VIKING LED-UV CURING SYSTEM

Technical Datasheet

Machine Name: LED-UV Curing System

Model: VK-CURE-D600 Model (Double sided)
Model: VK-CURE- S600 Model (Single sided)

INDEX

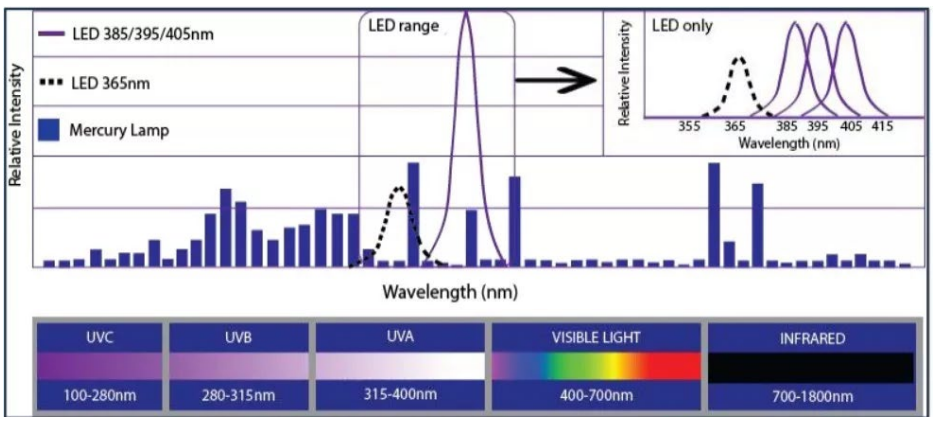
Chapter 1 VIKING LED-UV Curing System Specifications

1.1 Technical Datasheet

Parameters	Specifications	
Machine name	VK-CURE-S600	VK-CURE-D600
Curing Style	Single Sided Curing	Double Sided Curing
Board Thickness	0.2~10mm	
Board Size	610mm*1000mm Max. 300*250mm Min.	
Curing Effective Width	610mm Max	
UV Light Type	UV-LED	
LED Life	10000hours within 15% Luminance decrease	
LED Warranty	24 months warranty	
LED Power Driver Supplier	Meanwell from Taiwan or equivalent	
LED Power Driver Warranty	2 years	
Light Energy(whole)	8800 mJoule/ cm^2 based on 3m/min speed	
LED Quantity	Two Groups for Top side	Each Three Groups for Top & Bottom Side
UV Light Wavelength	385,395 and 405nm Standard (365nm,415nm optional)	
UV Light Uniformity	＞85％	
Uniformity Test Method	Array testing with min. 61 test points	
Speed Range	0.5~5.0m/min	
Cooling Method	cooling water needed	
Cooling Water Flow	30~40L/min 20°C inlet	
Working Height	950 ±50mm(can be determined on the order)	
Machine Dimension	1600mmX1200mmX1150mm	
Machine Weight	500kg Appr.	700Kg Appr.
Power Requirements	380v 50Hz 8Kw	380v 50Hz 16KW

