

# MULTIFIT

## Semi-automatic solar panel cleaning brush

### MULTIFIT GROUP

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More Power More Life

<https://www.vmaxpowerpv.com>

# COMPANY HONOR



# MULTIFIT PROFILE

**2009**  
Since

**17+**  
Years In Solar Industry



**100<sup>+</sup>** Patents  
**40<sup>+</sup>** CE Certificates  
**20<sup>+</sup>** Software Copyrights



In Total **10<sup>+</sup> GWP**  
More Power More Life



Stock Exchange  
**280768**  
Established in 2009

Multifit is a national high-tech enterprise committed to the R&D, manufacturing, and global sales of solar energy technologies, as well as PV power station construction, cleaning, and maintenance services. Headquartered in Beijing with a production base in Shantou and branches in Shenzhen and Sichuan, Multifit owns subsidiaries including Multifit Electrical, Multifit Solar, and Multifit Smart.

Our main products include solar panel cleaning robots, PV inverters, portable solar generators, MPPT controllers, and solar LED lighting systems.

Since 2009, our innovations have earned over 100 patents, and our products have been exported to more than 50 countries across Europe, the Americas, Asia, and Africa. Our company is certified under ISO9001, ISO14001, and OHSMS standards.

Multifit is also recognized as a National High-Tech and "Specialized & Innovative" Enterprise. Guided by the mission "High efficiency and energy saving, bringing green energy", we aim to become a global leader in solar power construction, cleaning, and maintenance.



Research and development



Production



Sales

Solar cleaning brush MULR-A

# Scraper brush

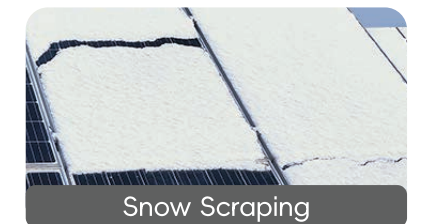
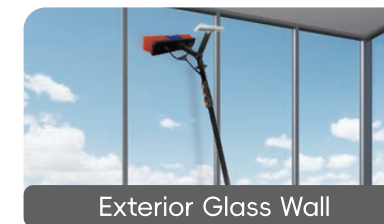


MODEL —  
**MULR-A**

- ✓ Manual operation
- ✓ Portable and flexible
- ✓ Economical and practical

Product Parameter ▶ MULR-A Scraper brush

| Name                | Scraper        | Brush head |
|---------------------|----------------|------------|
| Size                |                |            |
| Material            | Silica Gel     | PP         |
| Telescopic rod      |                |            |
| Length              |                |            |
| Material            | Aluminum Alloy |            |
| Product accessories |                |            |
|                     |                |            |



Solar cleaning brush MULR-B

# Single-head brush



## MULR-B Product features



### Cleaning range

The single-head cleaning brush can be used to clean small-area solar panels.



### Brush characteristics

The bristles are moderately soft and firm, and do not harm the photovoltaic panels.



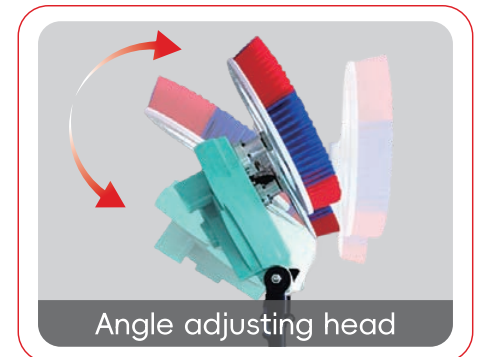
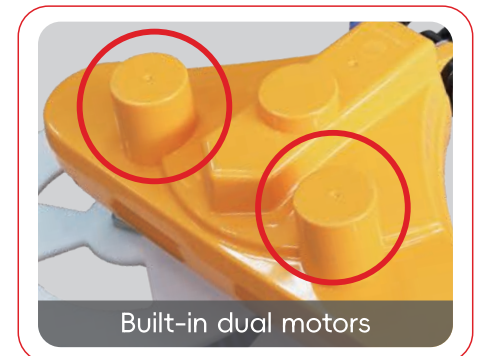
### Angle adjustment

The angle of the brush head matches the solar panel and can be adjusted according to the panel angle.

