wide range of applications including in the naval industry, aquaculture, agriculture/horticulture, swimming pools, potable water treatment and snowmaking to name a few.

| SMP XL-PR Series | 6XL-PR | 10XL-PR | 20XL-PR | 25XL-PR | 35XL-PR |
|---|---|---|---|---|---|
| Max. Flow rate (m$^3$/h) | 33 | 55 | 120 | 170 | 333 |
| Lamps | 1 | 1 | 1 | 1 | 1 |
| Lamp Lifetime (hours) | 10000 | | | | |
| Lamp power regulation | Yes (50-100%) | | | | |
| Power Consumption (kW ± 2%) | 0.66 | 1.1 | 2.2 | 2.7 | 3.9 |
| UV-C dose (mJ/cm2) @ UVT 99% | >600—800 | | | | |
| UV chamber material | SS 316L | | | | |
| Max. Pressure (bar) | 10 | | | | |
| In - out connections (PN 10) | 2 $^1/_2$"M | DN100 | DN150 | DN200 | DN200 |
| Manual wiper | Standard | | | | |
| Electrical panel | Touch Screen (TS) | | | | |
| Electrical Supply | 230 V 50/60 Hz | | | | |
| Electrical Panel Dimensions (mm) | 400x500x250 | | 400x750x300 | | |

| SMP PR Series | 50-PR | 70-PR | 105-PR | 140-PR | 175-PR | 210-PR |
|---|---|---|---|---|---|---|
| Max. Flow rate (m$^3$/h) | 350 | 500 | 750 | 1200 | 1500 | 1800 |
| Lamps | 2 | 2 | 3 | 4 | 5 | 6 |
| Lamp Lifetime (hours) | 10000 | | | | | |
| Lamp power regulation | Yes (50-100%) | | | | | |
| Power Consumption (kW ± 2%) | 5.5 | 7.7 | 11.6 | 15.5 | 19 | 23 |
| UV-C dose (J/m2) con UVT 99% - 1cm | >600—800 | | | | | |
| UV chamber material | SS 316L | | | | | |
| Max. Pressure (bar) | 10 | | | | | |
| In - out connections (PN 10) | DN200 | DN300 | DN300 | DN400 | DN500 | DN500 |
| Manual wiper | Standard | | | | | |
| Automatic wiper | Optional | | | | | |
| Electrical panel | Touch Screen (TS) | | | | | |
| Electrical Supply | 400 V 3PH + N - 50/60 Hz | | | | | |
| Electrical Panel Dimensions (mm) | 600x800x300 | | 850x1000x400 | | 900x1200x400 | |

| SMP PR series | 180-PR | 225-PR | 300-PR | 375-PR | 600-PR | 675-PR |
|---|---|---|---|---|---|---|
| Max. Flow rate (m$^3$/h) | Please contact us | | | | | |
| Lamps | 6 | 3 | 4 | 5 | 8 | 9 |
| Lamp Lifetime (hours) | 10000 | | | | | |
| Power Consumption (kW ± 2%) | 20 | 26 | 35 | 44 | 71 | 80 |
| In - out connections (PN 10) | Please contact us | | | | | |
| Automatic wiper | Optional | | | | | |
| Electrical Supply | 400 V 3PH + N + GND - 50/60 Hz | | | | | |



| Electrical Panel | Touch Screen Panel |
|---|---|
| Protection degree | IP54 |
| Touch Screen (65K) | Yes |
| Digital Outputs | Yes |
| Hour meters (system and lamp life) | Yes |
| Audio alarm | Yes |
| Alarm relay free contact NO/ NC | Yes |
| Alarm relay 230 V NO/ NC outlet - 2A max | Yes |
| Remote On/Off | Yes |
| On/ Off timer | Yes |
| Display of Irradiation/ temperature control | Yes |
| CAN, Ethernet, USB, Serial (modbus. TCP/IP, CANopen) | Yes |
| Remote access with App or Webgate | Yes |
| 4/20 mA output | Yes |
| Datalog - Events | Yes |
| UV dose calculation | Optional |
| Lamp power regulation | Yes |
| Flow meter input | Yes |
| UVT meter input | Yes |
| Flow and UVT duplication | Optional |

# UVSBT Series

- The UVSBT series is designed specifically for wastewaters with low UVT transmittance values. This series is composed of high performance low and medium pressure UV lamps, optimised to minimize lamp number requirements within the reactor and power use. All models come with automatic cleaning systems to suit applications as well as optional chemical cleaning. Finally, all series come with a UV sensors guaranteeing disinfection efficiency and optional touch screen control panels which allow for complete integration with the main PLC of your treatment plant.