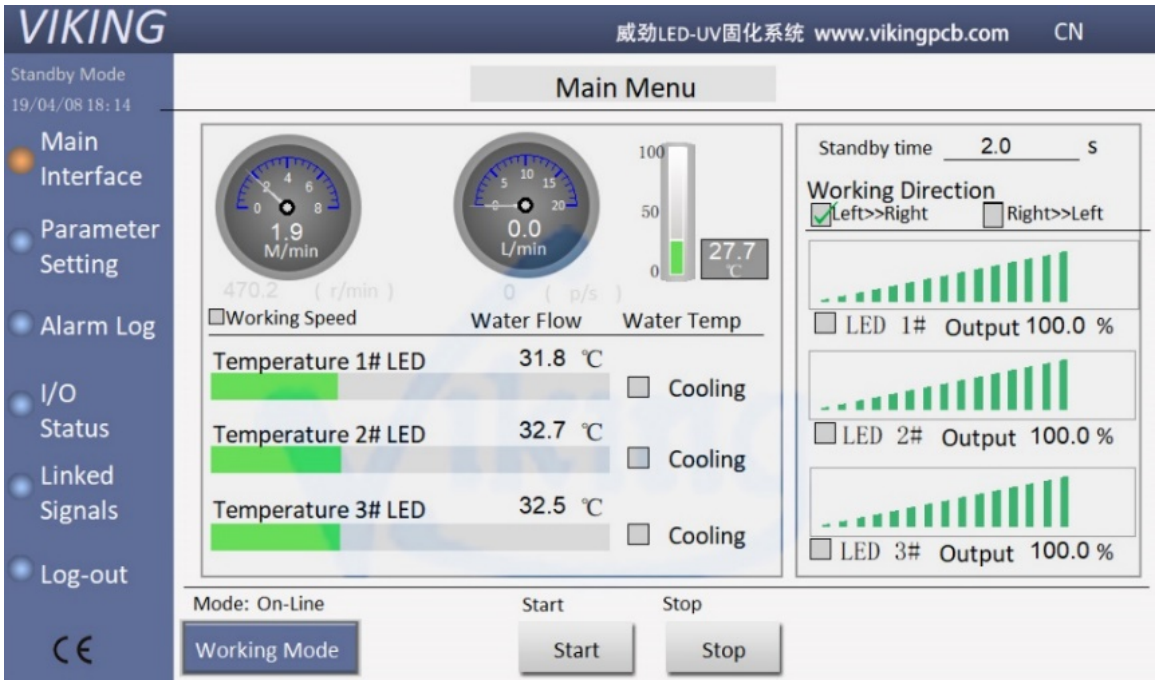
1.2 LED-UV principle and Advantages

1. • Compact Footprint
2. • Curing In Both Sides Available
3. • High Efficiency & Multi-wavelengths
4. • Degradation @ 15% per 10K hrs.
5. • High Intensity & Uniformity UV output
6. • Little Radiated heat output
7. • High Reliability/Long lifetime
8. • Cooling Water Cycling method
9. • Low power Consumption
10. • Instant On/Off With No Shutters Needed
11. • Mercury/Ozone free
12. • Modular Configuration
13. • Standby Function
14. • Emergency Stop
15. • Low Running Cost



1.3 Technical Features

1. Fully optimized thermal design to maximize LED-UV output and life
2. Modular LEDs design can be easily extending the curing width to suit for larger PCB panel size
3. Real time detections on Water Inlet Temperature, Water flowrate, and Independent thermal control for Each LED lamp.
4. Real time detections on each LED module of short-circuits, temperature access, current over-load
5. Real time monitoring each LED power supply unit and status
6. Each LED Lamp Lifespan Recording Function
7. Real time Monitoring Each LED Lamp Working Temperature
8. 10%~100% LED-UV Power Output Setting via HMI
9. Emergency Stop & Alarm Function
10. Recipe for Parameters Setting
11. Temperature Control Setting
12. Water Flowrate Alarm Setting
13. Standby Mode for Improved Energy Savings
14. Friendly Operation HMI
15. Compact Machine Design with CE certificated
16. Option： Remote Technical Support module
17. Two Years Warranty for whole machine
18. LED module design and Easy replacement