Gen 1

Solar cleaning brush MULR-C

# Double-head brush



## MODEL — MULR-C

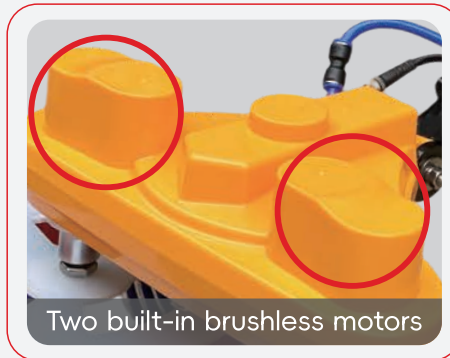


Gen 2 Solar cleaning brush MULR-C Pro

# Double-head brush



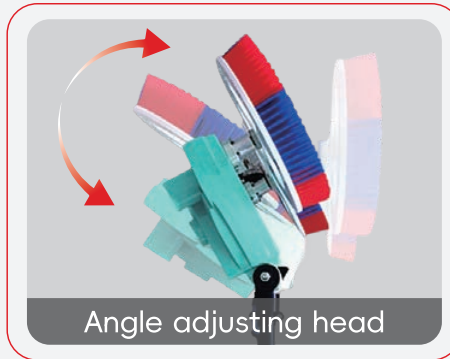
Soft bristles, safe for PV panels



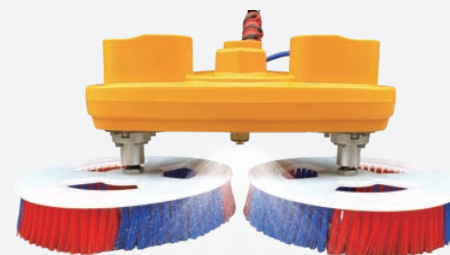
Two built-in brushless motors



Water Spray Technology



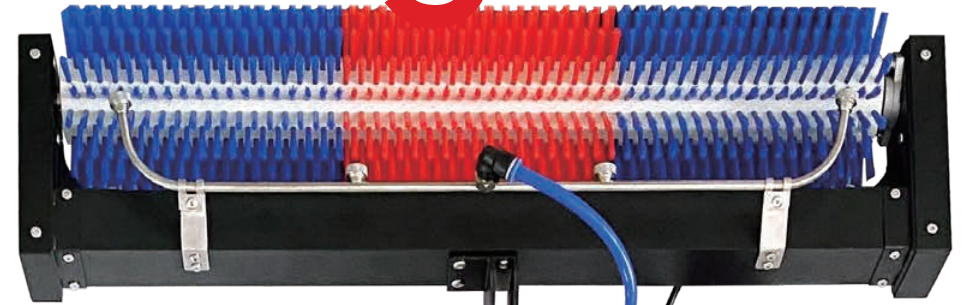
Angle adjusting head



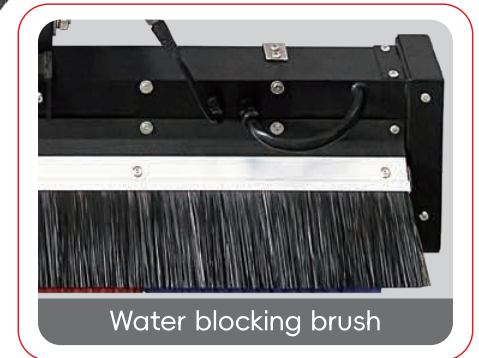
MODEL —  
**MULR-C Pro**

Gen 1 Solar cleaning brush MULR-D

# Rolling brush



Soft bristles, safe for PV panels



Water blocking brush



Water Spray Technology



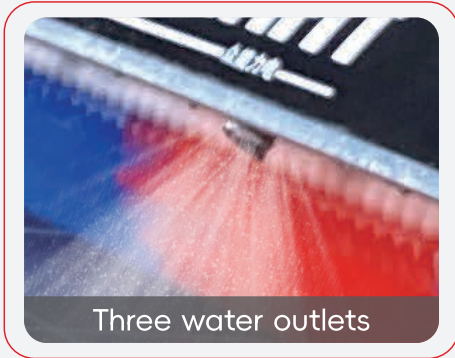
Angle adjusting head



MODEL —  
**MULR-D**

Gen 2 Solar cleaning brush MULR-D Pro

# Rolling brush



Three water outlets



Forward / Reverse rotation



Soft bristles, safe for PV panels



Locking device for easy adjustment of telescopic rod



MODEL —  
**MULR-D Pro**

Solar cleaning brush MULR-E

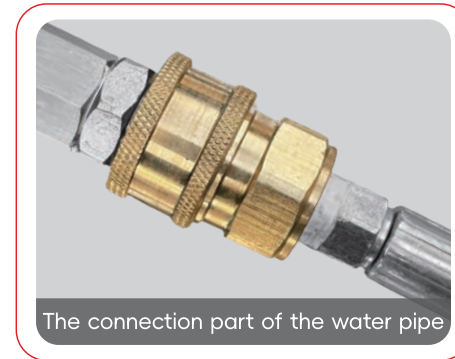
# Water-driven brush



Specialized brush



Oversized brush disc



The connection part of the water pipe



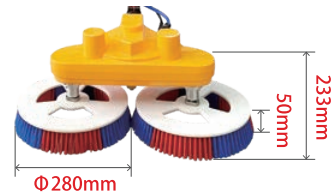
Locking device for easy adjustment of telescopic rod



MODEL —  
**MULR-E**

# PRODUCT PARAMETER

## MULR-C Double-head brush



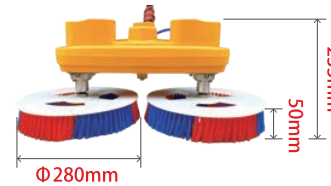
### Electrical parameters

|                        |                   |                          |                        |
|------------------------|-------------------|--------------------------|------------------------|
| Rated voltage          | 24 VDC            | Rated power              | 130 W                  |
| Motor rotational speed | 260 rpm           | Power supply             | grid / lithium battery |
