A Premium Group Company

PREMIUM MOTION

PREMIUM

Solutions that Energise Energy for a Better Tomorrow

Enquiries: info@premiummotion.com

PREMIUM MOTION

DRIVING INNOVATION IN RENEWABLE ENERGY

Premium Motion, a green subsidiary of Premium Group established in 2021, specializes in designing and manufacturing motion enablers and solutions for solar trackers in the renewable energy sector. Using advanced technology and sustainable practices, we create solutions that enhance efficiency, reliability, and support a smoother transition to a sustainable future.

A Journey Through Time

150
YEARS OF GROUP LEGACY

05+
PREMIUM CARE CENTRES IN INDIA & GLOBALLY

04
E&D & TECH CENTERS: PUNE, SHENDRA, KOLKATA, AND CHENNAI

3 GW+
ACTIVE INSTALLATIONS ACROSS RENEWABLE ENERGY

05
STATE-OF-THE-ART MANUFACTURING FACILITIES

70+
TECHNOCRATS IN R&D & TECHNOLOGY CENTRE

Our slew drive gearboxes, solar panel cleaning robot, dampers and linear actuators are powering the solar energy sector effeciently. These products not only set the wheels in motion for the solar industry but also ensure that we are moving towards a more sustainable future. We have a state-of-the-art manufacturing facility at Pune equipped with the latest machines and technologies. Our team of competent engineers and technicians works tirelessly to ensure that all the products are precision-engineered. The team takes pride in manufacturing products that are contributing to move the renewable energy sector forward.

We are on a journey of delivering sustainable solutions and every step that we take is a small effort in making our world a better place.

Motion that Matters — Enabling 3 GW of Renewable Progress

WHY CHOOSE PREMIUM MOTION

A PREMIUM GROUP COMPANY

PREMIUM GROUP

Dedicated resources and cross-domain expertise for scalable, sustainable solutions.

3D PRINTING PROTOTYPING

Rapid in-house 3D prototyping for accurate form and fit validation.

MOTION WITH CARE

Support throughout the product lifecycle.

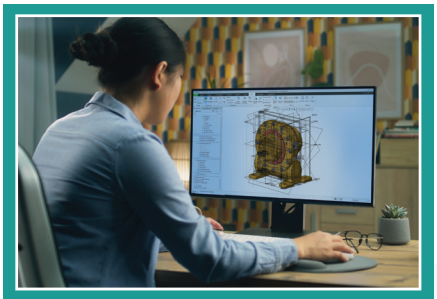
ENGINEERING EXCELLENCE

Decades of expertise delivering reliable, high-performance motion and renewable solutions.

PREMIUM
MOTION

COMPREHENSIVE PORTFOLIO

Comprehensive solutions for renewable systems enhancing efficiency and durability.



CAD/CAE DESIGN EXCELLENCE

Advanced CAD/CAE tools enable precise and efficient product design.

