

LED type: Hanging petal 5+3

operating lamp

Warning: Surgical lighting fixtures have strict requirements for installation and use. Users are advised to carefully read the relevant content of the product manual and install, use, and maintain them according to the instructions.

This product cannot be used in environments with flammable anesthetic gases

Precautions for embedding M12 diameter fully threaded bolts and fixing plates:

The ceiling load capacity should be greater than 800NM. Four M12 × 20cm bolts must be pre embedded in the reinforced concrete ceiling (note: the diameter is divided into four equal parts in a 360 ° circle with a diameter of 24cm), exposing the ceiling 9cm, in order to install hangers or fix discs, ensuring that the shadowless lamp can withstand torque after suspension.

The safety factor of the suspension system of this product is ≥ 9 (the product is fixed with 4 M12 bolts, the load of a single screw bolt is greater than 200kg, the load-bearing capacity of four bolts is 800kg, and the self weight of the product is $\leq 81\text{kg}$)

Please read the user manual carefully before using this product. The production unit is responsible for the safety, reliability, and performance of the equipment under the following conditions:

Installation and maintenance are carried out by personnel approved by the factory;

The equipment is used under specified conditions and in accordance with the instructions provided in the user manual;

After packaging, if the surgical lighting cannot work normally within one year (one year of use) from the date of manufacture, under the condition of complying with storage and use rules, our company will repair, replace parts or products for users free of charge. Damage caused by improper installation or use by the user is not covered by the free warranty.

All accessories must be purchased from our company, otherwise our company will not be responsible for situations such as bursting of the lamp surface, burning of the lamp beads or electrical system, and malfunction of the shadowless lamp.

The safety and cost of the ceiling installation project are the responsibility of the hospital or building construction unit.

Special Notice

Surgical lighting installation, wiring after lifting: N and L are connected to 220V, V+is connected to the blue wire from the shadowless lamp. V - Connect the yellow line from the shadowless lamp.

catalogue

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I. Overview

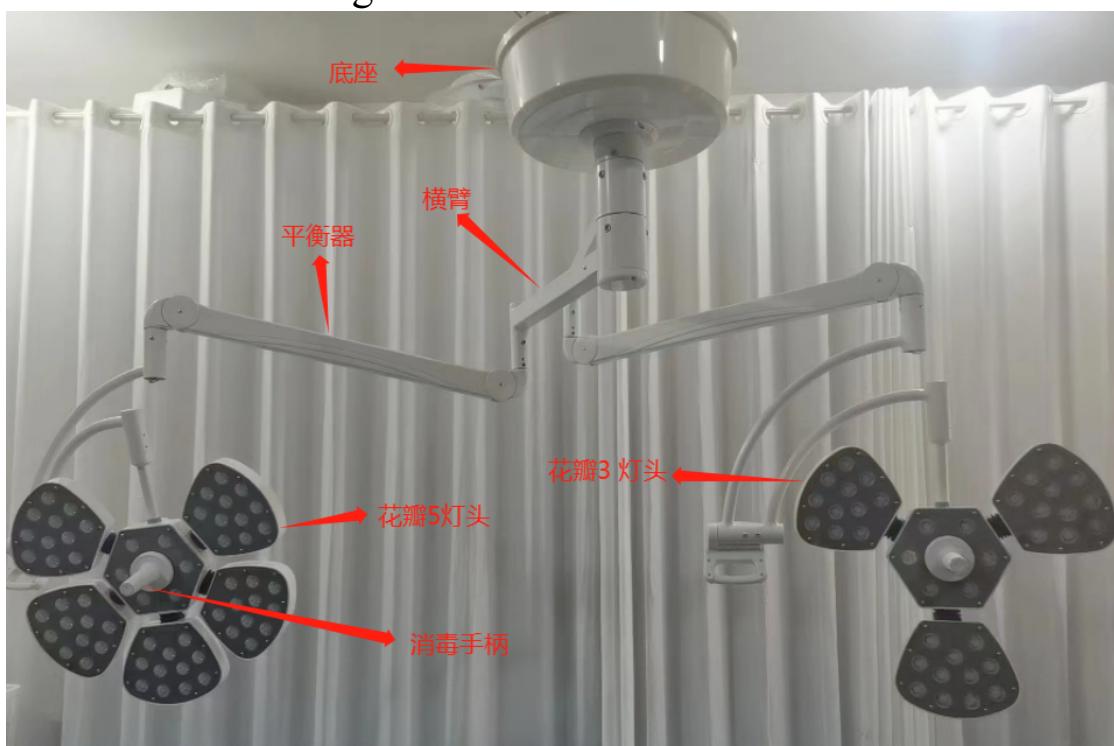
[Product Name] Surgical Lighting Lamp

Product specifications, models, and structural composition

Product specification and model: LED type: suspended petal 5+3

Structure composition: composed of light source, lamp holder, etc. It can be classified as ceiling mounted, wall mounted, or mobile.