| Grid voltage range     | 100 VAC - 240 VAC | Lithium battery capacity | 25.6 V 15 Ah           |
| Running time           | 4-6 hours         | Charging time            | 4.5 hours              |

### Mechanical parameters

|                         |              |                       |                     |
|-------------------------|--------------|-----------------------|---------------------|
| Housing material        | ABS          | Brush disc diameter   | Φ 280 mm            |
| Bristle material        | PP           | Brush bristle length  | 50 mm               |
| Telescopic rod material | Carbon fiber | Telescopic rod length | 3.5 m; 5.5 m; 7.5 m |

## MULR-C Pro Double-head brush



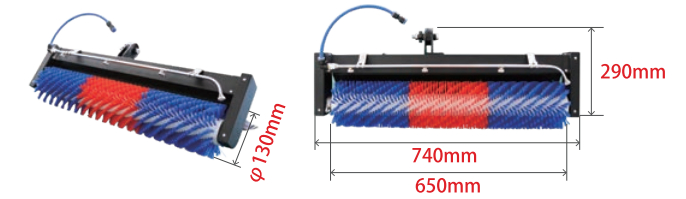
### Electrical parameters

|                        |                   |                          |                        |
|------------------------|-------------------|--------------------------|------------------------|
| Rated voltage          | 24 VDC            | Rated power              | 170 W                  |
| Motor rotational speed | 360 rpm           | Power supply             | grid / lithium battery |
| Grid voltage range     | 100 VAC - 240 VAC | Lithium battery capacity | 25.6 V 25 Ah           |
| Running time           | 3-5 hours         | Charging time            | 6.5 hours              |

### Mechanical parameters

|                         |              |                       |                     |
|-------------------------|--------------|-----------------------|---------------------|
| Housing material        | ABS          | Brush disc diameter   | Φ 280 mm            |
| Bristle material        | PP           | Brush bristle length  | 50 mm               |
| Telescopic rod material | Carbon fiber | Telescopic rod length | 3.5 m; 5.5 m; 7.5 m |

