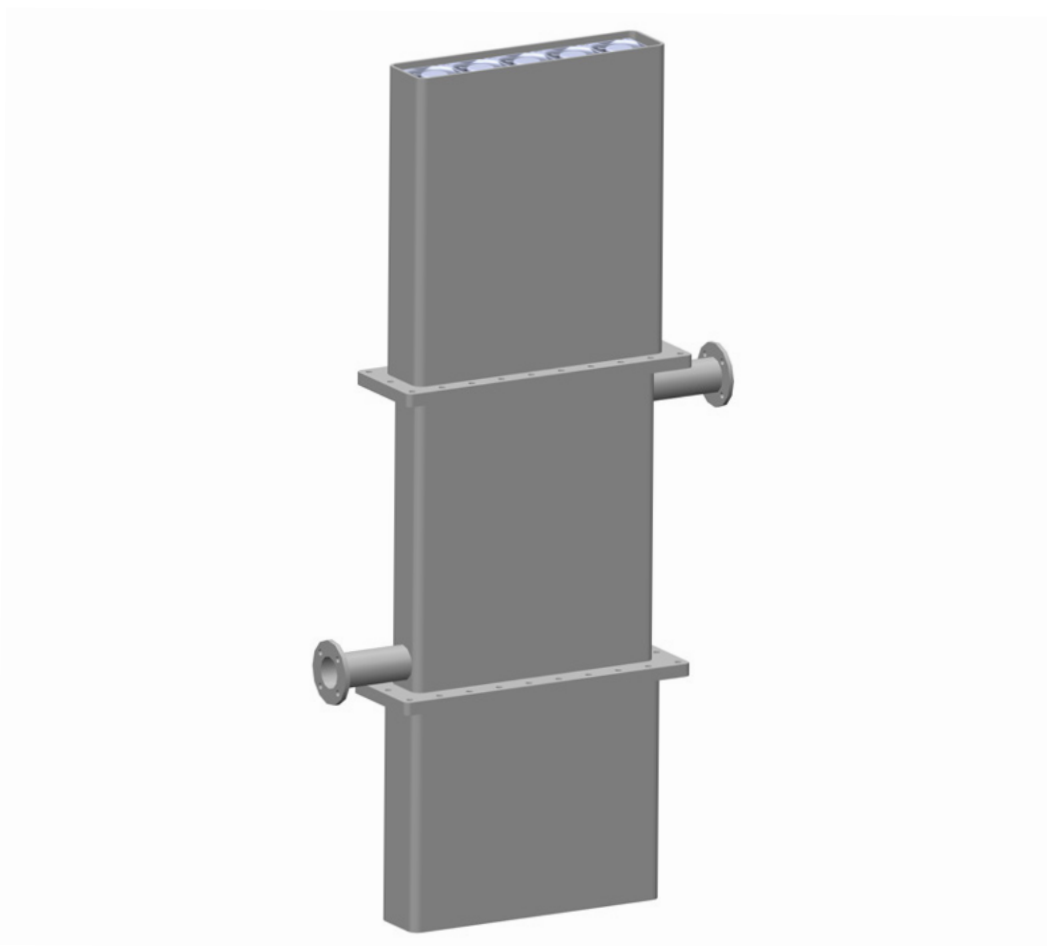


LED photoelectroreactors Industrial scale



The equipment

APRIA Systems has designed a series of flexible industrial photoreactors with LED technology.

We offer a wide range of models to adapt the equipment to our client's needs.

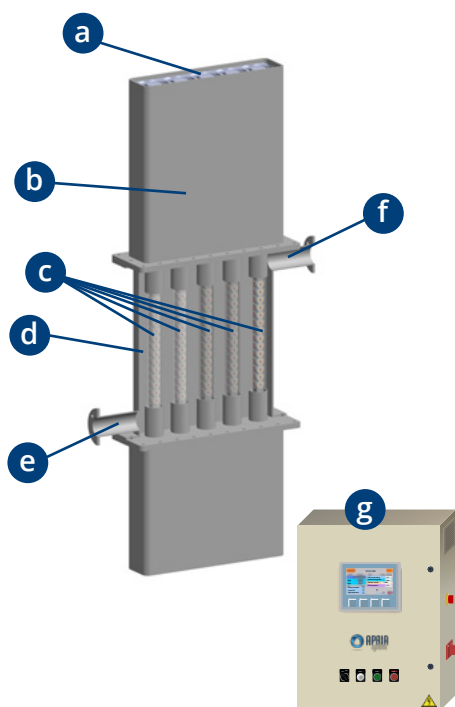
Each photoreactor has several lamps with up to two different

types of light –they cannot be used simultaneously–. UV-C, UV-B, UV-A, visible or IR light can be included. Each kind of light has independent control, and its radiation intensity can be regulated, offering an adjustment to the needs of the oxidation process under study.

The temperature of the LEDs is monitored and controlled through a forced air convection system, allowing for maximum efficiency and useful life.

Elements of the system

Each device consists of a photoreactor with several LED lamps and an electric cabinet with PLC to control the lamps. As optional features, we offer the possibility of adding automatization, a feeding tank, online measurements (pH, O₂, etc.), pumping, a system to recover of the photocatalyst, and temperature control.



- a** Ventilation system by forced air convection.
- b** Protection case that enables the coupling between the reactor and the lamps.
- c** Lamps. Each lamp comprises LEDs arranged in 4 aluminium strips surrounded by an external glass annulus.
- d** Stainless steel reaction vessel.
- e** Reactor inlet.
- f** Reactor outlet.
- g** Electric cabinet.



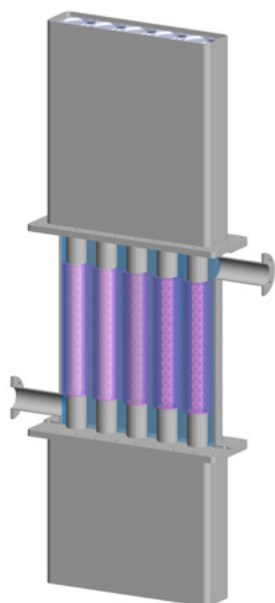
Annular lamps



LED technology



Adjustable radiation intensity



Operation

Operation is extremely simple:

1. Pump the fluid to be treated into the photoreactor.
2. Turn-on the electric cabinet.
3. Select the working type of light, adjust its radiation intensity, and switch-on the lamps.



Technical characteristics

Configuration	Single / double wavelength
Volume (L)	4 – 10
Radiation type	UV-C, UV-B, UV-A, visible, IR
Number of LEDs	112 – 280
Available wavelengths (nm)	UV-C: 265 – 285 (max. 275) UV-B: 295 – 305 (max. 300) UV-A: 365 – 370 Visible: 400 – 700 (max. 450) IR: 835– 875 (max. 850)
Typical radiant flux / LED (mW)	UV-C: 0.5 / UV-B: 29 / UV-A: 1,200 / visible: 1,200 / IR: 800
Adjustable radiation intensity	Yes, through an electric console with PLC
Power dissipation / LED (W)	UV-C: 1 / UV-B: 2.8 / UV-A: 2.7 / visible: 3.2 / IR: 1.8
Refrigeration system for the LEDs	Forced air convection
Automatic shutdown system	In the absence of inlet flow and / or high temperature values
Optional items	Automatization / Feeding tank / Online measurements (pH, O ₂ , etc.) / Pumping / System to recover the photocatalyst / Temperature control
Price	Upon request

We offer a wide range of alternatives to adjust our equipment to your needs. For tailored models, please contact us.