Product Structure Diagram:



2、 Performance parameters

[Expected use]

Used in operating rooms and treatment rooms to provide local lighting for patients' surgical or examination areas. Not used for ophthalmic examinations.

2、 Performance parameters

Specifications	LED petals 5	LED Petals 3
Illuminance (adjustable)	40000-180000Lux	30000-160000Lux
Color temperature (adjustable)	3700K±5000K	3700K±5000K
Color Rendering Index	85-98	85-98
Depth of light column	≥1300mm	≥1300mm
spot diameter	160-280mm	160-280mm
Illumination adjustment	1%-100%	1%-100%
Bulb Type	LED	LED
Number of LED beads	61 pieces	39 pieces
LED bead power	1W×61	1W×39
LED lifespan	≥80000h	≥80000h
The temperature rise of the surgeon's head	< 1 °C	< 1 °C
power supply voltage	AC100-240V 50/60HZ	AC100-240V 50/60HZ

3、 Equipment and Installation

Installation will be carried out by engineers dispatched by the manufacturer. The customer shall bear the responsibility for any product damage caused by self installation.

1. During the installation process, the electrical circuit (power line connected to AC220V) and the fasteners at each connection point should be tightened (important);

During the installation process, it is essential to strictly calibrate the level of the shadowless lamp base with a spirit level (very important).

Before installing the shadowless lamp, the customer should provide a 250V/10A switch/circuit breaker to complete the insulation protection of the circuit (important).

4. Install petal 3 lamp heads on the upper horizontal arm and petal 5 lamp heads on the lower horizontal arm.

5. The balancers of shadowless lamps have been strictly calibrated during factory inspection, and new purchased products do not require further calibration during installation. After installation, if there is any imbalance, please handle it according to the imbalance handling method in the manual.

6. Tools used for installation: impact hammer, Ø 16 impact drill bit, level, hammer, adjustable wrench (# 19 open-end wrench or # 19 Phillips wrench), Allen wrench, Phillips screwdriver.

7. Installation steps:

The first step is to install the hanger (flange), with the large plate facing upwards to connect to the roof and the small plate facing downwards to connect to the base of the shadowless lamp;

① The ideal installation height for this product is 2.8 meters (i.e. the distance from the shadowless lamp base to the ground). Due to the fact that this product is a suspended load-bearing device, there are certain requirements for load-bearing roofs and hangers.

② When the hanger is ≥ 1.5 meters, additional diagonal braces are required to ensure the stability of the hanger.

③ When the roof is poured with concrete, use A hanger and fix it with no

less than six expansion bolts (M12X100).

- ④ When the roof is a floor structure, B hangers are selected, and through bolts are used to penetrate the floor. Steel plates are used to fasten above the floor, and 2 expansion bolts are used to fix below the floor.
- ⑤ When there is a structural beam in the installation position, use a C hanger and fix it with no less than 3 expansion bolts on each side.

A hanger	B hanger	C hanger
		

Step 2, install the base (including the crossbeam)

- ① Connect the base to the hanger flange using 4 M12X100 bolts (with 14 M12 nuts) and adjust the nuts to make the base level.

Step three, install the balancer

- ① Plug in terminal blocks and connect wires of the same color. And insert it into the tube wall.

- ② Connect the pipe walls at both ends, align with the bolt holes, and tighten 4 bolts (3 stainless steel cross countersunk head bolts M5X6 and 1 M8X16 hexagon socket bolt) respectively.

Step four, install the lamp body (including the lamp head and bend arm)

- ① Plug in terminal blocks and connect wires of the same color. And insert it into the tube wall.

- ② Connect the pipe walls at both ends, align with the bolt holes, and tighten three stainless steel cross countersunk head bolts M5X6.