## MULR-D Rolling brush



### Electrical parameters

|                        |                   |                          |                        |
|------------------------|-------------------|--------------------------|------------------------|
| Rated voltage          | 24 VDC            | Rated power              | 150 W                  |
| Motor rotational speed | 400 rpm           | Power supply             | grid / lithium battery |
| Grid voltage range     | 100 VAC - 240 VAC | Lithium battery capacity | 25.6 V 25 Ah           |
| Running time           | 5-6 hours         | Charging time            | 6.5 hours              |

### Mechanical parameters

|                         |              |                       |                     |
|-------------------------|--------------|-----------------------|---------------------|
| Housing material        | Sheet metal  | Brush disc diameter   | Φ 130 mm            |
| Bristle material        | PP           | Brush bristle length  | 50 mm               |
| Telescopic rod material | Carbon fiber | Telescopic rod length | 3.5 m; 5.5 m; 7.5 m |

## MULR-D Pro Rolling brush



### Electrical parameters

|                        |   |                          |                        |
|------------------------|---|--------------------------|------------------------|
| Rated voltage          | 24 VDC                                  | Rated power              | 200 W                  |
| Motor rotational speed | 420 rpm                                 | Power supply             | grid / lithium battery |
| Grid voltage range     | 100 VAC - 140 VAC;<br>200 VAC - 270 VAC | Lithium battery capacity | 25.6 V 25Ah            |
| Running time           | 5-7 hours                               | Charging time            | 6.5 hours              |

### Mechanical parameters

|                         |              |                             |                     |
|-------------------------|--------------|-----------------------------|---------------------|
| Housing material        | PC           | Roller brush diameter       | Φ130 mm             |
| Bristle material        | PP           | Roller brush bristle length | 650 mm              |
| Telescopic rod material | Carbon fiber | Telescopic rod length       | 3.5 m; 5.5 m; 7.5 m |

# PRODUCT PARAMETER

## MULR-E Water-driven brush



### Mechanical parameters

|                                |  |                             |                     |
|--------------------------------|--|-----------------------------|---------------------|
| Working medium                 | Clean water  | Maximum pressure resistance | ≤10 MPa             |
| Motor rotational speed         | 550 rpm  | Working pressure            | 7 MPa               |
| Housing material               | Aluminum alloy   | Bristle material            | PP                  |
| Disc brush diameter (optional) | Φ125 mm*4    Φ350 mm*2   |                             |                     |
| Telescopic rod material        | Carbon fiber   | Telescopic rod length       | 3.5 m; 5.5 m; 7.5 m |
| Water pump (optional)          | 220 VAC / 50 Hz, 2.2 kW<br>Rated pressure: 7 MPa<br>Flow rate: 17 L/min<br>Weight: 56 kg |                             |                     |

### Product features ▼

MULR-B   MULR-C   MULR-C Pro   MULR-D   MULR-D Pro   MULR-E



#### Easy to clean

The use of a two-way cleaning brush makes it easy to remove dirt or residue without chemical cleaning agents



#### High performance

Better cleaning performance in high areas and better lateral force balance.



#### Easy to operate

Lightweight, high-strength structure, easy to handle and operate at height.



#### Support customization

The length of the water supply pipe can be customized. Please contact us for details.

# APPLICATION SCENARIO

- Supplementary O&M cleaning
- Aging Power Station Maintenance
- Residential & industrial & commercial rooftops
- Localized Key Cleaning



## MULTIPLE CLEANING EQUIPMENTS FOR VARIOUS SCENARIOS

# CONFIGURATION LIST

- MULR-B;
- MULR-C; MULR-C Pro;
- MULR-D; MULR-D Pro;

