BIOSPECTRIX PVT LTD

Sustainable | Safe | Sun

Industrialization of Photochemistry

SUSTAINABLE
For a greener tomorrow

SAFE
For people and the planet

SUN
Powered by nature



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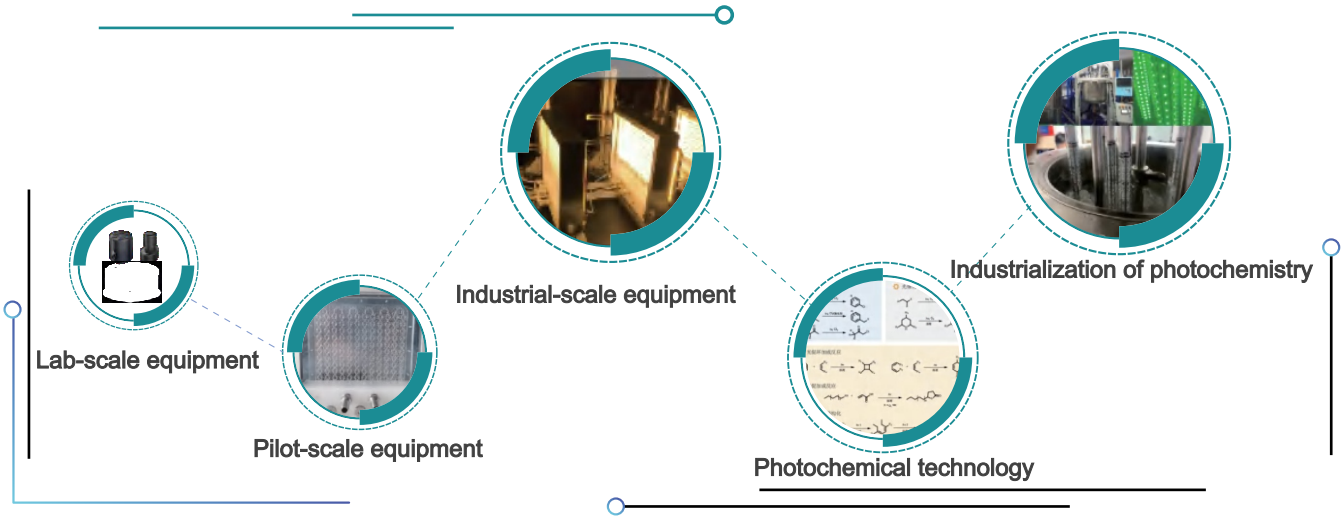
3S • Industrialization of Photochemistry

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Industrialization of Photochemistry



- Notions of 3S：Innovation, execution, collaboration and fighting
- Vision of 3S：Industrialization of photochemistry
- Mission of 3S：Green and safe production



AL Photoreactor for Labs



Product Orientation

Highly integrated integration of light, heat, and mass transfer.

Product Features

Multiple light waves: More than 100 types of high-purity narrow light waves, supporting 365–975 nm.
High-intensity light: Up to nearly 600 mW/cm², low light loss (light decay <5%/year).
Intelligent temperature regulation: Air cooling achieves temperature regulation (RT–40°C).
Built-in stirring: Built-in high-strength magnetic stirring, with a speed of 300–1500 rpm.

Application Area

For various photosynthetic reactions, AL greatly improves the efficiency of condition screening, substrate expansion, and mechanism research, and can be applied in fields such as **drug synthesis, material synthesis, and spice synthesis.**





Technical Data

Photoreactor AL		
Type	AL1	AL3
Operating point	6	
Adaptability	Adaptable for NMR-tube, 5/10/25/50/100mL reaction tube (other sizes can be customized)	
Wave	365~750 nm	365~975 nm
Light intensity	0~12W	0~15W
Power	Adjusted uniformly	Independent adjustment of each point
Temp. range	RT~40 oC, intelligent temperature control by fans	
Stirring (built-in)	300~1500 RPM	
Working voltage	100~240 VAC 50/60 Hz	
Dimensions	210*230*280 mm	
Weight	3.1 kg	
Alarm function	(1) Overtemperature alarm; (2) Temperature probe/mixing fault alarm	



AF Photoreactor for Labs



Product Orientation

Effectively solving the problems of light radiation and heat, distinguishing between light effects and photothermal effects.

Product Features

Accurate temperature control: Efficient thermal conductivity in metal contact, achieving precise temperature control (-20~80°C, with external temperature control equipment)

Convenient operation: The power of LED lights can be adjusted separately (0–15 W), and timing switch support (0~99 h)

Multiple light waves: More than 100 types of high-purity narrow light waves, supporting 250~975 nm

High-intensity light: Up to nearly 600 mW/cm², low light loss (light decay <5%/year)

Great compatibility: Suitable for 4/8/25/50 mL reaction tubes, other sizes can be customized

Application Area

For various types of photoreactions that require precise temperature control (such as low- or high-temperature), AF can provide a constant temperature to avoid environmental instability and the impact of light radiation on experimental repeatability. It can be applied in fields such as drug synthesis, material synthesis, and spice synthesis.





