



Introduction of HECHUANG UVC Fluid Disinfection Module



About US



Shenzhen Hechuang Hitech CO., LTD. is located in the forefront of reforming and developing region - Shenzhen, which is mainly concentrating on UVC-LED sterilization products. We are committed to providing one-stop purification services to families, schools, enterprises, factories and other working and living scenes.

The customized optical energy UVC sterilization module designed by Hechuang Hitech can be widely used in various life scenes, such as office drinking water, public water intake, household water disinfection, air purification, refrigerator and other household appliances. Moreover, it has a very efficient killing effecting treatment of total Escherichia coli, heat-resistant coliform, Escherichia coli, Staphylococcus, Salmonella and influenza virus. Our module can be implanted into all kinds of popular purifiers that we have on the present market. Letting the products has a strong UV disinfection function, so that the performance of the product can be more effectively played.

Our company have four factories specialized in CNC Machining Parts and Plastic Injection Molding since 2005 with ISO9001:2015 & IATF16949 Certified. We have more than 320 sets high precision equipment, more than 800 workers , 87 sales, 20 after-sales, more than 50 R&D staff and Designers . We are engaged in the production of small and medium size machined elements from all types of metal and plastic to order. We offer turned and milled machined parts of various types of material (steel, stainless steel, aluminum, plastic , parts can be processed with CNC or conventional machines).

Our vision is to become a company that provides purification solutions for factories, enterprises, schools, families and other office and living environments. We will make unremitting efforts to escort our beautiful life!