IN-HOUSE MANUFACTURING & SUPPLY CHAIN

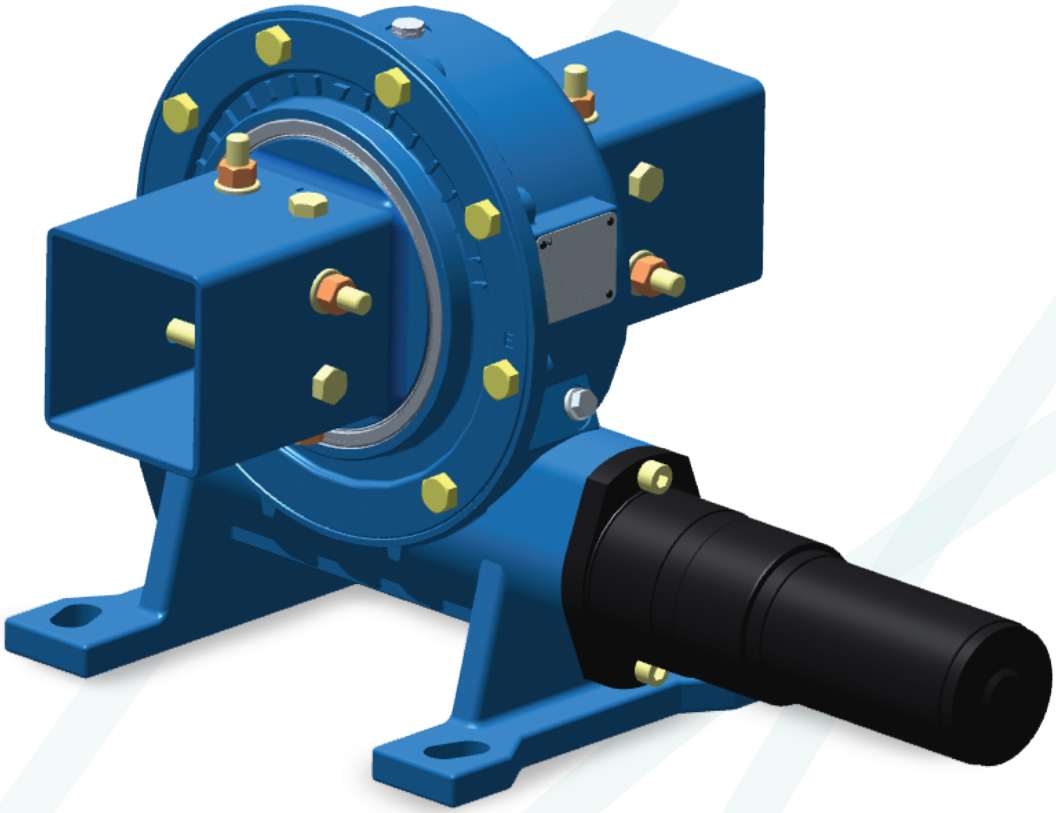
End-to-end design, validation, and assembly with dedicated production lines and in-house R&D. Reliable JIT deliveries.

QUALITY & RELIABILITY

Lean, 5S-driven manufacturing with ISO-certified processes ensuring consistent quality.

SLEW DRIVE

A Slew Drive is a type of gearbox that is specifically designed to handle high radial, axial, and moment loads. They are designed to withstand hold loads while also providing high rotational output torque. Slew drives consist of a worm gear mechanism, a metal bearing component, rubber seals, and sturdy housing to prevent environmental factors such as dirt, water, and dust from destroying the working components of the drive. Slew drives operate fundamentally identical to worm gears. As a worm gear rotates, it translates rotational motion along its axis to rotary motion of the axis it is perpendicular to. The driven member (the worm wheel) consequently exhibits a decrease in speed and a proportional increase in torque from the worm gear. The output speed of the worm wheel is dependent upon the ratio of the threads on the worm gear to the number of teeth on the worm wheel.



KEY FEATURES

Rated Dynamic Torque Range
From 3000 Nm to 13000 Nm (Based on the yearly torque Histogram, Worm Gear configuration can be changed)

Tracker Holding/Non-Back Driving Torque Range
From 12000 Nm to 50,000 Nm

High-Performance Worm Gear Pair
20 years designed for outdoor applications, it ensures exceptional holding torque strength, minimum wear, and durability even under reversible torque conditions.

Customized Design for Seamless Integration
The slew drive design can be fully customized to match your tracker interfaces and adapt to your torque tube design, ensuring effortless compatibility with your application.

Superior Corrosion Resistance
Equipped with a specially developed coating and paint system, the gearbox is tested to withstand harsh and highly corrosive environments, delivering long-lasting protection in extreme conditions.

Built to Endure the Outdoors
Engineered for rugged reliability, the design is maintenance-free and proven to perform in temperatures ranging from -40°C to +65°C. With advanced IP protection, it stands strong against dust, water, and environmental stress.