Technical Data

Photoreactor AF		
Type	AF3	AF-lite
Operating point	10	12
Adaptability	4/8/25/50 mL reaction tube	4~25 mL reaction tube
Wave	250-950nm， 6500 K（250~360nm requires customization）	
Replacement of LED lights	LED lights of different wavelengths can be replaced	
Power	0~15 W	0~12 W
Light intensity	Independent adjustment of each point	Adjust every 2 sites (6 groups)
Wave	-20~80 ℃（±2 ℃）	rt~40 ℃
Stirring (built-in)	300-2500 RPM	
Working voltage	100~240 VAC 50/60Hz	
Dimensions	230*240*107 mm	
Weight	6.8 kg	5.8 kg
Other functions	(1) Overtemperature alarm; (2) Fault alarm; (3) Pre time and timed	



AS Single Point Photoreactor

Product Orientation

Comprehensively expand the range of light waves and optical control accuracy.



Product Features

Light control: Electric power control accuracy up to 10 mW.

Light wave: 250–975 nm, with nearly a hundred specifications available for selection.

Light intensity: Up to nearly 700 mW/cm², low light loss (light attenuation <5%/year).

Adaptation: Suitable for NMR tubes, 5/10/20 mL reaction bottles, 25/50/100 mL reaction tubes.

Application Area

Research on synthesis reactions involving various types of light, especially in the deep ultraviolet region, effectively improves the efficiency of condition screening, substrate expansion, raw material preparation, etc. It can be applied in fields such as drug synthesis, material synthesis, fragrance synthesis, and reaction mechanism research (such as quantum efficiency calculation).



Technical Parameter

Photoreactor AS		
Product model	AS1- A	AS1-V
Light source	250~365 nm	365~975 nm
Power	0~9 W	0~12 W
Light intensity adjustment	±10 mW Adjustable	
Adaptation specifications	NMR tube, 5/10/20mL reaction bottle, 25/50/100mL reaction tube	
Working temperature	Intelligent air cooling	
Working voltage	100~240 VAC 50/60 Hz	
Dimensions	210*230*280 mm	
Body weight	3.1 kg	
Other functions	The reaction time can be timed; Without stirring	



AK High-throughput Photoreactor



Product Orientation

High throughput parallel synthesis, compatible with multiple reaction forms.

Product Features

High adaptability: 6, 12, 24, 96, 254, microfluidics.

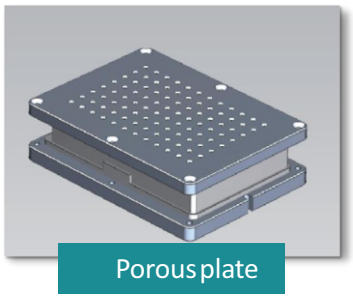
Stable parallelism: Unified light source, parallel adjustment.

Strong temperature control: Optional temperature control function.

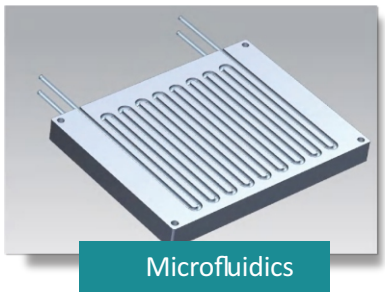
Strong illumination: 200W high-intensity illumination, continuously adjustable.

Application Area

Suitable for batch parallel experiments, effectively improving experimental research efficiency, widely compatible from chemistry to biology, from batch to flow.


Porous plate


Petri dish


Microfluidics


Beaker


Sample bottle


Reaction tube

Less space constraints and convenient adaptation of reaction containers

Get rid of container limitations and achieve high-throughput parallel screening in small spaces.

Technical Parameter

High-throughput Photoreactor AK	
Product model	AK2
Reaction site	1、6、12、24、96、254……
Adaptation specifications	0-500 mL，compatible with sample bottles, porous plates, beakers, and microfluidics
Light wave	250-975 nm，6500 K（250-360 nm customization required）
Light source	Replaceable
Power	200 W
Light intensity adjustment	Adjustable
Temp.range	rt~75 ℃
Working voltage	100~240 VAC 50/60 Hz
Dimensions	200*200*120 mm
Body weight	4.5 kg

AM Open Light Source







Product Features

High intensity lighting: Monochrome LED light source
Supporting wavelength: 250–975 nm (±10 nm)
Power: 0–80 W, adjustable
Spot angle: 39°
Size: 63 × 122 mm

AE Fiber Point Light Source (Customized)

Product Features

Light source: LED cold light source

Wavelength: 250–975 nm (LED light source)

Power: Customized as needed, adjustable

Fiber optic interface: Customized as needed



AN Built In Point Light Source (Customized)

Product Features

Wavelength: LED light source, 250–975 nm

Power: 2 W / 10 W, adjustable light intensity

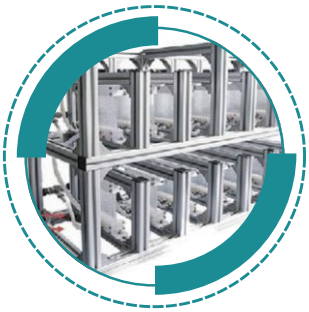
Applicable: High temperature and ultra-low temperature environment