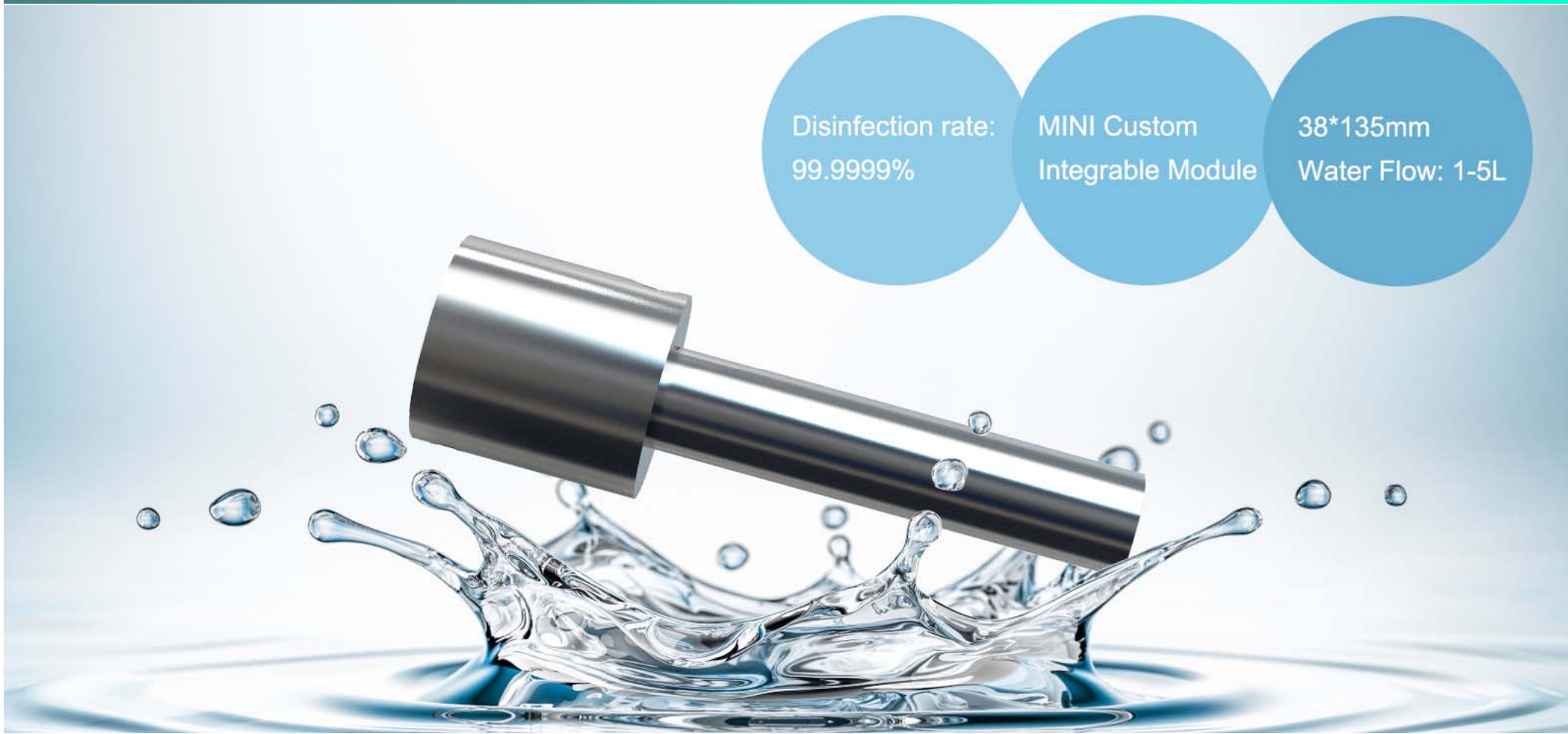


UVC Fluid Disinfection Module

Disinfection rate:
99.9999%

MINI Custom
Integrable Module

38*135mm
Water Flow: 1-5L





Unique Patent for UVC Reactor

Strike UV-LED Module Platform is proven to offer up to 6-Log reduction
(>99.9999% disinfection)



Single Log Module



Double Log Module (More effective)