- Recommended applications for these UV systems are wastewater treatment, liquid sweetener, sugar solutions and other fluids with low UVT transmittance.

| UVSBT Series | 1101 | 2101 | 3106 | 4101 | 3115 | 3125 | 3135 |
|---|---|---|---|---|---|---|---|
| Max. Flow rate (m³/h)* | 1.9 | 6.8 | 9.3 | 17.7 | 24.6 | 40.7 | 56 |
| UVT Range | 35 - 65% - 1cm | | | | | | |
| Lamps | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Lamp Lifetime (hours) | 9000 | 14000 | 10000 | 16000 | 10000 | | |
| Lamp power regulation | No | No | Yes (50-100%) | | | | |
| Power Consumption (W ± 2%) | 88 | 220 | 660 | 440 | 1660 | 2770 | 3880 |
| UV chamber material | SS 316 L | | | | | | |
| Max. Pressure (bar) | 10 | | | | | | |
| In - out connections | 1" | DN50 | 2 1/2" | DN65 | DN80 | DN80 | DN100 |
| Chemical Cleaning System | Optional | | | | | | |
| Automatic wiper | No | No | Yes | Yes | Yes | Yes | Yes |
| Electrical panel | LCD | R-LCD | Touch screen (TS) | | | | |
| Electrical Supply | 230 Vac 1PH + N + E: 277 Vac 1PH + N + E | | | | | | |

| UVSBT Series | 4104 | 4106 | 4110 | 4116 | 4124 | 4132 | 4140 |
|---|---|---|---|---|---|---|---|
| Max. Flow rate (m³/h)* | 79.6 | 122 | 207 | 332 | 515 | 690 | 874 |
| UVT Range | 35 - 65% - 1cm | | | | | | |
| Lamps | 4 | 6 | 10 | 16 | 24 | 32 | 40 |
| Lamp Lifetime (hours) | 16000 | | | | | | |
| Lamp power regulation | Yes (50-100%) | | | | | | |
| Power Consumption (W ± 2%) | 1770 | 2660 | 4440 | 7110 | 10660 | 14220 | 17770 |
| UV chamber material | SS 316 L | | | | | | |
| Max. Pressure (bar) | 10 | | | | | | |
| In - out connections | DN150 | DN150 | DN200 | DN250 | DN300 | DN400 | DN400 |
| Chemical Cleaning System | Optional | | | | | | |
| Automatic wiper | Yes | | | | | | |
| Electrical panel | Touch Screen (TS) | | | | | | |
| Electrical Supply | 230 V 50/60 Hz | | | 380/400 V 50/60 Hz | | | |

\* Flow rate based on average wastewater quality.




| Electrical Panel | LCD or Rack LCD Type | Touch Screen Type |
|---|---|---|
| Enclosure Material | Painted Steel | Painted Steel |
| Protection degree | IP 54 | IP54 |
| LCD Display (microprocessor control) | Yes | No |
| Touch Screen (65K) | No | Yes |
| Multi-Language display | No | Yes |
| Hour meters (system and lamp life) | Yes | Yes |
| Digital Outputs | No | Yes |
| Red fault LED | Yes | No |
| Alarm relay free contact NO/ NC | Yes | No |
| Alarm relay 230 V NO/ NC outlet - 2A max | Yes | Yes |
| Remote On/Off | Yes | Yes |
| On/ Off timer | Yes | Yes |
| Display of Irradiation/ temperature control | Yes | Yes |
| CAN, Ethernet, USB, Serial (modbus. TCP/IP, CANopen) | No | Yes |
| Remote access with App or Webgate | No | Yes |
| 4/20 mA output | Optional | Yes |
| Datalog - Events | No | Yes |
| UV dose calculation | No | Optional |
| Lamp power regulation | No | Yes |
| Flow meter input | No | Yes |
| UVT meter input | No | Yes |
| Flow and UVT duplication | No | Optional |
| Audio alarm | Optional | Optional |

# UVPE Series



- The UVPE series is specifically designed to deal with corrosive liquids and sea water. The UV reactor in this case is composed of noncorrosive material, namely high density polyethylene. As a result, the main features of this series is the excellent long term disinfection capabilities in corrosive environments.