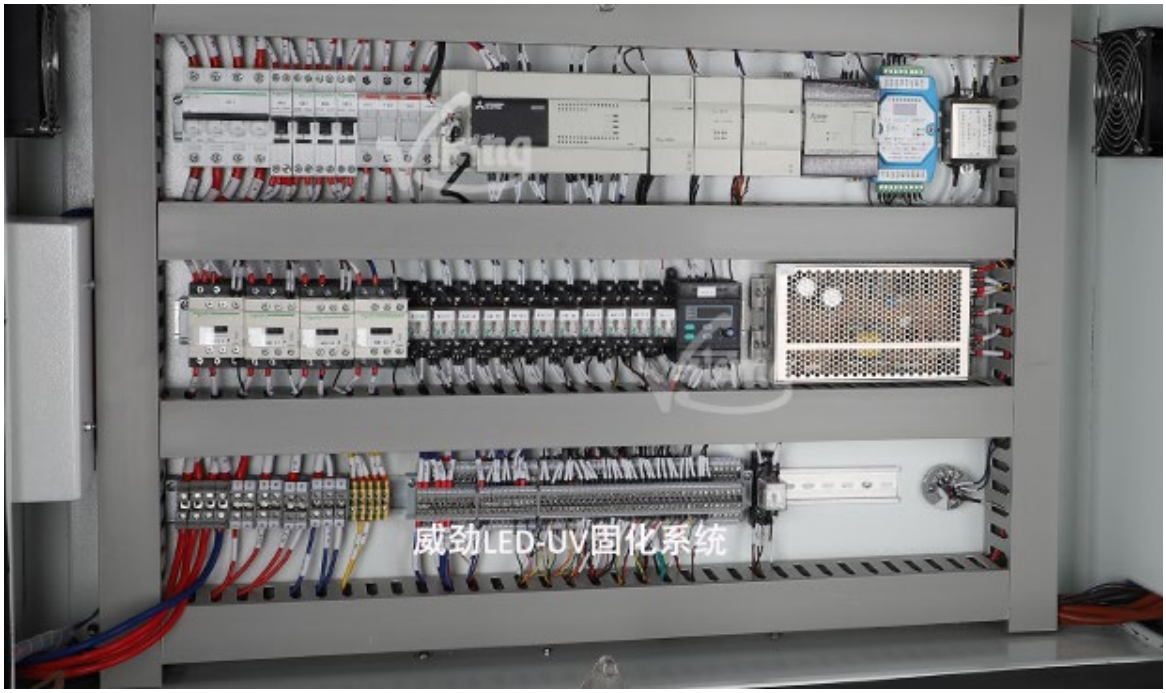


19. Unique Water Connection method for simple and easy maintenance

20. Alarm reports with clear logical instruction for quick troubleshooting

21. Quick replacement design with simple structure for LED head change

22. Option: Online UV irradiance detecting with uniformity test of whole LEDs and single LED head for across full width



1.4 Quality Standards

With the acceptance of the specification VIKING LED-UV Curing System commits to fulfil the following conditions.

All supplied machines and technical equipment must comply with EC directives, the Europe laws / regulations and the generally accepted safety and health rules.

These include in particular:

- **MACHINERY DIRECTIVE 2006/42/EC** OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on machinery, and amending Directive 95/16/EC

- **Directive 2014/35/EU** of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits

- **Directive 2014/30/EU** of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility

The systems supplied will have a CE marking and the machine marking in accordance with the Machinery Directive 2006/42/EC and EN60204-1.