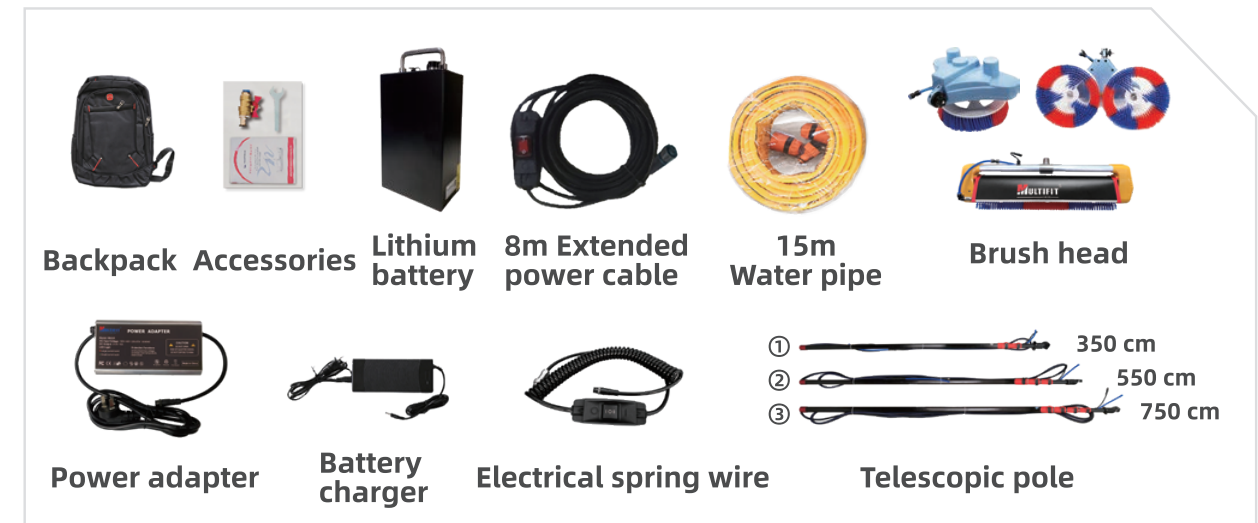
## AC Power Supply Version



## Lithium Battery Supply Version



## Dual Power Supply Version



Solar cleaning system MULR-EW03

# Automatic solar panel cleaning system



## Highly efficient cleaning

Using a special nozzle design to control water consumption, it can quickly remove dust and bird droppings from the surface of PV panels.



## Automatic control

Equipped with an intelligent control system, the cleaning schedule can be set according to the requirements of the solar power station.

MODEL —

# MULR-EW03



## Working process

The user sets up the scheduled cleaning time for each nozzle.

- ① When it reaches the scheduled cleaning time, the pump will start running and the first electric valve will open automatically, cleaning the surrounding PV panels.
- ② After the set time is up, the first water valve will automatically close and the second water valve will open. Each valve will open and close automatically in sequence according to the preset time.
- ③ After all cleaning cycles have been completed, the water pump will automatically shut down.



## High-efficiency cleaning

The water cleaning system provides powerful hydraulic impact, effectively removing various types of stubborn dirt, including oil stains, rust, dust, etc., achieving a high-efficiency cleaning result.



## User-friendly operation

With a simple design, users can easily set the cleaning time and intensity through the control panel for automatic cleaning, eliminating the need for complex operations.



## Low maintenance costs

The system has a simple structure that is easy to maintain, reducing maintenance costs and downtime.



## Safe and reliable

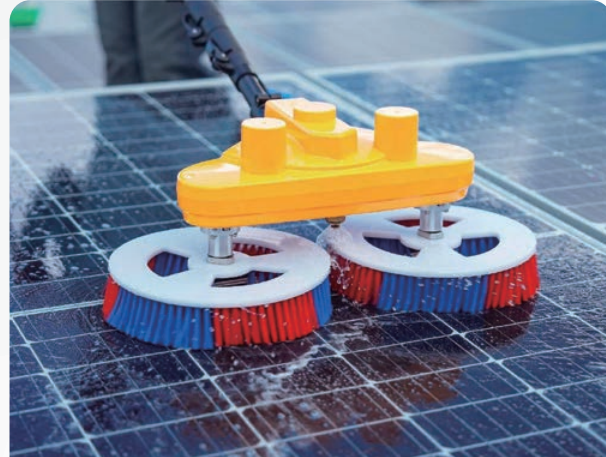
Using water as the cleaning medium is safe and harmless, posing no risk of pollution to the pipes or the surrounding environment.