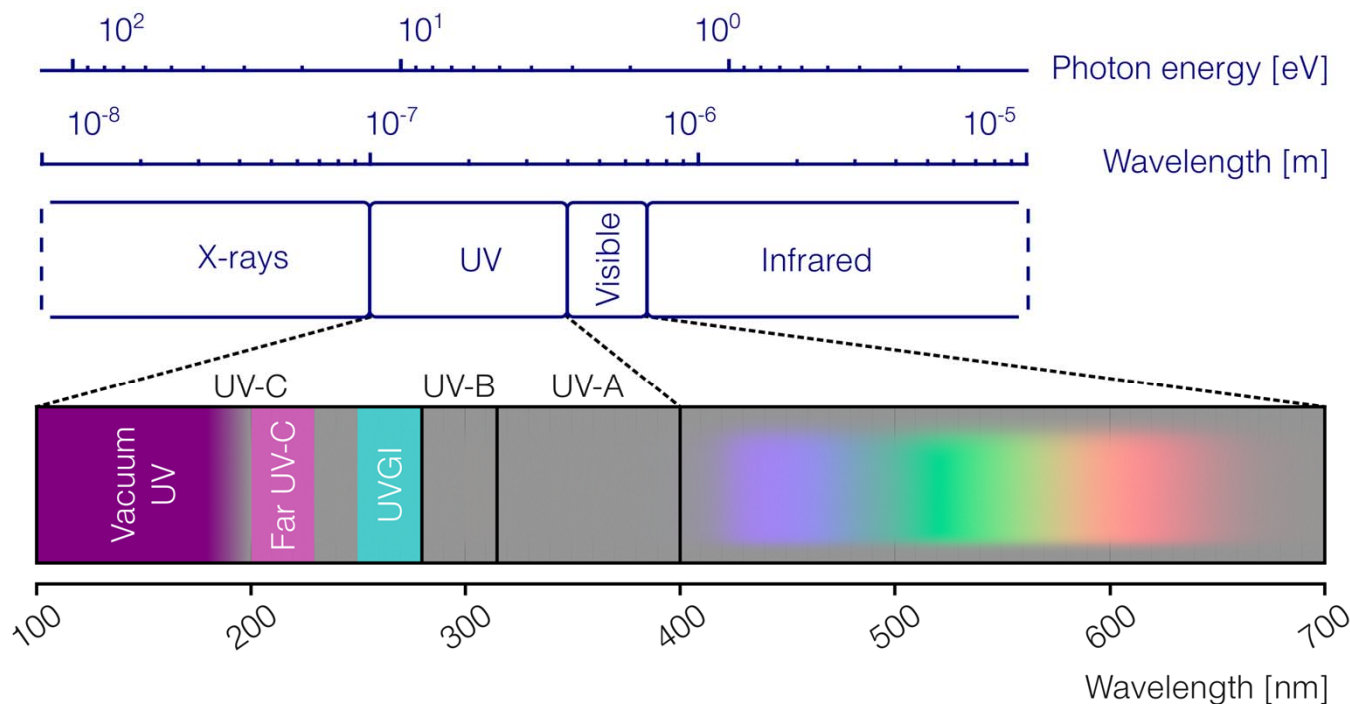
National Utility Model Patents





How UV Sterilization Works

UV disinfection utilizes strong short-wavelength (250–280nm) radiation to inactivate microorganisms by destroying the nucleic acids and disrupting their DNA, leaving them unable to perform vital cellular functions which makes UV one of the fastest growing disinfection technologies.



Visible spectrum render from https://commons.wikimedia.org/wiki/File:Rendered_Spectrum.png
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Our Patent of UV-LED Reactor Technology

Excellent Design

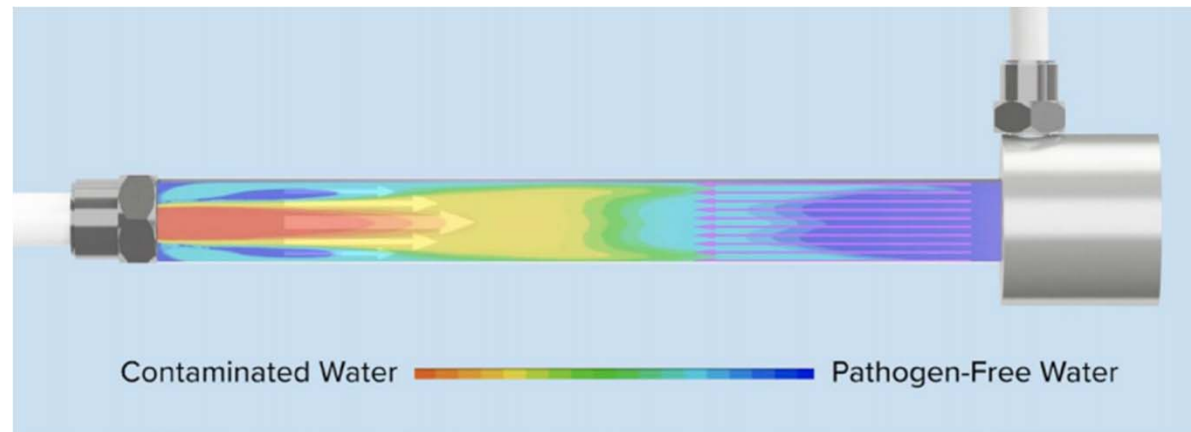
Customizable innovate Module design from Single LED to Complex Serialization multiple LED. Assure High disinfection effecton on high flowing rate through engineering customized flowing channel and specially designed UV-LED rate.

Customizable, easy to be integrated

The Reactor will be activated according to the flowing sensor, low energy consumption and long life. Intelligent energy-saving, self-cooling & self-monitoring design, maintenance-free operation.

