

SOLAR ARRAYS – ROLL OUT SOLAR ARRAY (ROSA)

+ Redwire Space's state-of-the-art Roll Out Solar Array (ROSA) is a high-performance, lightweight, compact Solar Array solution.

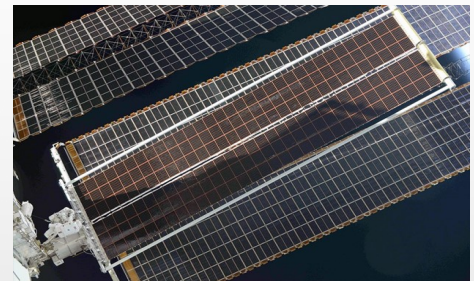
ROSA offers a simple, modular, and highly scalable design with these unique features:

- Innovative Composite Booms utilize strain energy to produce significant deployment force; no motors or complex mechanisms are required. The Booms transform into the Solar Array's primary structure with high deployed strength and stiffness upon deployment.
- An Integrated Modular Photovoltaic Blanket Assembly (IMBA) manufactured with highly manufacturable Solar Power Modules (SPM), accommodating all PV cell types & sizes and flexible concentrators. The rolled configuration of IMBA has outstanding robustness for launch vibrations and eliminates any potential stiction during deployment.
- Mega-ROSA, which consists of multiple ROSA wings arranged on a deployable backbone structure, is used for ultra high power applications.



APPLICATIONS

- + LEO, MEO, GEO, and interplanetary solar arrays
- + Resilient Solar Arrays (retractable and high-temperature survivability)
- + Lunar and Maritan Surface Solar Arrays (retractable and dust tolerant)
- + Ultra-High Power Space Station or Space Tug Capability
- + Constellation Arrays (low cost and high volume)
- + Electric Propulsion Direct Drive (high voltage)



PARAMETERS

1 kW to 30+ kW

Single Wing Size Options

100 - 120 W/kg

Typical Power-to-Mass Ratio

20 kW to 400+ kW

Mega-ROSA Configuration

40 kW/m³

Typical Stowed Power Density

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MADE IN THE USA

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FEATURES

- + ROSA uses strain energy to deploy; no motors or complex mechanisms are required
- + Rolls up and stows into a very compact volume, typically producing approximately 40 kW/m³
- + Very high deployed stiffness and strength
- + Lightweight flex blanket array typically produces 100W-120 W/kg
- + Modular PV blanket design provides scalability for any power requirement
- + ROSA can be designed to retract and survive high temperatures
- + Capable of all voltage ranges from 12V to >300V
- + No latching is required for full deployed strength. Array maintains stiffness during entire deployment

MISSION HERITAGE

- + IROSA ISS Roll Out Solar Array (Boeing /NASA)
- + ISS ROSA demonstration mission with retraction (AFRL)
- + Double Asteroid Redirection Test (DART) Mission (APL/NASA)
- + PPE Power Propulsion Element (MAXAR)

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HERITAGE

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