Step 5, Install the Handle

Align the handle with the center base position of the lamp head, rotate and screw it in

Step 6: Adjust the balance of the surgical lighting

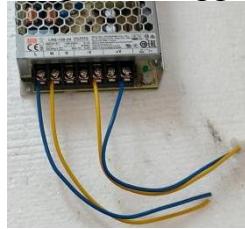
After installation, rotate the rotating part of the shadowless lamp, such as tightening or loosening the cross arm around the center, and adjust the cross arm brake screw (see the figure below)



Step seven, power supply

- ① Fix the power supply on the base, align it with the remaining screw holes, and tighten it with bolts.

- ② Plug in the terminal block, connect the +V and - V terminals and keep the color consistent.
- ③ The remaining L terminal (live wire) and N terminal (neutral wire) on the power supply are connected to 220V AC power.



Step eight, install the base cover

Cover the large shield on the base of the shadowless lamp, then use the shield bottom bracket to support it, and tighten it with bolts separately.

4、 Instructions for use

After the installation of surgical lighting is completed, it should be subjected to power on inspection.

1. Range of activity for surgical lighting fixtures

The operating range of surgical lighting should not be less than the specified values in Table 8.

Table 8 Fixed Type

Action project	Lamp head diameter (mm)
	500
Operating range	
The horizontal arm rotates around the fixed seat	360°
The balancer rotates around the cross arm	340°
The balancer moves up and down	45°
The bent pipe on the lamp head rotates around the balancer	340°
Turn the bent pipe under the lamp head around the bent pipe on the lamp head	260°
The lamp body rotates around the bend under the lamp head	260°

3. Focusing

The focusing knob of the surgical lighting is used for focusing, and rotating the focusing knob can adjust the diameter of the light spot.

5、 Daily maintenance and troubleshooting

1. Regular maintenance

Surgical lighting fixtures require regular maintenance by professional maintenance personnel, with reference to Table 9 and records kept; If any problems are found, please solve them promptly according to the product manual. If they cannot be ruled out, please contact our factory in a timely manner.

project	Frequency
Check the status of fasteners at various connection points of surgical lighting fixtures	Once every two months
Check if the contact of the surgical lighting circuit is good	Once every two months
Check the flexibility of various moving parts of surgical lighting fixtures	Once every two months

Table 9

2. Cleaning and disinfection

When cleaning and disinfecting the outer surface of surgical lighting, neutral household detergents and anti-static agents must be used as cleaning agents, and phenolic, iodine, or glutaraldehyde based disinfectants cannot be used.

2.1 When cleaning surgical lighting, please use a soft cloth, sponge, or damp cloth. Do not use a hard bristled brush or wire brush, and do not apply cleaning powder, paint, banana oil, acid, etc. to any surface.

2.2 The surface of the front cover glass is often cleaned of dust with medical gauze to improve illumination.

Note:

- 1) When cleaning and disinfecting surgical lighting, the power must be cut off first and liquid must be prevented from seeping into the lamp;
- 2) Do not use abrasive materials such as brushes, wire balls, and similar products such as alcohol and 84 disinfectant to clean the transparent board.
- 3) Users should strictly follow the above prompts and instructions.

3. Common imbalances and their solutions are shown in Table 10;

serial number	phenomenon	treatment method
1	The cross arm is too tight or drifts when rotating around the lamp holder.	Use an Allen wrench (S=8) to adjust the damping bolt of the central tube of the bracket (see Figure 11), and tighten it clockwise until the bracket rotates appropriately and can be balanced and positioned freely.
2	The balancer rotates too tightly or drifts.	Use an Allen wrench (S=5) to adjust the damping screw above the drooping tube (see Figure 12), and tighten it clockwise until the tightness is appropriate and it can be balanced and positioned freely.
3	When the balancer swings up and down, the balancer joint cannot be positioned arbitrarily.	Open the cover on the balancer and use a Ø 6 round rod to adjust the nut. Tighten it clockwise and loosen it counterclockwise.
4	The lamp head is not fixed and drifts	Use a (S=3) hex wrench to adjust the damping bolt of the drift part.

Table 10
The above problem

If the above problems cannot be solved by using the above methods. Please contact us promptly!