- Recommended applications for these UV systems span across numerous sectors including the naval industry, aquariums, aquaculture, agriculture/horticulture, seawater, brackish water, swimming pools/spas, among others.



| UVPE Series | UVPE3 | UVPE5 | UVPE8 | UVPE15 | UVPE22 | UVPE35 | UVPE45 | UVPE61 | UVPE90 |
|---|---|---|---|---|---|---|---|---|---|
| Max. Flow rate (m$^3$/h) | 3 | 5 | 8 | 15 | 22 | 35 | 45 | 61 | 90 |
| Number of Lamps | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 2 | 3 |
| Lamp Lifetime (hours) | 9000 | | | | | | | 14000 | |
| Power Consumption (W ± 2%) | 40 | 80 | 80 | 160 | 260 | 335 | 400 | 440 | 660 |
| UV dose (mJ/cm2) @ UVT 99% | > 40 | | | | | | | | |
| UV chamber material | Black High Density Polyethylene | | | | | | | | |
| Max. Pressure (bar) | 6 | | | | | | | | |
| In - out connections (PN 6) | 1 $\frac{1}{2}$" F | 1 $\frac{1}{2}$" F | 2 $\frac{1}{2}$" F | 2 $\frac{1}{2}$" F | DN65 | DN80 | DN100 | DN100 | DN150 |
| Manual wiper | No | No | No | No | Optional | | | | |
| Electrical panel | LCD Type | | | | R-LCD Type | | | | |
| Electrical Supply | 230 V 50/60 Hz | | | | | | | | |
| Electrical Panel Dimensions (mm) | 215x215x90 | | | 400x300x200 | | | 500x400x250 | | |

| UVPE Series | UVPE110 | UVPE150 | UVPE250 | UVPE340 | UVPE470 | UVPE600 | UVPE830 | UVPE980 |
|---|---|---|---|---|---|---|---|---|
| Max. Flow rate (m$^3$/h) | 110 | 150 | 250 | 340 | 470 | 600 | 830 | 980 |
| Lamps | 2 | 3 | 4 | 5 | 7 | 8 | 10 | 12 |
| Lamp Lifetime (hours) | 16000 | | | | | | | |
| Lamp power regulation | (50 - 100%) TS Panels only | | | Yes (50 - 100%) | | | | |
| Power Consumption (W ± 2%) | 880 | 1300 | 1760 | 2180 | 3100 | 3500 | 4400 | 5300 |
| UV dose (mJ/cm2) @ UVT 99% | > 40 | | | | | | | |
| UV chamber material | Balck High Density Polyethylene | | | | | | | |
| Max. Pressure (bar) | 6 | | | | | | | 4 |
| In - out connections (PN 6) | DN150 | DN200 | DN250 | DN250 | DN300 | DN350 | DN400 | DN450 |
| Manual/Automatic wiper | Optional | | | | | | | |
| Electrical panel | Touch Screen or ECOLINE | | | | Touch Screen (TS) | | | |
| Electrical Supply | 230 V 50/60 Hz (380/400 V 50/60 Hz) | | | | | | | |
| Electrical Panel Dimensions (mm) | 400x500x300 | 400x750x250 | | 600x800x250 | | 800x1000x300 | | |