Other: Higher power can be customized





Flow Photoreactor



FG series



FQ series



FP series

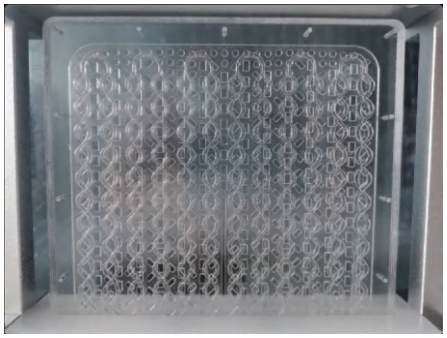


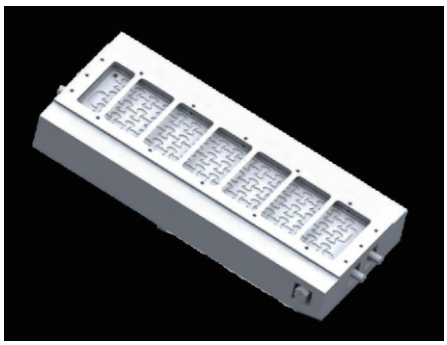
FT series

10mL~ | 100mL~ | 1L~ | 10L~

- Chlorination
- Bromination
- Oxidation
- Sulfonation
- Coupling reaction
- Cycloaddition
- Isomerization
- Polymerization
- Nitrosylation
- Degradation
- Heavy atomization
- Recovery of heavy metals

Channel Mode Selection

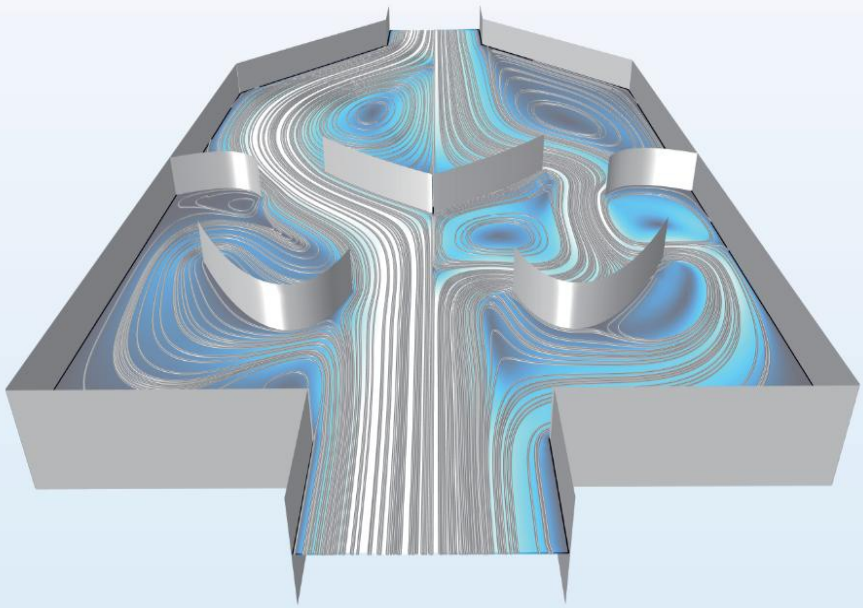






Mode	FG	FQ	FP
Material	Glass	Quratz	Polymer
Liuide Holdup	20/80/100 mL	18 mL	500 mL
Wave	365-950 nm	250-950 nm	365-950 nm