# PROJECT CASES

# CLEANING BRUSH



MULR-A on rooftop system



MULR-C on ground system



MULR-C Pro on solar farm



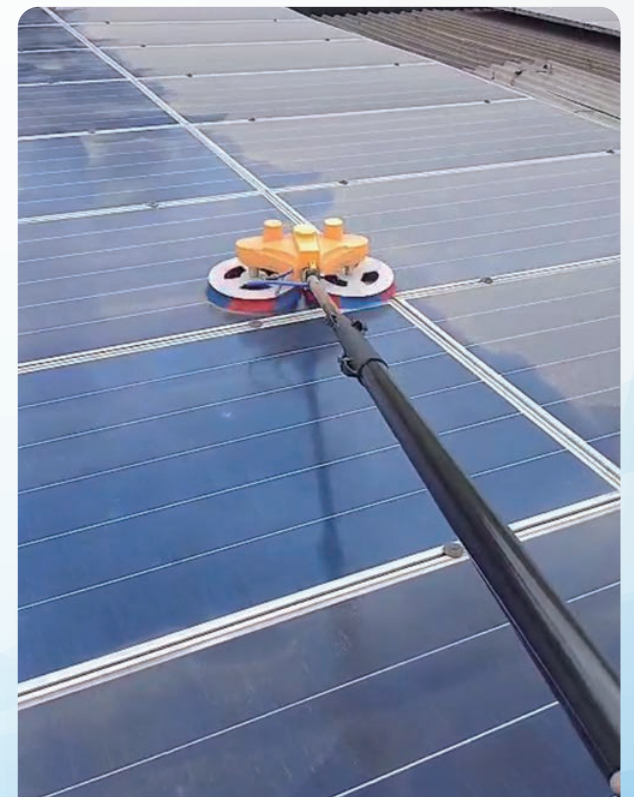
MULR-C on mountain system



MULR-D Pro on factory rooftop system



MULR-D on industrial area



MULR-C on rooftop system

# PROJECT CASES

# CLEANING BRUSH



MULR-EW03 for a green energy city



MULR-E for parking station



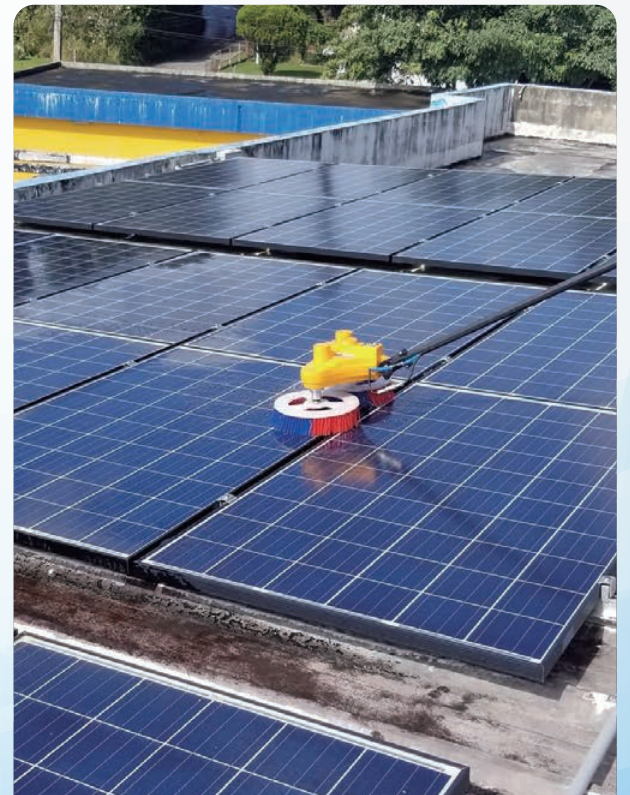
MULR-D Pro on factory rooftop system



MULR-C for Large industrial plant



MULR-C for corrugated steel roof



MULR-C for water utility company