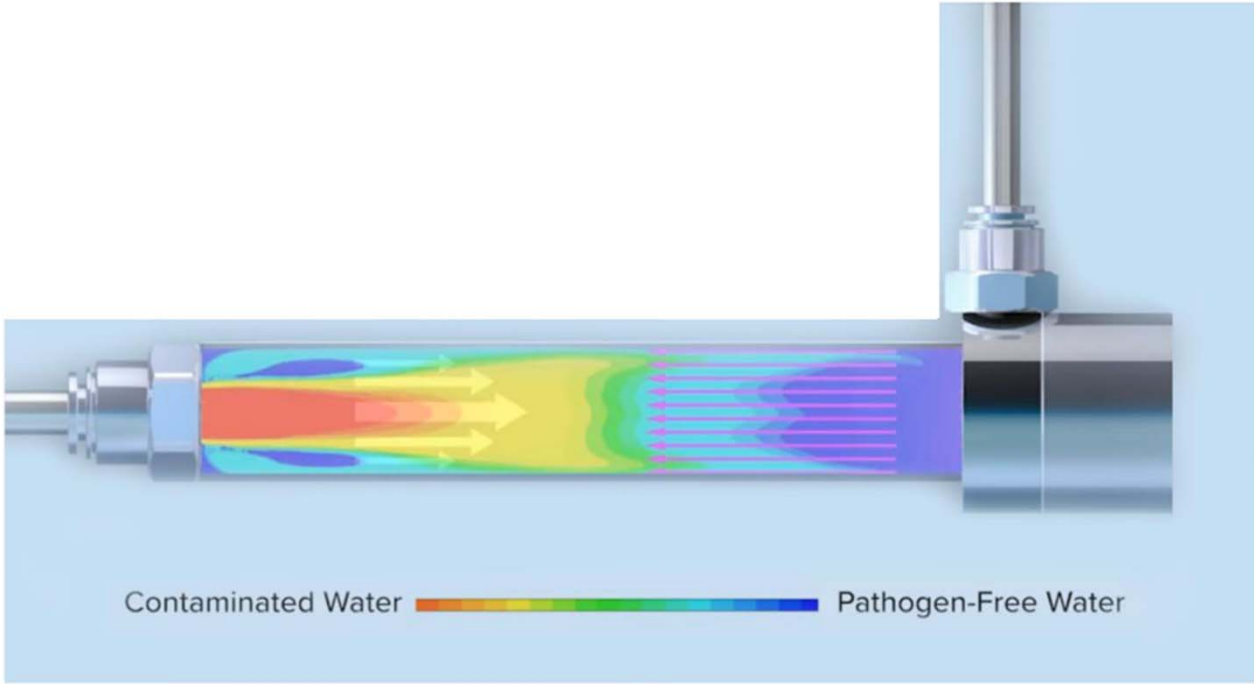
Conception of Patent of UV-LED

Excellent disinfection to the whole volumn by optimized the Optical system in the Hydrodynamic design and created controlled optical environment based on matched flowing speed and ultraviolet radiation.





Advantage



LOW POWER CONSUMPTION



LONG LIFE TIME & NO PERFORMANCE



NO MAINTENANCE NEEDED



FLOW-ACTIVATED POWER ON/OFF



OEM Custom Module

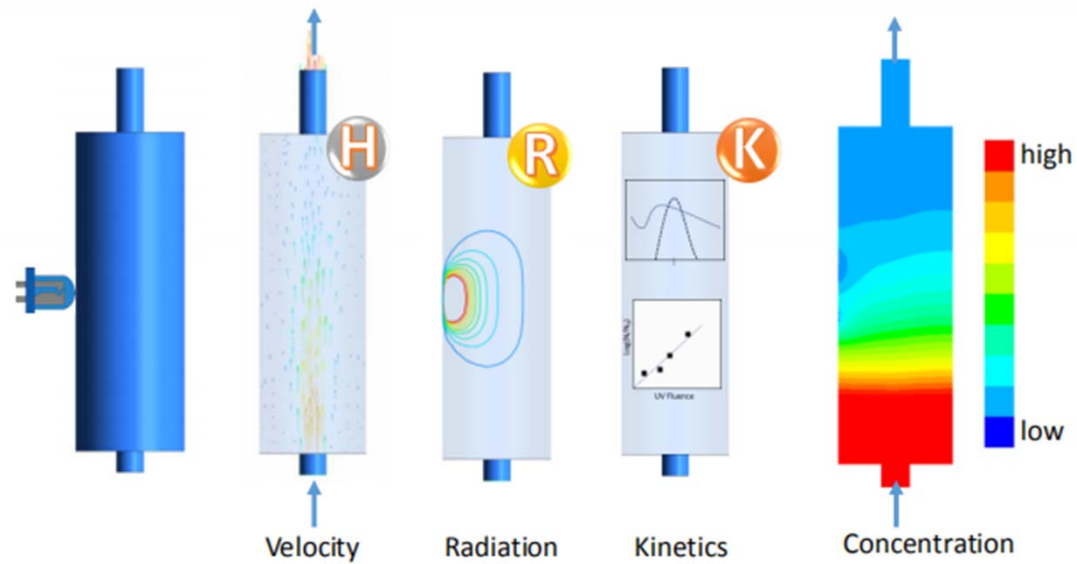


Technical Expertise & IP

Original and Complex UV Technology

Protect the high quality of product and leadership of market with our own patent of technology.