Figure 11 (Transverse arm damping bolt) Figure 12 (Equalizer damping bolt)

Common fault analysis and troubleshooting, see Table 11;

Fault phenomenon	Root cause analysis	exclusion method	Remarks
Surgical lighting does not work	The fuse is blown	Replace the fuse	The specification and model of the fuse are F2AL250V
Surgical lighting does not work	Switching power supply malfunction	Replace the switch power supply	
Surgical lighting	Constant current	Replace the	

does not work	board failure	constant current plate	
Some light beads are not on	Lamp bead burnt out	Replace the light bulb	
The surgical lighting keeps rotating	Installation is not horizontal The brake area is too loose	Adjust the level again Adjust the brake screw	
Insufficient brightness of surgical lighting	Low external voltage	Check the voltage with a multimeter	The external voltage is often unstable and low, it is best to use AC to stabilize the voltage
Surgical lighting lamp head cannot stop moving up and down at a certain position	Balance spring loose or tight	Open the cover on the balancer and use a Ø 6 round rod to adjust the nut. Tighten it clockwise and loosen it counterclockwise.	

Table 11
(Note:
The occurrence and

handling results of the above faults must be recorded)

5 . Common electrical circuit faults and troubleshooting, see Table 12;

serial number	Phenomenon	Handling method
1	Turn on the external power switch of the surgical lighting, but press the switch button and the surgical lighting does not light up.	<ol style="list-style-type: none"> 1. Check if there is power supply to the socket of the surgical lighting fixture. 2. Check the safety device. If the safety tube is burnt out, replace it with a new one of the same specifications. 3. If the fuse is functioning properly, the power supply circuit of the surgical lighting should be checked (including whether each docking plug is in normal contact). 4. Inspect the control circuit and check if the wire color is connected correctly.
Re ma		

Table 12

Any maintenance of electrical circuit faults must be carried out by personnel recognized by our company.

6、Content of warnings and reminders

1. Please do not scratch or tap the glass of the lamp surface;
If two lamp heads illuminate the same surgical area at the same time, the temperature rise may sometimes exceed the standard requirements, and there may be a risk of overheating at the patient's surgical site. Users are advised to pay attention when using it;
3. The surgical lighting is a suspended device. Please regularly check if the fasteners are loose to prevent falling accidents;
4. Do not place additional loads on the surgical lighting to avoid falling accidents;
5. The switch power supply of surgical lighting must be used in a dry environment, otherwise it may cause the switch power supply to burn out and the surgical lighting cannot work properly.
When cleaning and disinfecting surgical lighting, the power must be cut off first and liquid must be prevented from seeping into the lamp;
7. Do not use abrasive materials such as brushes, wire balls, and similar products such as alcohol and 84 disinfectant to clean transparent glass.
8. Please use surgical lighting strictly under the following conditions:
Environmental temperature range: 5-40 °C;
Relative humidity range: ≤ 80%;
Atmospheric pressure: 860hpa-1060hpa
Power supply: AC220V ± 22V, 50Hz ± 1Hz.

Any damage to components or safety accidents caused by working conditions that do not meet the requirements shall be the responsibility of the user.

To ensure the normal use of surgical lighting, non professionals are prohibited from disassembling or replacing the LED light assembly, and it is strictly forbidden to open the lamp head housing.

10. The surface of the front cover glass is often cleaned with medical gauze to increase light intensity. When it is necessary to wipe and clean the front cover glass, the power should be turned off and the temperature of the glass should be reduced to room temperature before cleaning, otherwise glass explosion may occur.

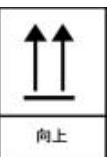
11. It is strictly prohibited to hang any items other than this equipment on the surgical lighting fixture.

When a single lamp head reaches the surgical lighting brightness, it is advisable to avoid overlapping two lamp heads as much as possible!

Due to product upgrades, the control panel buttons may not be consistent with this manual. In actual use, the actual control panel buttons shall prevail.

7、 Sample images of labels and packaging labels

symbol	meaning	symbol	meaning
	alternating current		protective earthing
	Caution: High Temperature		Fragile items

 禁用手钩	use no hook	 向上	upward
 怕雨	afraid of rain	 堆码层数极限	Stacking layer limit

8、 After sales service

Dear user:

Thank you very much for using our company's products!