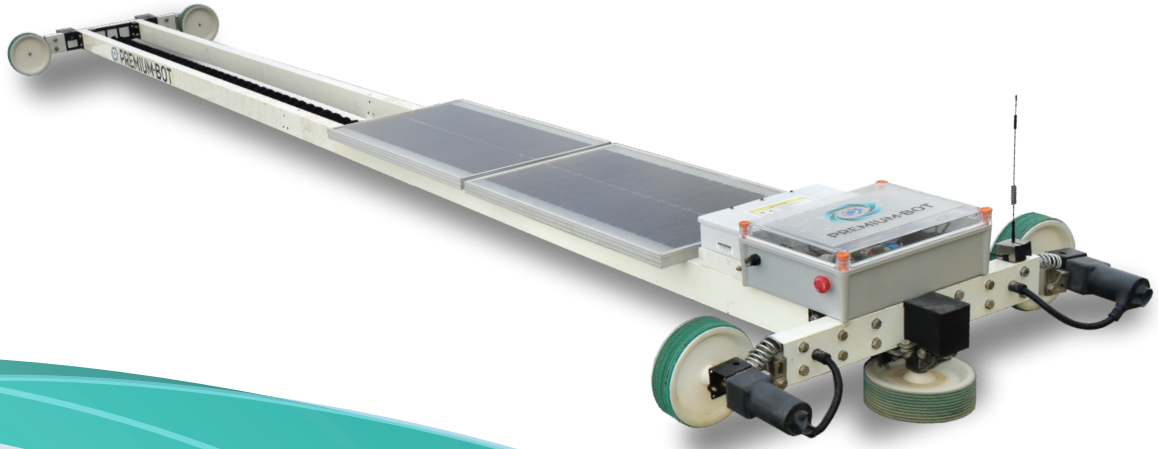
PREMIUM BOT - SOLAR PANEL CLEANING BOT

Solar panel cleaning robots are used because dust, dirt, bird droppings, and pollution reduce the efficiency of solar panels by blocking sunlight from reaching the photovoltaic cells.

Over time, this soiling buildup can lower energy output by up to 20%. Major reasons to use solar robots include increased power generation, reduced water usage, reduced manpower dependency, consistent cleaning, and improved safety.

These robots seamlessly integrate with Cloud and SCADA systems while utilizing advanced mechanisms to monitor and identify potential system-health issues.

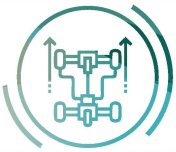
Thus, Solar Dry Cleaning Robots provide an efficient, cost-effective, and safe way to keep panels clean.



KEY FEATURES

Designed to be compatible with
1P, 2P, and 4L module configurations of solar plants.

Operates at a speed of
20 m/min with a range of 3 km.



4WD system with shock absorber technology ensures smooth running across module gaps.

Integrated SCADA System
The system enables real-time monitoring, diagnostics, and control of robotic operations for enhanced reliability and performance.

Zero Water
Dry cleaning robot eliminates the need for water, saving up to a quarter million per megawatt annually.

Solar Powered
The robot uses a 100 Wp solar panel to power its operations.

Robust Design
Built to withstand harsh weather conditions, including desert sandstorms and heavy rainfall. All-metal body and aluminum components make it both robust and lightweight.

Smart Cloud Connectivity
AI-based automation technology enables the robot to sense weather conditions and schedule optimal cleaning cycles.

DAMPER

A damper in a solar tracking system is used to control unwanted vibrations, oscillations, and excessive motion in the tracker structure caused by wind loads, sudden movements, or mechanical inertia.

USES OF DAMPER IN SOLAR TRACKING SYSTEM

Wind Load Mitigation

- High winds can cause tracker structures to vibrate or flutter.
- Dampers absorb and dissipate this energy, preventing damage to panels and structures.

Reducing Oscillations

- When the tracker changes position, inertia can cause overshooting or oscillation.
- A damper stabilizes the movement for smooth tracking.

Improving Structural Stability

- Reduces fatigue stress on tracker joints, gearboxes, actuators, and bearings.
- Extends the life of the mechanical system.

Energy Efficiency

- Without damping, the system wastes energy correcting overshoots or constant vibrations.
- Dampers ensure accurate alignment with minimal corrections.

Safety & Reliability

- Prevents excessive panel movement during storms or gusty conditions.
- Enhances operational safety and reduces maintenance costs.

KEY FEATURES

Durability
Our dampers ensure a 25-year operational life for long-lasting reliability.

Temperature Resilience
Designed to operate effectively from -40°C to +65°C in extreme conditions.