Our own series of IP
Property related with UV-
LED.





Advanced UV-LED Expertise

Technological Innovation to Enable Cutting-edge UV-LED Reactor Design

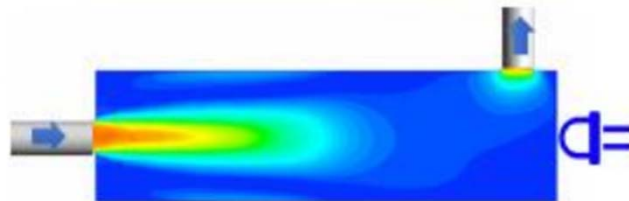
UV-LED Reactor Design

Flow & Radiation Modeling and Reactor Virtual Prototyping

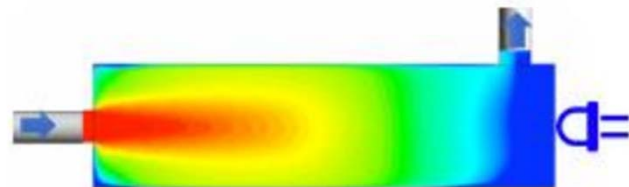
Radiation Modeling



Flow Simulation

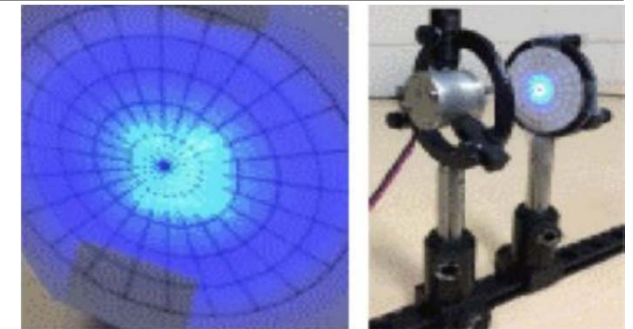


Reactor Performance Optimization



Optical & Hydrodynamic Validation

Optical Measurement

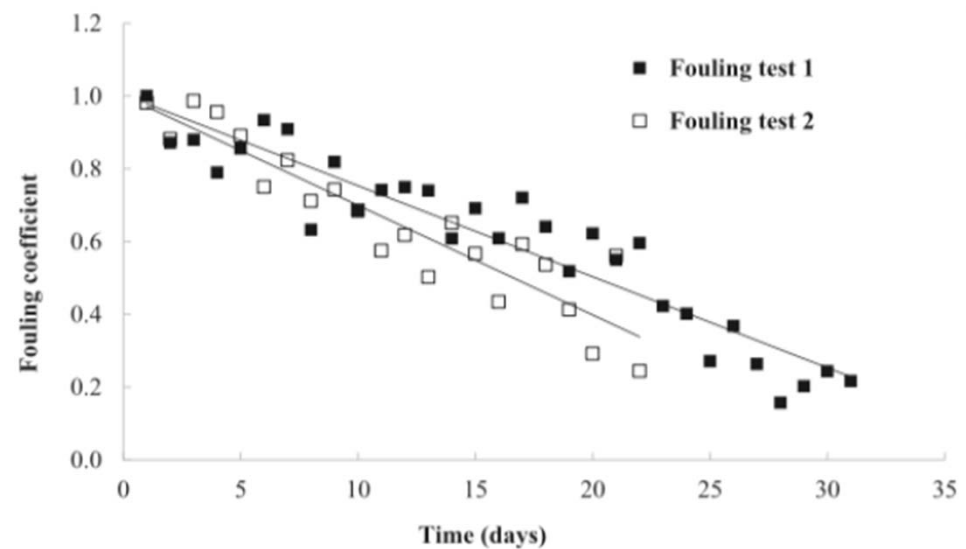
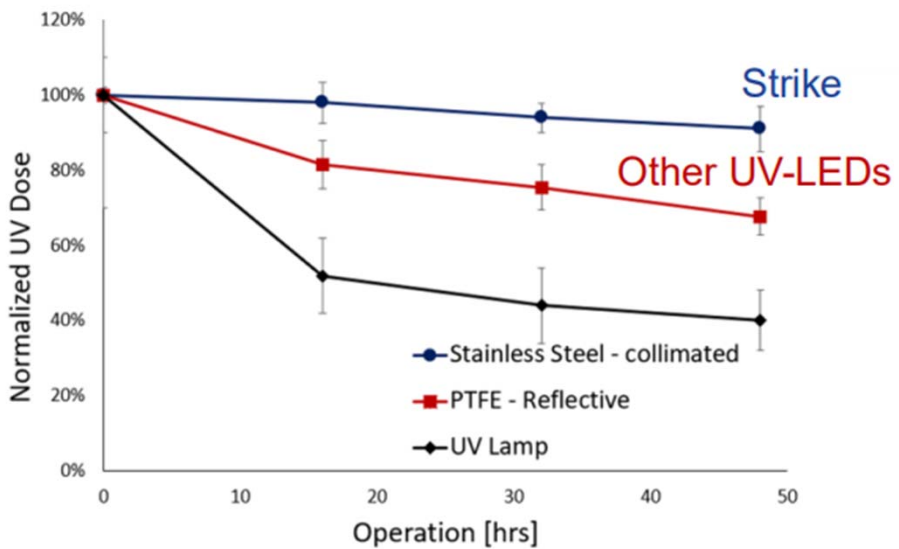


