

**Aegis-Class Rover**  
*Surface Mobility for the Lunar Frontier*

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**Mission Profile**

The Aegis-Class Rover is a pressurized, self-contained lunar vehicle designed to support sustained operations on the Moon’s surface. It functions as a mobile habitat, scientific platform, and logistics support unit—capable of operating independently or as part of a broader infrastructure network.

Built for the coming lunar industrial era, the rover is engineered to safely and comfortably transport crew, cargo, and tools across vast distances of rugged terrain.

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**Core Capabilities**

Capability	Description
Crew Capacity	2–4 standard; up to 6 in emergency lifeboat mode
Pressurization	Fully sealed, stand-up interior cabin with EVA support
Autonomy	Manual, remote, and fully autonomous modes; return-to-base & preplanned nav
Life Support	72-hour standard, extendable to 7+ days; onboard CO <sub>2</sub> scrubbers and O <sub>2</sub> tanks
Docking	Rear Aegis-standard docking port; compatible with station and shuttle
Towing	Capable of towing modular trailers, cargo sleds, or ISRU equipment

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**Vehicle Configuration**

The Aegis-Class Rover is a single pressurized unit with the following approximate dimensions:

- **Length:** ~8.5 meters
- **Width:** ~3.0 meters
- **Height:** ~3.2 meters

Layout includes a panoramic cockpit, central cabin for living and operations, and a rear docking vestibule compatible with Luna–Aegis Shuttle and other infrastructure.

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**Mobility & Terrain Performance**

- **Chassis:** Rigid aluminum or carbon-alloy frame
  - **Suspension:** 6-wheel, independent terrain-following system
  - **Wheels:** Non-pneumatic titanium mesh flex wheels with rigid hubs and lateral treads—designed to withstand regolith abrasion and extreme thermal cycling
  - **Top Speed:** 25 km/h (terrain-limited)
  - **Cruise Speed:** 10–15 km/h
  - **Range:** ~100 km nominal (extendable via recharge or power trailer)
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## Power System

- **Primary:** Roof-mounted solar arrays + battery packs
- **Supplemental:** Swappable fuel cell or RTG (optional)
- **Docking Recharge:** Compatible with Aegis Station and lander ports

Redundant systems maintain power for mobility, life support, and computing.

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## Navigation & Autonomy

- **Sensors:** LIDAR, visual SLAM, terrain maps
  - **Navigation:** Pre-planned routing, real-time hazard detection
  - **Comms:** UHF/VHF, S-band, optional laser link
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## Mission Roles

- Resource prospecting and sample return
  - Water mining support and towing
  - Surface-to-station and site-to-site transport
  - Mobile command unit for construction or ops
  - Emergency shelter and EVA support
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## Aegis Ecosystem Integration

Designed to integrate seamlessly with:

- **Aegis Station:** Orbital docking and recharge
- **Luna–Aegis Shuttle:** Surface access and crew transfer
- **Lunar Tanker Fleet:** Support for water and ISRU logistics

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## **Long-Term Vision**

The Aegis-Class Rover is not just a vehicle—it's a mobile platform for exploration, science, industry, and emergency response. Whether prospecting for water, ferrying personnel between outposts, or forming caravans to support lunar development, the Aegis-Class Rover delivers rugged capability and scalable versatility for a permanent presence on the Moon.