Patent Channel Enhanced Mass Transfer

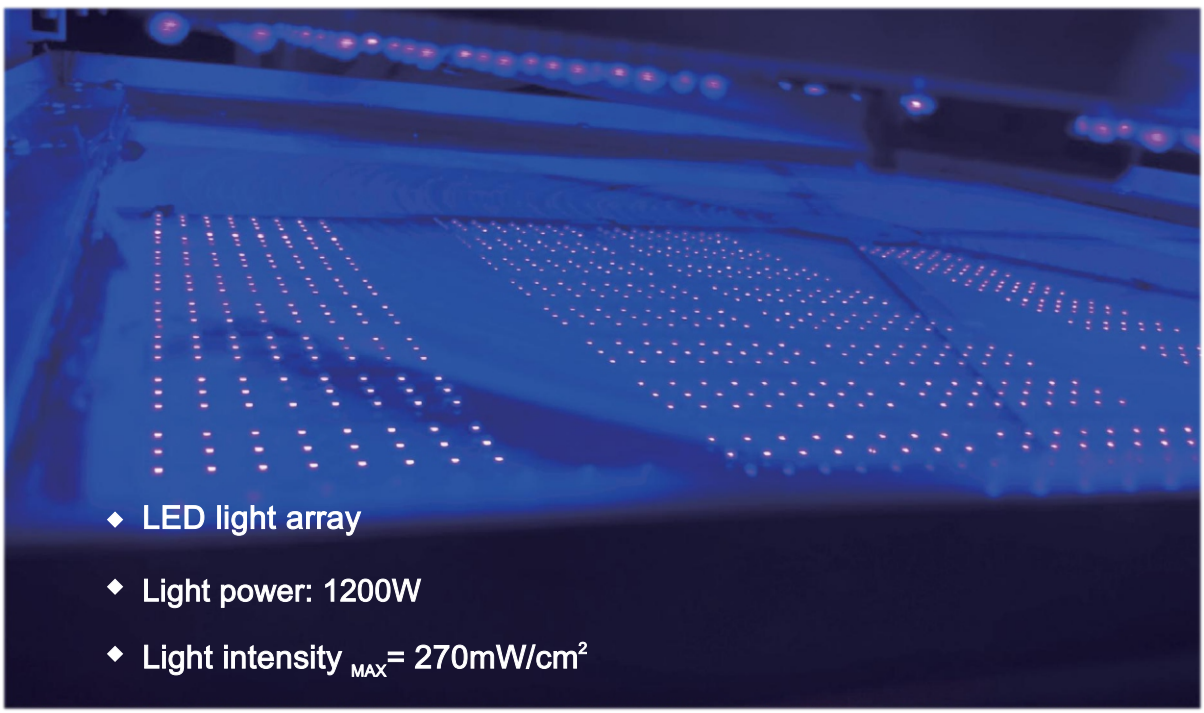


FG Photoreactor *for Flow Chemistry*



- Model: FG-20(n) / FG-100(n)
- Wave: 365-950 nm can be provided *(The peak w-avelength between the two specifications is spaced at 10n m intervals)*
- Power: 400*n W&¬2000*n W&¬adjustable
- Liquid holdup: 20 mL or 100mL per unit
- Reactor material: High borosilicate glass
- Pressure: ≤ 1.2MPa
- Tempreture: 0~50 °C





Effect of LED light array illuminated

FQ Photoreactor

for Flow Chemistry



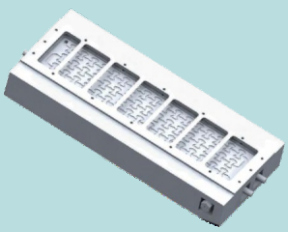
FQ-18 single unit

- Model: FQ-18(n)
- Wave: 250-950 nm
- Power: 500*n W&¬2000*n W&¬adjustable
- Liquid holdup: 18 mL per unit
- Reactor material: 316L or Quartz
- Pressure: ≤ 0.5 MPa
- Tempreture: 0~50 °C

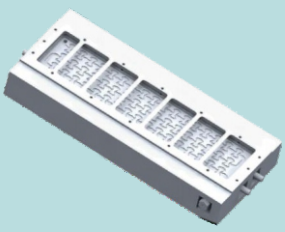
- Multi-unit channel free combination
- Fast pilot scale up



FQ-18(30) skid mounted equipment









FP Photoreactor *for Flow Chemistry*



- Model: FP-500/2000/6000mL
- Wave: 360~950 nm
- Power: 1500*n W&¬adjustable
- Liquid holdup: 500/2000/6000ml
- Reactor material: Polymer
- Pressure: ≤ 1 MPa
- Tempreture: 0~80℃

- Kilowatt, million watt LED light array
- Peak optical power≥ 360 mW/cm²
- ≥ 6000 mL liquide storage capacity
- Produce 5-30kg of product per day



FP-6000

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F Series

Complete Solutions for Flow Equipment

Development of Photochemical Equipment Based on Field Effects

R&D

- Parallel light reactor
- High throughput photoreactor
- Multifunctional lighting box
- Precision light source series

Pilot

- Desktop panel
- Desktop cylinder

Production

- Polymer flow skid-mounted
- Quartz flow skid-mounted
- Glass flow skid-mounted
- Kettle photoreactor



Polymer skid-mounted



Quartz skid-mounted



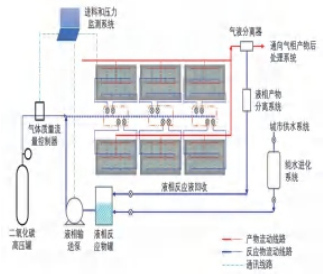
Glass skid-mounted



Kettle photoreactor



Tubular microfluid



Intelligent flow solution

Systematic landing of photochemical industrialization equipment to meet various application scenarios of scientific research, pilot testing, and production

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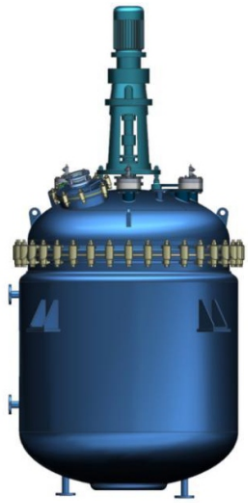
Batch Photoreactor

IS/ IG / IE Series

- IS: Metalkettle
- IG: Glasskettle
- IE: Enamelkettle



Industrial grade light kettle can be customized



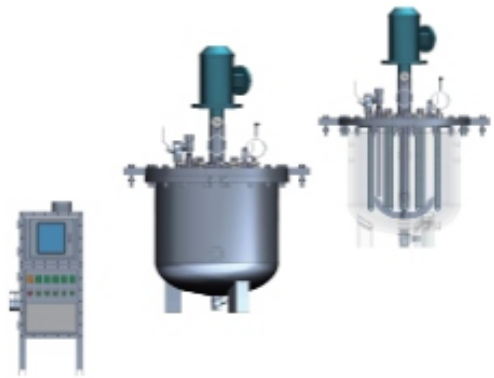
3000L photochemical reaction kettle

- Model£º IS / IG / IE
- Applicable wavelength£º 250~975 nm
- Light source power£º 250/1000/3000 W*n (customized), adjustable
- Liquid holding capacity£º 1~3000 L ，with various personalized customization options
- Material of the kettle body£º Metal/glass/enamel