Flow Visualization





Reliability and Safety



Coefficient of Disinfection Efficacies During Continuous Operation
Source: Application of a novel, continuous-feeding UV-LED system to disinfection domestic water for discharge or agricultural use, TMH Nguyen et al. Water Research



Advanced UV-LED Expertise

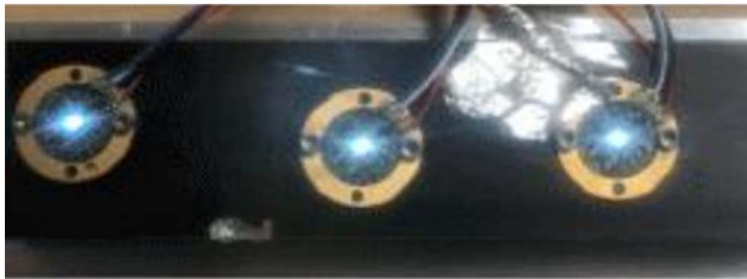
Highest Disinfection with Best Use of UV Photons

LED Characterization to Validate Reliability

LED/Device
HALT Test

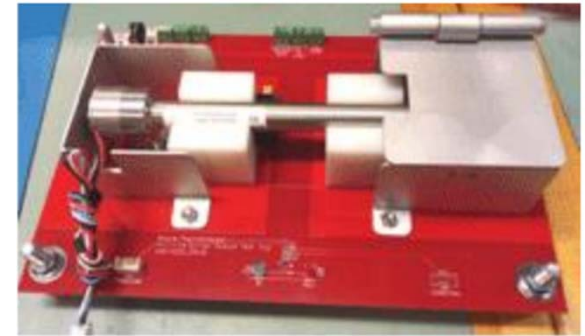


UV-LED
Lifetime Test

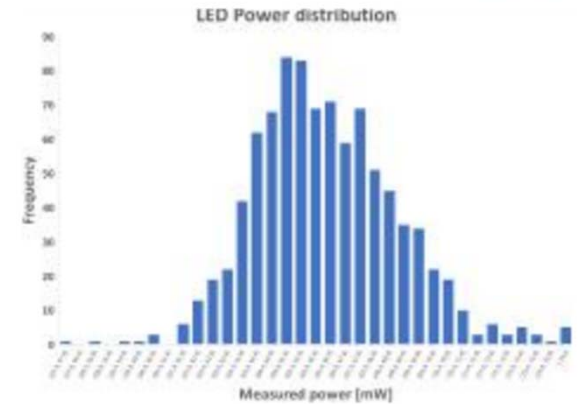


Manufacturability Tests for UV-LED Volume Handling

Module Test
Apparatus



Quality Control for
Mass Manufacturing





Advanced UV-LED Expertise

UV-LED Reactor Design

- UV Optics Design & Simulation
- Hydrodynamic Modeling & Control
- UV Reactor Performance Simulation
- UV-LED Thermal Management
- Mechanical Design
- Electronics Design
- Software Development
- Design for Manufacturability (DFM)
- Experimentation, Testing & Evaluation
- Bioassay Validation





