



ECODRONES

SOLAR PANEL WASHING - L30 PERFORMANCE



Assumptions (with 2x3m Panels)

PARAMETEREK

VALUE

Panel Size

2 m x 3 m = 6 m² per panel

Coverage Mode

Row-by-row (likely linear passes)

Panel Row Layout

Assumed to be in aligned blocks with efficient drone paths

Cleaning Method

CDA water spray (broad, row-oriented coverage)

Spray Width (estimated)

3 meters (depending on nozzle config)

Overlap Factor (real-world)

10–15% overlap to ensure full coverage (especially in windy or uneven layouts)



Drone Parameters

PARAMETEREK	VALUE
Drone	ABZ L30
Panel Size	2 × 3 m (6 m ²)
Spray Width	3 m (1 row)
Speeds by Dirt Level	Light: 3.0 m/s Heavy: 2.0 m/s Extra Heavy: 1.0 m/s

PARAMETERS	VALUE
Efficiency Reduction	~15% (layout & overlap)
Net Spray Efficiency	Light: ~27,540 m ² /hr Heavy: ~18,360 m ² /hr Extra Heavy: ~9,180 m ² /hr
Water Usage	~1.5 L / 100 m ² (adjust by dirt level)
Cycle Time (spray + refill)	17 minutes
Spray Area per Tank	Light: ~2,000 m ² Heavy: ~1,000 m ²



Performance Table (3m Spray Width, with 15%Efficiency Loss)

Dirt Level	Cleaning Pass	Speed	Spray Width	Raw Coverage Rate	Adjusted Efficiency (–15%)	Net Coverage (m²/hr)
Light	Single Pass	3.0 m/s	3 m	$3 \times 3 \times 3600 = 32,400 \text{ m}^2/\text{hr}$	$32,400 \times 0.85 = \sim 27,540 \text{ m}^2/\text{hr}$	$\sim 27,540 \text{ m}^2/\text{hr}$
Heavy	Double/Slower Pass	2.0 m/s	3 m	$3 \times 2 \times 3600 = 21,600 \text{ m}^2/\text{hr}$	$21,600 \times 0.85 = \sim 18,360 \text{ m}^2/\text{hr}$	$\sim 18,360 \text{ m}^2/\text{hr}$
Extra Heavy	Multi-pass/ Very Slow	1.0 m/s	3 m	$3 \times 1 \times 3600 = 10,800 \text{ m}^2/\text{hr}$	$10,800 \times 0.85 = \sim 9,180 \text{ m}^2/\text{hr}$	$\sim 9,180 \text{ m}^2/\text{hr}$



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Cleaning Times (Per Drone)

Farm Size	Dirt Level	Net Speed (m ² /hr)	Area to Clean	Time Needed	Water Used
1 MW (3,300 m ²)	Light	~27,540 m ² /hr	3,300 m ²	~7.2 min	~50 L
	Heavy	~18,360 m ² /hr	3,300 m ²	~10.8 min	~50–60 L
	Extra Heavy	~9,180 m ² /hr	3,300 m ²	~21.6 min	~60–80 L
5 MW (16,500 m ²)	Light	~27,540 m ² /hr	16,500 m ²	~36 min	~250 L
	Heavy	~18,360 m ² /hr	16,500 m ²	~54 min	~450–600 L
	Extra Heavy	~9,180 m ² /hr	16,500 m ²	~1hr 48 min	~700–900 L



Disclaimer

Performance estimates are subject to variation based on:

- **Weather conditions**
- **Chemical formulation and compatibility**
- **Validation by local specialists**

All assumptions should be confirmed through field testing prior to operational deployment.





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