IG series

- Gas-liquid two-phase reactor
- Suitable for 1/2/5 L
- 0-250W adjustable



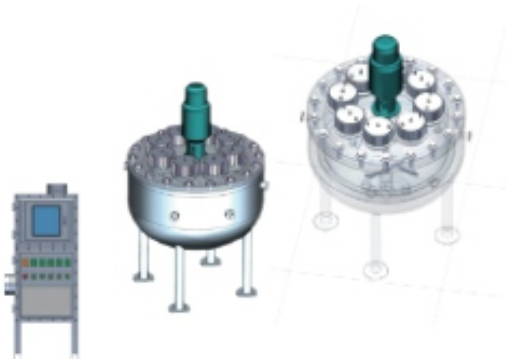
IS series

- Liquid-liquid reactor
- Suitable for 1/2/5 L
- 0-250W adjustable



IE series

- 316L stainless steel kettle
- 50/100/500 L
- Kilowatt and ten thousand watt power
- More needs can be customized



IM series

- Glass kettle
- 10/50/100L
- Kilowatt and ten thousandwatt power
- More needs can be customized

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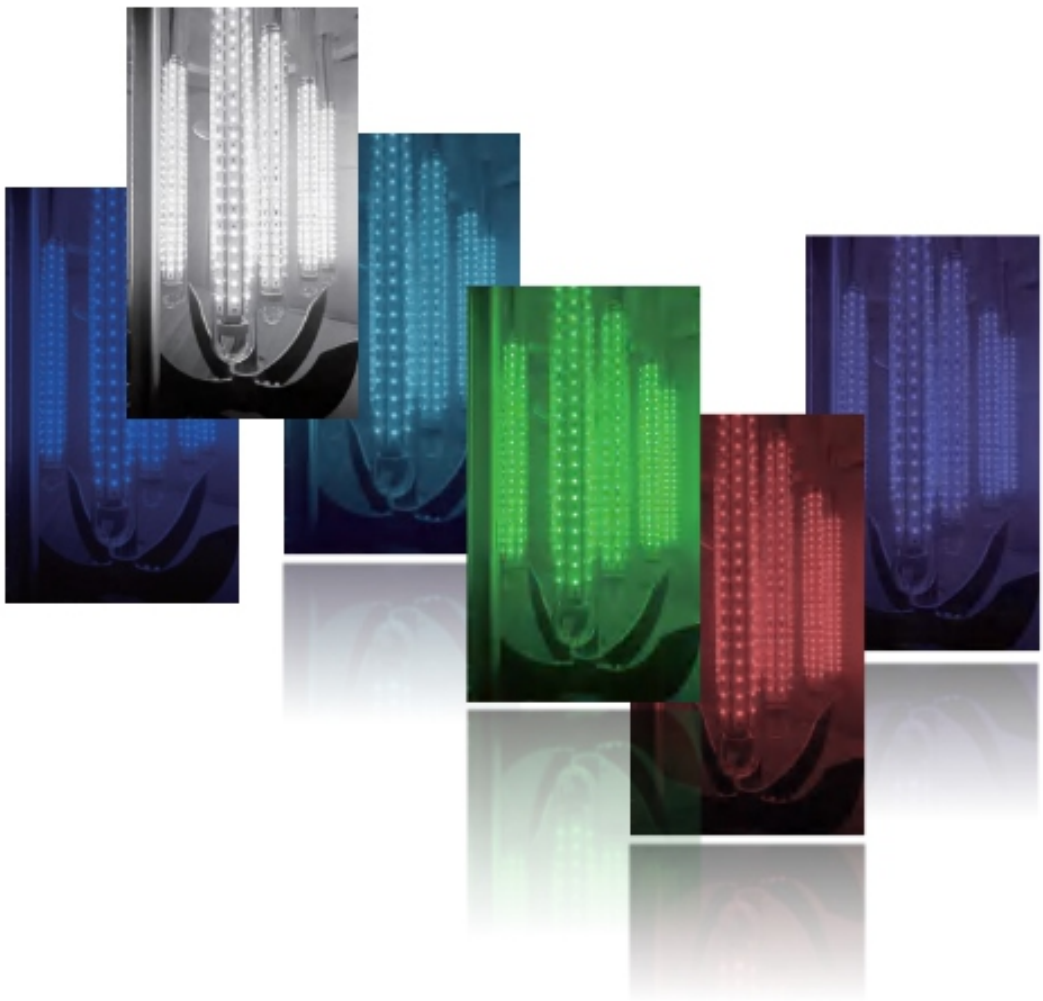


I Series

A Complete Solution for Kettle Type Equipment

C L Series Cylindrical Light Source

- Power: 100-3000 W for a single light source, customized as needed
- Light wave: Available at 250-950nm
- Suitable for various sizes of glass kettles, metal kettles, and enamel kettles