Effective Disinfection



Similar to other ssRNA viruses like SARS-CoV-2

Microorganism	Type	Others	Strike I/2LPM	Strike II/2LPM
		竞品	Strike I/2LPM	Strike II/2LPM
		2-log <i>E.coli</i> (99%) 6.4 mJ/cm ²	4-log <i>E.coli</i> (99.99%) 8.9 mJ/cm ²	6-log <i>E.coli</i> (99.9999%) >12.1 mJ/cm ²
<i>Citrobacter</i>	柠檬酸杆菌	Bacteria	2-log	6-log
<i>Klebsiella</i>	克雷白氏杆菌	Bacteria	2-log	6-log
<i>Legionella</i>	军团杆菌	Bacteria	3-log	>6-log
<i>Pseudomonas</i>	假单胞菌	Bacteria	2-log	6-log
<i>Salmonella</i>	沙门氏菌	Bacteria	2-log	>6-log
<i>Staphylococcus</i>	葡萄球菌	Bacteria	2-log	6-log
<i>Shigella</i>	志贺氏杆菌	Bacteria	2-log	>6-log
<i>Cryptosporidium</i>	隐孢子虫	Protozoa/Cysts	2-log	5-log
<i>Giardia</i>	贾第鞭毛虫	Protozoa/Cysts	1-log	4-log
<i>Encephalitozoon</i>	脑胞内原虫	Protozoa/Cysts	1-log	5-log
Hepatitis A/Influenza	甲型肝炎/流感病毒	Virus	1-log	3-log
<i>Calicivirus</i>	杯状病毒	Virus	-	3-log
<i>Poliovirus</i>	脊髓灰质炎病毒	Virus	-	2-log
<i>Coxsackievirus</i>	柯萨奇病毒	Virus	-	2-log
<i>Rotavirus</i>	轮状病毒	Virus	-	2-log
<i>Echovirus</i>	艾柯病毒	Virus	-	2-log

Hechuang Products (UVC Water Purifier-no filter)



Item	Description	Item	Description
Product NO.	UVC Water Purifier	Size:	192*146*56mm
Weight:	120±10g	Color:	White, black etc.
Voltage	12V-2A	Working current:	500MA
Disinfection Wave:	UVC 275~280nm	Switch Mode:	Water flow Pressure initiating
Connection Mode:	Water tube DN8	Storage temperature:	-2-60°C
Power:	6W	Working temperature:	-2-80°C
Application:	Kitchen, Bathroom etc	Certificate	Rohs



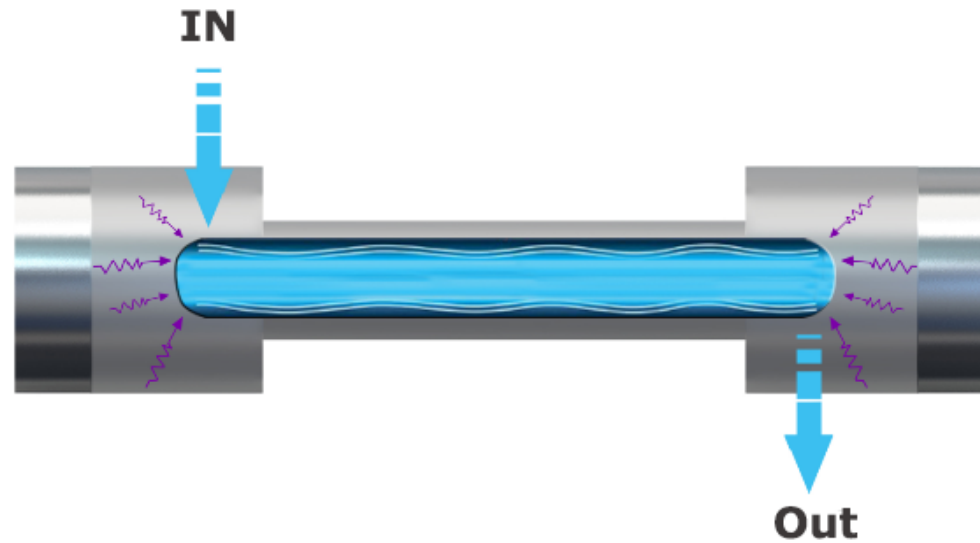
Hechuang Products (UVC HydrogenRich Water Processor)

