



ArcelorMittal

EXOSUN

Technical datasheet Cleaning Robot

Cleaning Robot

Improve your plant performance

As a plant operator, you need to ensure PV production stays at its best, managing the equation of soiling vs. cleaning frequency and costs.

Developed to perfectly fit the ArcelorMittal Exosun trackers, our cleaning robot is a cost-effective solution that offers a fast return on investment even in low workforce cost countries, particularly adapted to desert area or remote locations.

At ArcelorMittal Exosun, we provide full support to determine your project economics & optimize your cleaning strategy via a personalized study.



Desert Proof

Water-free cleaning

- Ensures easy cleaning management & cost-effective regular cleaning even in remote locations.
- Perfect for rapid recovery after desert storms.

Scalable

Increased cleaning capacity

- 3 robots and 2 operators can clean up to 5 MWp per day.
- The robot reduces workers downtime and can be used by local manpower.

Plug and Play

Autonomous and flexible

- Wireless, this autonomous robot works with batteries & offers web-monitoring.
- Flexible, no additional rails are needed and the robots can be used on different PV sites.

Technical specifications

Measurements	
Dimensions (L*W*H)	2400*1100*300 mm
Modules types	Adapted to most available modules (framed, glass/glass)
Width of the solar array	1430 - 2070 mm
Total weight	40 kg
Performance	
Nominal speed of movement - adjustable	0.3 - 0.4 m/s
Mean autonomy (working time)	4 hours per battery, 2 batteries provided per robot
Battery	
Type	24V cc 20Ah lithium iron phosphate battery
Weight	5.4 kg
Life cycle	2000 cycles or 5 years
Charge temperature	0°C to 45°C
Discharge temperature	-20°C to 60°C
Charge time	3h30Hours
Low battery detection	Yes
Environment	
Working temperature	-15°C to 50°C
IP protection	IP55
IK protection	IK08
Corrosion	10-year lifetime in a C3 environment
Humidity	5% to 100%
Operation	
Mode	Semi-Automatic system (One-way / Round-trip / Return only)
Switches and visuals	Mode selection switch / START / STOP / warning light
End panel sensor	2 on each side
Night operations	1 light on robot
Connectivity	RJ45 plug
Monitoring	Access to a web-monitoring by plugging the robot to a digital tablet. (Modification of the cleaning parameters, troubleshooting & spare parts procurement)
Safety	
Number of safety systems	1 emergency stop button on each side
Standards	Machinery directive 2006/42/EC
Mechanics	
Brush type	Adapted to projects specificities, different types available
Movement transmission	Drive track (caterpillar-type)
Carry handles	2

Modules Integrity Ensured : 3rd Party Tested

Cycling tests have been conducted by an independant third-party to confirm that our cleaning methodology does not cause any module damage and does not affect PV production.

The modules have been tested on different aspects : IV curve, electroluminescent test, and thermal imaging.

Results show that the caterpillar drive ensures there are no specific loads on the panel surface, no impact on panel efficiency and surface integrity.