- Gas-liquid two-phase reactor
- Adapted to 1/2/5 L
- 0-250W, adjustable



- Liquid liquid reactor
- Adapted to 1/2/5 L
- 0-250W, adjustable



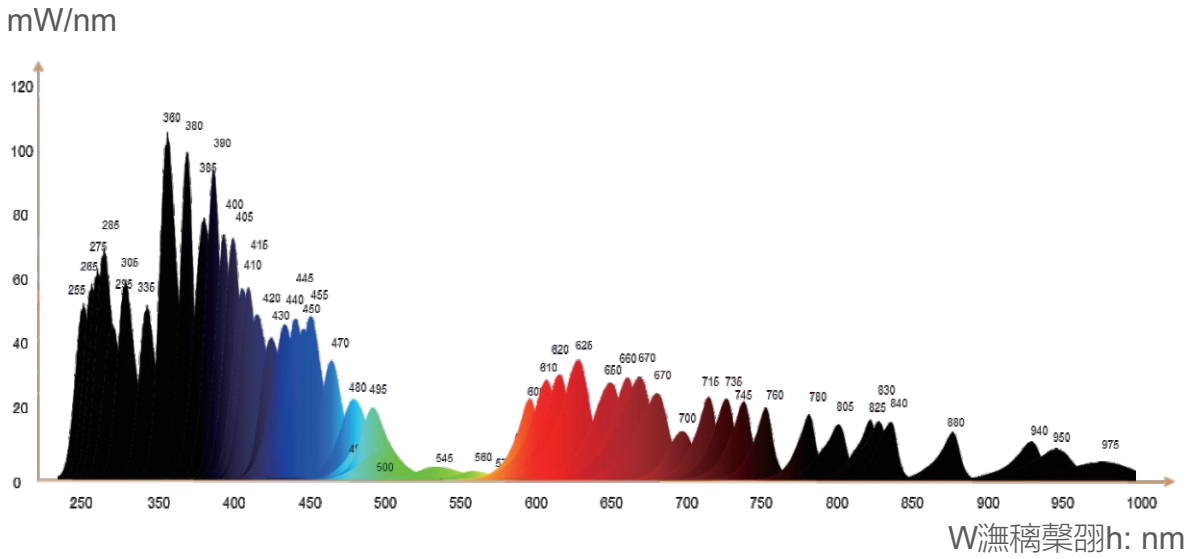


- 316 L stainless steel kettle
- 50/100/500 L
- Kilowatt/10000 watt level power
- More needs can be customized

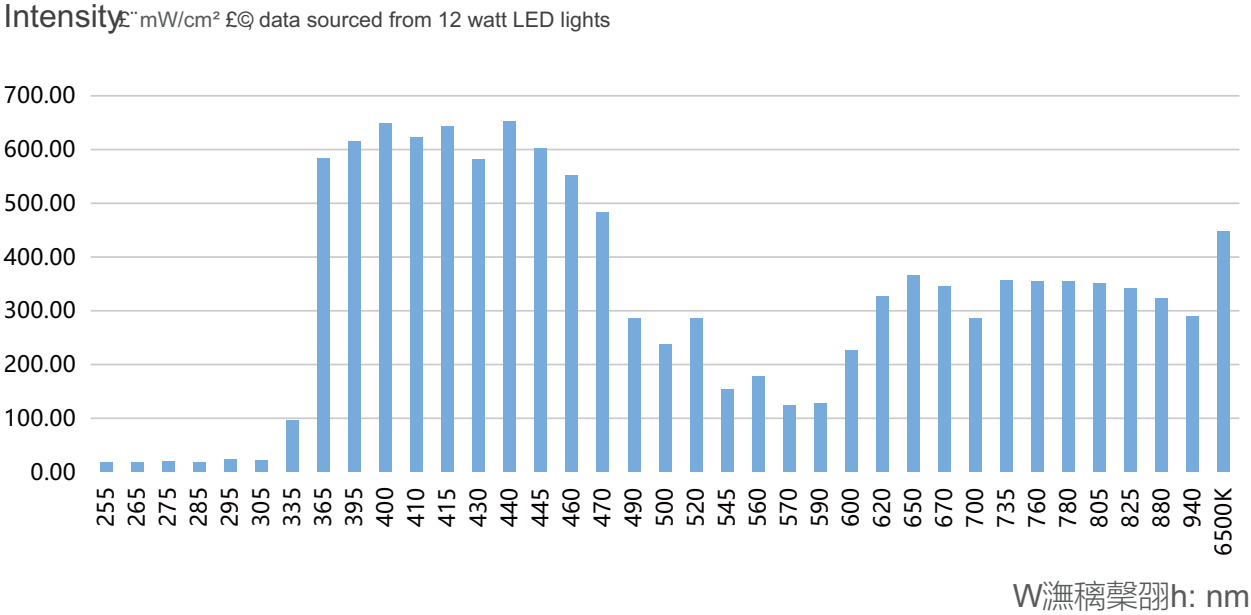


- Glass kettle
- 10/50/100 L
- Kilowatt/10000 watt level power
- More needs can be customized