Item	Description	Item	Description
Product NO.	UVC HydrogenRich Water Processor	Size:	298*191*105mm
Weight:	2500±10g	Color:	White
Voltage:	60-260V	Disinfection Method:	Ultra Filter+UVC Module+Electrolytic
Disinfection Wave:	UVC 275~280nm	Switch Mode:	Water flow Pressure initiating
Connection Mode:	Water tube DN8	Storage temperature:	-2-60°C
Usage Life:	5 years	Working temperature:	-2-80°C
Alkaline Water PH Value	PH8-10	Acidic Water	PH5-6





Water Disinfection Process



Double module-Disinfection done by 0.2", up to 99.9999% disinfection rate

Test Result for Flowing Water



广微测
Gmicro Testing



中国认可
国际互认
检测
TESTING
CNAS L1747

GUANGDONG DETECTION CENTER OF MICROBIOLOGY

ANALYSIS AND TEST RESULT

Report No.: 2021SP04493R02E

Method Description: The machine is connected to the municipal water supply, and the water is taken out for testing after starting the machine and flushing for 30 minutes.

No.	Test Item	Test Result	Standard Request (GB 5749-2006)	Unit	Test Method	Individual Judgment
1	Aerobic bacterial count	13	≤100	CFU/mL	GB/T 5750.12-2006/1	Qualified
2	Total Coliforms	Absence	Absence	MPN/100mL	GB/T 5750.12-2006/2.1	Qualified
3	Thermotolerant coliform bacteria	Absence	Absence	MPN/100mL	GB/T 5750.12-2006/3.1	Qualified
4	<i>Escherichia coli</i>	Absence	Absence	MPN/100mL	GB/T 5750.12-2006/4.1	Qualified

分析

Test Result for Bacteria Disinfection



广微测
Gmicro Testing

广东省微生物分析检测中心

GUANGDONG DETECTION CENTER OF MICROBIOLOGY

分析检测结果

ANALYSIS AND TEST RESULT

报告编号 (Report No.): 2021SP05967R01

1.方法简述: 根据委托方要求, 制备含菌水以 1L/min 流速加入样品中, 通电运行样品后取水样用于测试。

2.测试结果:

试验菌株	试验组别	试验组平均菌落数 (cfu/100mL)	对照组平均菌落数 (cfu/100mL)	杀灭率 (%)
金黄色葡萄球菌 (<i>Staphylococcus aureus</i>) ATCC 6538	1	<1	8.1×10^4	>99.99
	2	<1	5.8×10^4	>99.99
	3	<1	1.1×10^5	>99.99

分析

Application - Water Disinfection





Application - Air Disinfection



Application - Surface Disinfection





Other Application

Configuration: 2 low power UV LEDs
Flow Rate: 2 LPM
Disinfection: 99.9% E-coli



Configuration: 1 high power UV LED
Flow Rate: 1.5 LPM
Disinfection: 99.9 % E-coli
90% Total Coliform



Configuration: 1 high power UV LED
Flow Rate: 2 LPM
Disinfection: 99.9 % E-coli





Configuration: 1 low power UV LEDs
Flow Rate: 1.5 LPM
Disinfection: 99.99% E-coli



Configuration: 1 high power UV LED
Flow Rate: 1.5 LPM
Disinfection: 99.99% E-coli



OEM/ODM Custom Module by Professional R&D Team



Free standing
Water dispensers/coolers



Bottle filling stations



Sprinkling water / Soda
systems



Counter top
Water dispensers



Water fountains



Lab water systems



Ice makers



Coffee machines



Beverage dispensers

Enter the Market Quickly





Our Mission.

We will dedicate all our **enthusiasm, innovation** and **talent** to design and produce the most advanced and portable **UV-LED disinfection product** for the world.

Our Wish.

We hope to create a **higher quality of life** for **everyone** in the world and make contribution for **Environmental Protection** and **Our Society**.