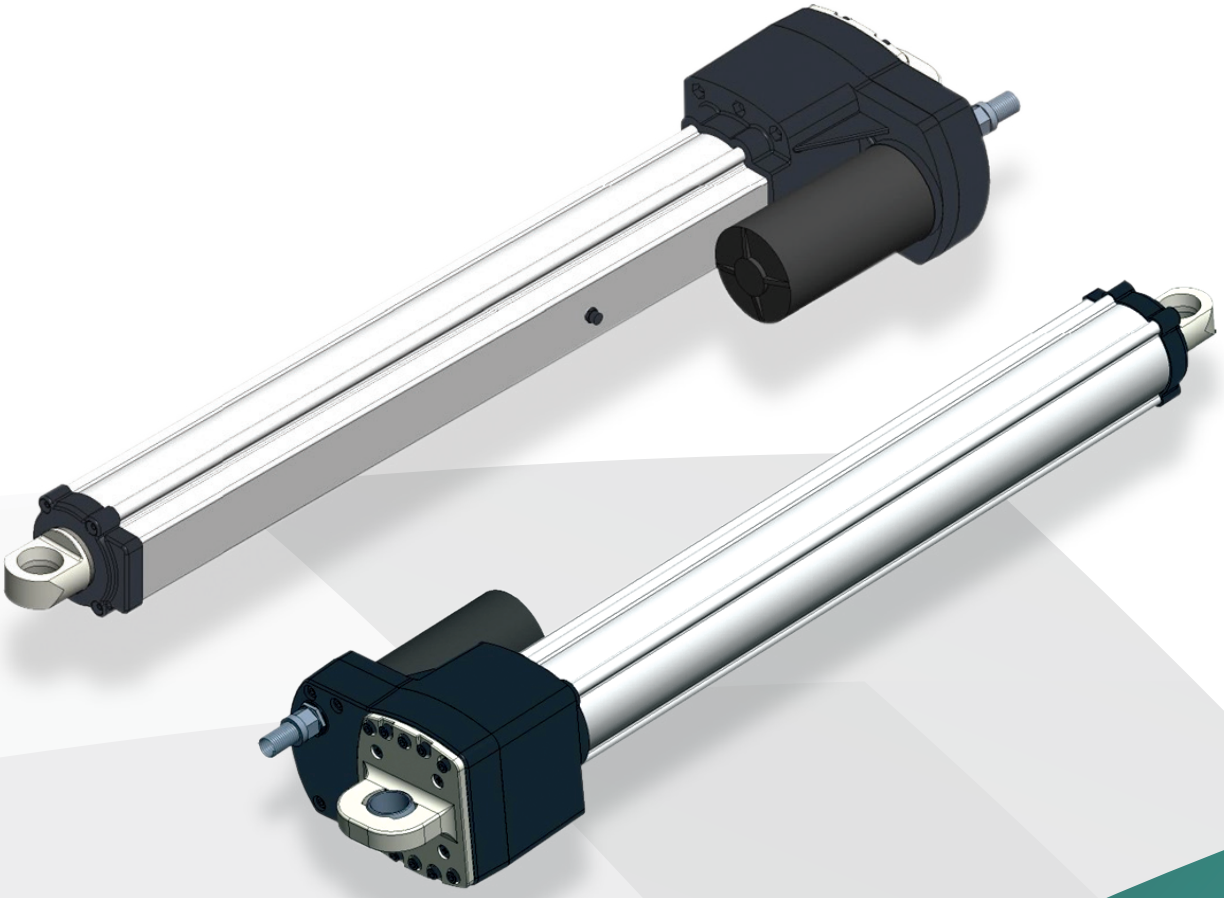
Weather Protection
IP66 rating provides dust-tight and water jet protection for harsh environments.

Customization
Tailor-made wind resistance adapts to specific environmental and local needs.

Enhanced Durability
Dual-cylinder design for reliable, long-lasting performance.

LINEAR ACTUATOR

Premium Motion's linear actuator can be used for lifting, dropping, sliding, or tilting of machines or materials. They provide safe and clean motion control that is efficient and maintenance free. Actuators are used in solar tracking applications. Electric linear actuators use a DC Motor with a series of gears and a lead screw that pushes the main rod shaft. The difference between actuators is determined by the size of the motor. Static and dynamic are the two load capacity variables of a linear actuator. Dynamic load capacity is the amount of force being applied when the actuator is in motion. Static load capacity is when the actuator is motionless and holding a load in place.



KEY FEATURES

High-Performance DC Motor
Optimized to deliver reliable efficiency across diverse load conditions with a robust 24VDC power supply.

Smart Safety with Programmable Encoder
Built-in encoder ensures precise stroke control, preventing actuator overtravel, with adjustable stroke lengths for flexible operation.

Precision Engineered Gearbox
Designed for maximum transmission efficiency, smoother operation, and extended service life.

Built for the Outdoors
Rugged design withstands extreme environments (-40°C to +65°C), offers superior IP protection, and endures up to 1000 hours of salt spray testing—ideal for demanding applications like solar tracking.

Customizable for Your Needs
Stroke lengths and connecting joints can be tailored to suit specific application requirements.

Passion to Propel

PREMIUM
Group of Companies
Passion To Propel

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