1.5 Machine Safety Features

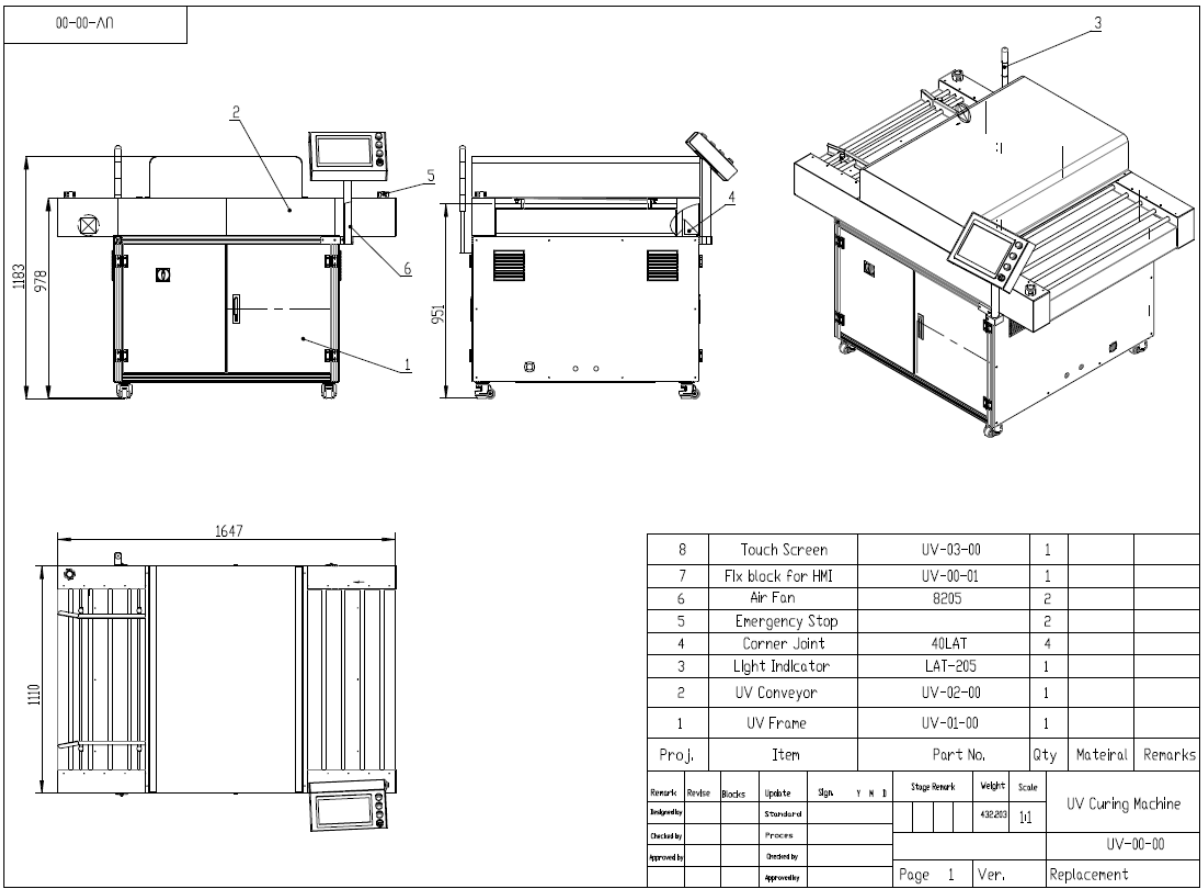
Item	Details
Emergency Stop	One E-stop button on touch screen panel Two E-stop buttons on the machine
Temp Detection	Inlet water temp detection Each LED lamp temp detection
Overload Protection	LED power supply units current overload protection Conveyor motor overload protection LED lamp current protection Main power phase deficiency protection
RCD Function	RCD functions for all internal control circuits, and all LED power drivers
Earth Connection	Whole machine PE connected
Mechanical Structure	All metal structure without any Combustible materials
CE Certification	Machine CE certificated, LEDs comply to ROHS

1.6 Machine Control Features

Control	**HMI**	10" Touch Screen with intelligent program
	PLC	Mitsubishi PLC Fx3U Series
	Water Cooling Detect	√
	Water Temp & Flowrate Detect	√
	LED Lamp Temp Detect	√
	Current Overload Detect	√
	PCB Entrance/Exit Detect	√
	Roller Material	SUS#304 shaft with Teflon sleeve
Conveyor	**Conveyor Driven**	Chain Mechanism
	Speed Control	Frequency Converter
	Conveyor Forward/Reverse	√
	Easy Machine Maintenance	√
Operation	**Working Parameters**	√
	Easy Setup	√
	Easy Troubleshooting	√
	Operation Software	Friendly User Interface

1.7 Documentations

- Instructions Manual, EC-Declaration of Conformity, Risk Assessment
- Documentation / user manual (1-fold execution and .pdf-file)
- Documentation / safety instructions (1-fold execution and .pdf- file)
- Documentation of used frequency transformers and controllers
- Certificates / test labels for Compulsory testing facilities
- spare part catalogue with the machine