With your support and trust, in order to safeguard your interests and provide you with better and higher quality services, our company hereby makes the following statement:

1. Implement the national three guarantee policy, 7-day return, 15 day replacement, one-year warranty, and lifetime maintenance!
2. The free warranty period for the product is one year, calculated from the date of invoice issuance.
3. Warranty point: The location where the buyer's equipment is placed.
4. Emergency maintenance schedule: Upon receiving a hospital maintenance call, respond within 2 hours and handle and resolve the issue within 24 hours. (Except for special circumstances)
5. In the following situations, the three guarantees will not be implemented, and paid maintenance will be implemented.
 - Malfunctions caused by human damage, improper operation, or uncontrollable natural disasters.
 - Malfunctions caused by self modification, disassembly, and assembly of the product.
6. If the warranty period expires, we are responsible for lifelong maintenance, and all accessories are at the lowest price in the current market.
7. Transportation method: The supplier is responsible for transporting the product to the designated location of the purchaser

9、 Storage and transportation conditions

1. Environmental temperature: -40~55 °C
2. Relative humidity: not exceeding 80%
3. Atmospheric pressure: 500-1060hPa

An indoor environment with no corrosive gases and good ventilation. Surgical lighting fixtures are fragile, easily scratched or damaged products by sharp or hard objects. Please use the original packaging

during transportation and have an experienced shipping agent handle the shipment.

10、 Production date and safe usage period

Production date: see nameplate

Safe usage period: This product has a usage period of ten years (from the date of production)

11、 Packing List

Please refer to the attachment for the packing list

12、 Unpacking and inspection

1. When opening the box, a dedicated nail opener must be used to prevent damage to the surgical lighting;
2. After unpacking, take out the box and check for missing, incorrect, or damaged items according to the names, specifications, models, and quantities listed on the packing list. If any problems are found, contact our company in a timely manner.

Note: When removing the lamp head, it is strictly prohibited to have the front cover facing downwards to avoid crushing or breaking the mask.

13、 Explanation of Environmental Safety

1. Disposal of packaging materials

- 1) Wooden crate - environmentally friendly and recyclable. It should be transported to the designated storage point for recyclable materials.
- 2) Styrene packaging profiles and plastic bags - harmful to the environment, should be transported to designated non recyclable material storage points for centralized disposal.

2. Disposal of equipment

When the device reaches its service life, it must be stopped from use. The dismantled equipment should be classified and treated according to the different materials of the product components.

Warning: First, cut off all power sources connected to the device, and then remove the device.

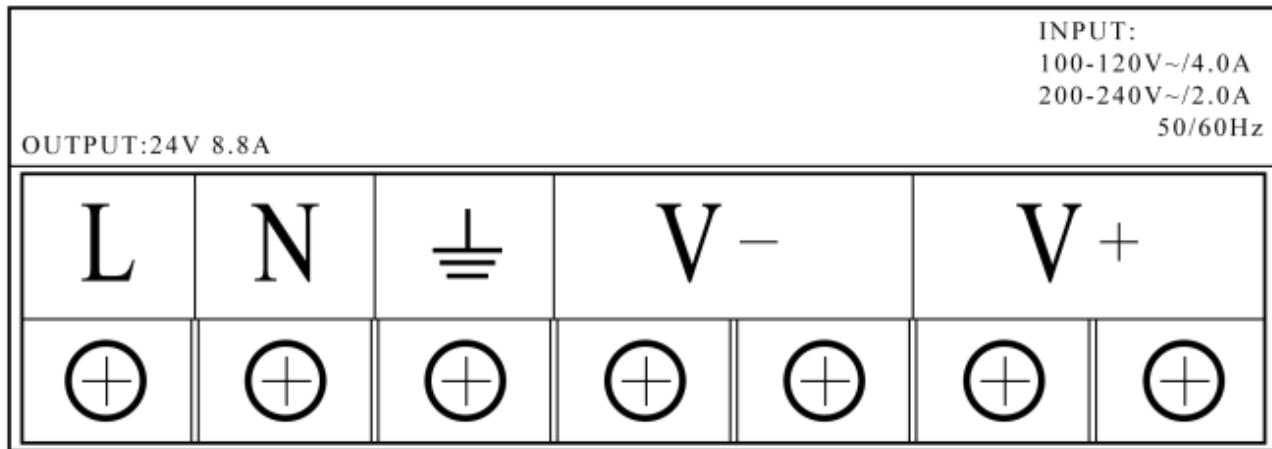
- 1) Metal components - environmentally friendly and recyclable. It should be transported to the designated storage point for recyclable materials.
- 2) Plastic parts - harmful to the environment, should be transported to designated non recyclable material storage points for centralized disposal.
- 3) Glass components - environmentally friendly and recyclable. It should be transported to the designated storage point for recyclable materials.
- 4) Electronic and electrical components - harmful to the environment, should be transported to designated non recyclable material storage points for centralized disposal.