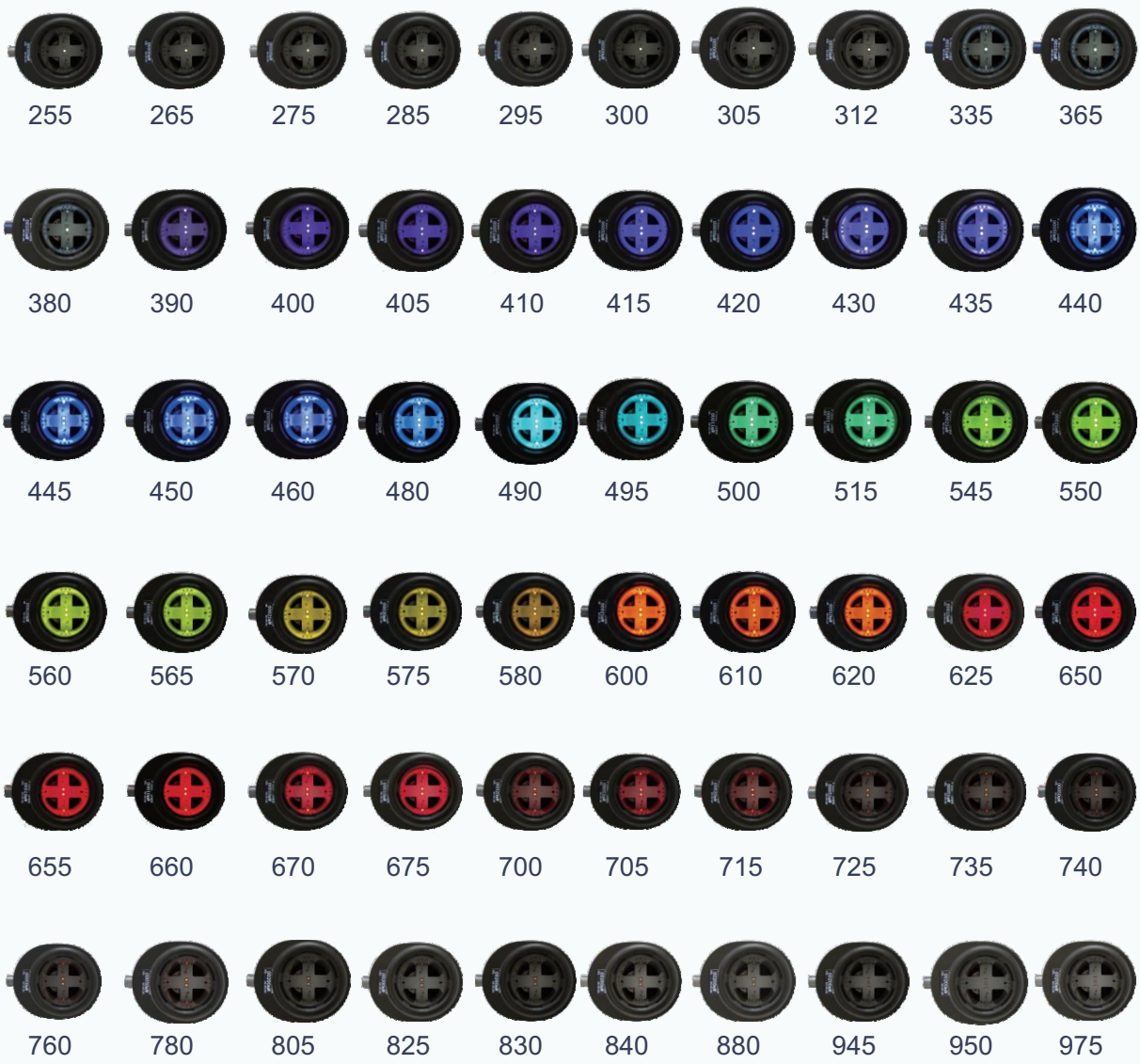
Spectrum of LED with Different Wavelengths (250-975 nm)



Illumination Intensity of LED with Different Wavelengths (250-975 nm)



Available Wavelengths



The above wavelengths are only partially displayed. For more details, please contact us.

Photochemistry • Application Cases

HAT Platform

Hydrogen Atom Transfer

Chlorination/Bromination

C-C Fracture

C-H Activation

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SET Platform

Single Electron Transfer

Oxidation

Fluorination

Coupling Reaction

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E_T Platform

Energy Transfer

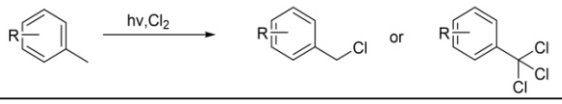
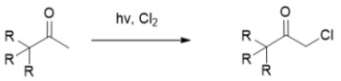
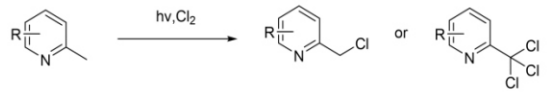
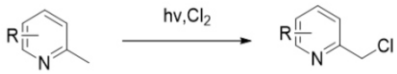
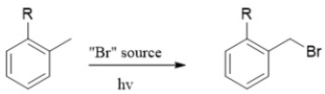
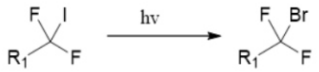
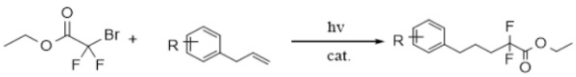
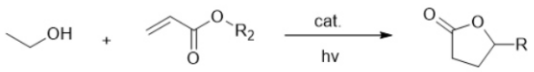
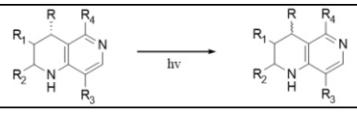
Cyclization