| Electrical Panel | LCD or R-LCD or ECOLINE | Touch Screen |
|---|---|---|
| Enclosure Material | Painted Steel | Painted Steel |
| Protection degree | IP 54 | IP54 |
| LCD Display (microprocessor control) | Yes | No |
| Touch Screen (65000 colours) | No | Yes |
| Multi-Language display | No | Yes |
| Hour meters (system and lamp life) | Yes | Yes |
| Digital Outputs | No | Yes |
| Red fault LED | Yes | No |
| Alarm relay free contact NO/ NC | Yes | No |
| Alarm relay 230 V NO/ NC outlet - 2A max | Yes | Yes |
| Remote On/Off | Yes | Yes |
| On/ Off timer | Yes | Yes |
| Display of Irradiation/ temperature control | Optional | Yes |
| CAN, Ethernet, USB, Seriale (modbus. TCP/IP, CANopen) | No | Yes |
| Remote access with App or Webgate | No | Yes |
| 4/20 mA output | Optional | Yes |
| Datalog - Events | No | Yes |
| UV dose calculation | No | Optional |
| Lamp power regulation | No | Yes |
| Flow meter input | No | Yes |
| UVT meter input | No | Yes |
| Flow and UVT duplication | No | Optional |
| Audio alarm | Optional | Optional |

# UV DW Series

- The DW UV series has been validated bio-dosimetrically, as it has been tested and certified by ÖNORM 5873-1 standards. This series also fulfill the EPA requirements contained in the Ultraviolet Guidance Manual, so you can have the utmost confidence in the quality of our equipment. This series also contains special mixing plates within the stainless steel 316L UV reactor chamber, that guarantees excellent distribution of water as shown by Computational Fluid Dynamics modeling (CFD).

| UVDW Series | DW4 | DW10 | DW40 | DW80 | DW120 | DW200 | DW400 |
|---|---|---|---|---|---|---|---|
| Max. Flow rate (m³/h) | 3.72 | 13.98 | 42.40 | 72.4 | 127.15 | 200.85 | 322.70 |
| Lamps | 1 | 1 | 6 | 2 | 3 | 4 | 6 |
| Lamp Lifetime (hours) | 9000 | 12000 | 9000 | | 16000 | | |
| Lamp power regulation | No | No | No | | Yes (50 - 100%) | | |
| Power Consumption (KW ± 2%) | 88 | 222 | 533 | 888 | 1333 | 1800 | 2700 |
| UV dose (mJ/cm2) | | | | > 40 | | | |
| UV chamber material | | | | SS 316L | | | |
| Max. Pressure (bar) | | | | 6 | | | |
| In - out connections (PN10) | 1"M | 2"M | DN100 | DN100 | DN150 | DN200 | DN250 |
| Automatic wiper | No | No | No | Optional | Yes | Yes | Yes |
| Electrical panel | LCD | Rack LCD | | Touch Screen (TS) | | | |
| Electrical Supply | | | | 230 V 50/60 Hz | | | |
| Electrical Panel Dimensions (mm) | 215x215x90 | 300x400x200 | 400x500x250 | | 400x750x250 | 600x800x300 | |

| Electrical Panel | LCD or R-LCD Type | Touch Screen |
|---|---|---|
| Enclosure Material | Painted Steel*  IP54 | Painted Steel*  IP54 |
| LCD Display (microprocessor control) | Yes | No |
| Touch Screen (65K) | No | Yes |
| Hour meters (system and lamp life) | Yes | Yes |
| Digital Outputs | No | Yes |
| Red fault LED | Yes | No |
| Alarm relay free contact NO/ NC, 230 V NO/ NC outlet -2A max | Yes | Yes |
| Remote On/Off, On/off time | Yes | Yes |
| Display of Irradiation/ temperature control | Yes | Yes |
| CAN, Ethernet, USB, Serial (modbus. TCP/IP, CANopen) | No | Yes |
| Remote access with App or Webgate | No | Yes |
| 4/20 mA output | Yes | Yes |
| Datalog - Events | No | Yes |
| UV dose calculation | No | Optional |
| Lamp power regulation | No | Optional |
| Flow meter input | No | Yes |
| UVT meter input | No | Yes |
| Flow and UVT duplication | No | Optional |
| Audio alarm | Optional | Optional |

*Stainless steel 304/316L upon request

## About ESCO International

ESCO International provides cutting edge water, waste water and gas effluent treatment solutions to industries around the world.

We have successfully developed the most environmentally friendly technologies available, helping organisations meet and exceed high purification standards and local and national regulations by providing simple, safe, clean and cost effective solutions.

ESCO International is a specialist supplier of engineered Ozone systems and skid packaged ozone solutions, UV systems, and Advanced oxidation processes (AOPs) for a wide range of applications .

We work with renowned engineering and water treatment companies , striving to provide the most effective solution that meets your needs.

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