14、 Circuit diagram

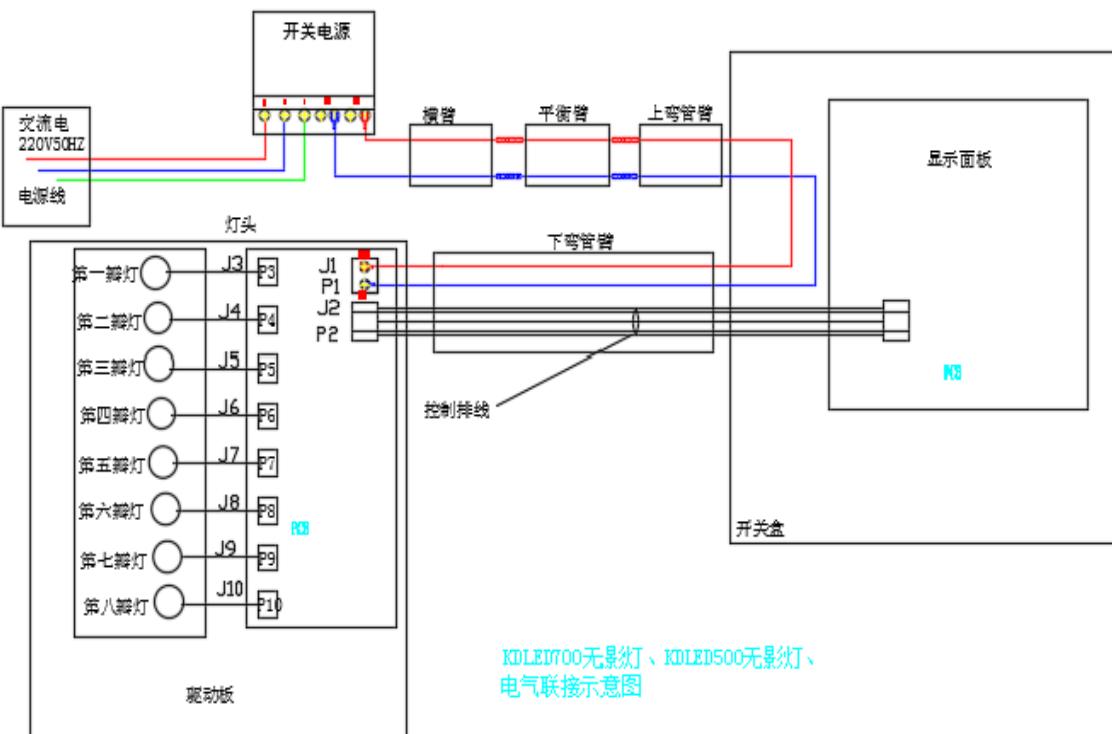
1. Switching power supply wiring

Please connect the wires of each part of the switch power supply according to the requirements shown in the diagram.

Warning: The power cord must be connected as marked in the diagram.



2. Wiring diagram



Instructions:

This device must be connected to a protective grounding on the fixed base during installation;

Disinfection of this equipment shall be carried out in accordance with the instructions "VI. Cleaning and Disinfection";

Working system of this equipment: continuous operation;

This equipment is a common device that does not prevent liquid ingress.

After opening the packaging box, please carefully count and contact us promptly if there are any defects.

The repair department authorized by our company provides the necessary information and accessories for maintenance.

15 Packing List

model	LED hanging petal 5+3	
serial number	name	quantity
	Large protective cover	1 set
	Shield bottom support	1 piece
	switching power supply	2 pieces
	Rotating arm+fixed seat	1 set
	Balancing arm	2 sets
	Petal 5 Lamp Head	1 set
	Petal 3 Lamp Head	1 set
	Disinfection handle	2 pieces
	Install fixing bolts	1 set