Addition Reaction

Double Bond Migration

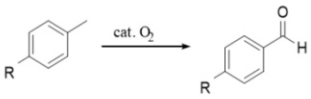
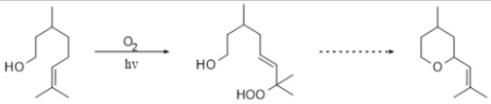
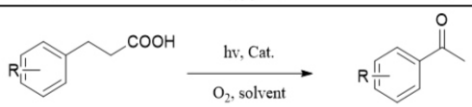
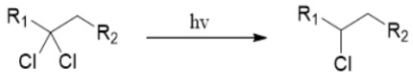
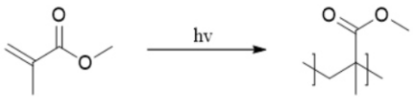
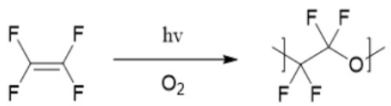
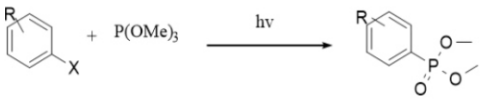
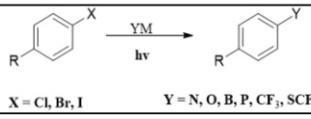
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HAT Platform

Chlorination reaction		New material intermediate Tens thousands of tons per year
		Material intermediate Thousands of tons per year
		Pesticide intermediate Thousands of tons per year
		Pesticide intermediate Thousands of tons per year
Bromination reaction		Pesticide/pharmaceutical intermediate Thousands of tons per year (Over hundred chemical intermediates)
Halogen substitution		New materials and pharmaceuticals Hundreds of tons per year
Fluoridation reaction		Pharmaceutical intermediate Tons per year
Free radical addition reaction		Spice compound Thousands of tons per year
Racemization		Finerenone

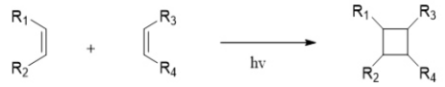
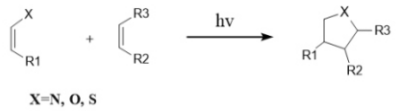
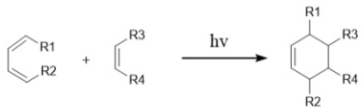
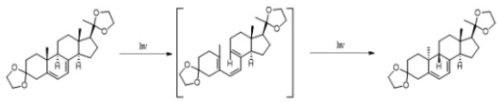
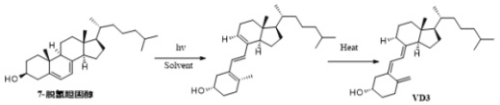
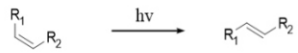
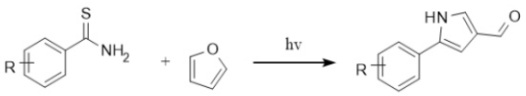
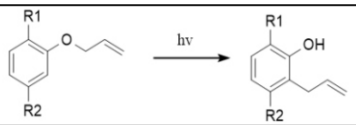
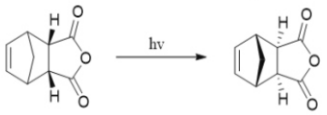
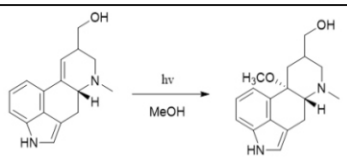
Photochemistry • Application Cases

SET Platform

Oxidation reaction		Spice compound/ Pharmaceutical intermediate Hundreds of tons per year
Oxidation reaction		Rose oxide Hundreds of tons per year
Oxidation reaction		Pharmaceutical intermediate Tens of tons per year
Dehalogenation reaction		Pharmaceutical intermediate Tons per year
Polymerization reaction		New material intermediate Polymethyl methacrylate Thousands of tons per year
Polymerization reaction		New material intermediate Z-type perfluoropolyether Thousands of tons per year
Phosphate ester		Pharmaceutical intermediate Hundreds of kilograms per year
Coupling reaction		Chemical intermediate Kilogram custom synthesis

Photochemistry • Application Cases

E_T Platform

2+2 cycloaddition reaction		Pharmaceutical intermediate Hundreds of kilograms per year
3+2 cycloaddition reaction		
4+2 cycloaddition reaction		
Selective ring addition		Dydrogesterone intermediate Tons per year
Steroidogenic ring opening		Vitamin D3 Vitamin D2 25-HydroxyvitaminD2
Double bond isomerization		Pesticide intermediate Hundreds of tons per year
Photochemical rearrangement		Pharmaceutical intermediate Tons per year
Photochemical rearrangement		Pharmaceutical intermediate Hundreds of tons per year
Configurational isomer		Pharmaceutical intermediate Tons per year
Double bond addition reaction		Nicergoline



Empowering Industrialization of Photochemistry.