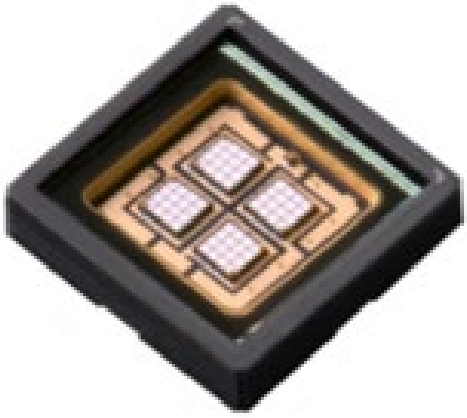
8	Touch Screen	UV-03-00	1		
7	Fix block for HMI	UV-00-01	1		
6	Air Fan	8205	2		
5	Emergency Stop		2		
4	Corner Joint	40LAT	4		
3	Light Indicator	LAT-205	1		
2	UV Conveyor	UV-02-00	1		
1	UV Frame	UV-01-00	1		
Proj.	Item	Part No.	Qty	Mateiral	Remarks

Remark	Revise	Blocks	Update	Sign	Y M D	Stage Remark	Weight	Scale	UV Curing Machine	
Designed by			Standard				432.203	1:1		
Checked by			Process						UV-00-00	
Approved by			Checked by							
			Approved by			Page 1	Ver.		Replacement	

Chapter 2 VIKING LED-UV Quality Control

2. 1 LED-UV chips

High Performance LEDs can give a highly intense UV output with an ultra-uniform distribution, with at least 15000 working hour lifespan.



2. 2 Electrical parts/Components

Viking provides two years warranty for our products by confidence of world-class components and hardwares fitted and mature design with comprehensive considerations.

Main brands：

1. 3 Mechanical Structure

Whole machine has been maturely designed with comprehensive considerations.

1. 4 UV Light Uniformity

Select The Correct UV integrator for UV measuring

1. Ensure the UV integrator has correct wavelength range for LED-UV

   The suggested range: 365nm~420nm

2. Ensure the UV integrator has correct irradiance range for LED-UV

   The suggested range: 100mW/cm2~10000mW/cm2

Please Contact your UV integrator supplier for above two significant parameters which is suitable for LED-UV measuring

Suggestion

Please use LS128 model for LED-UV Curing System measure device

Viking LED-UV system has above 85% UV light uniformity.

Chapter 3 VIKING LED-UV Installations & Requirements

Pre-Installation Report

Model: VK-CURE-S600

Viking all are with great thanks for customer's trust and support in LED-UV Curing Systems.

Customer Information

Customer		Contact	
Machine Type	LED-UV curing system	Model Name	VK-Cure-S600
Phone		Email	

Power Supply

380V 50Hz 3PH 5 wires	Connecting Power: 8KW
Factory Main breaker: 32A, D type.	Power consumption: max 7KW based 380V
Leakage Current: < 30mA	Control Voltage : 24V DC

Compressed Air/Exhaust

No compressed air/Exhaust requested for this LED-UV curing machine.

Cooling Water Supply

Min. temperature of inlet cooling water: 20°C

(25°C preferred to minimize water contamination on LED chips)

Min. cooling water flow rate: 25L/min

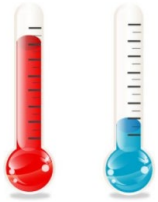
Cooling pipe size: 19mm outer diameter 

Independent Chiller :

Compressor on Chiller: 3HP max

Heating: each one lamp generates 1.6KW heating max,
Three lamps has total 4.8KW heating in maximum to be chilled. 4800w≈16600BTU

Recommended Chiller water tank size: 80L



Heat load on the room

The head load on the room will be 2Kw approximately if chiller is out of room.

Power loading Explain:

All Led lamps & power supply drivers:	6Kw	All fans:	350w
Conveyor motor:	180w	PLC and other parts:	200w

Chapter 4 VIKING LED-UV Quality Insurance &Warranty

Viking provides two years warranty for our products by confidence of world-class components and hardwares fitted and mature design with comprehensive considerations

World-class components and hardware’s fitted

Remote PLC connection and technical supports

Modular LED design, easily and simply replacement.