MecVel®

GREEN LINE

The eco-friendly side of MecVel

Linear motion systems characterized by high reliability, innovation and precision at the service of the photovoltaic field

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Since 1987 MecVel designs and manufactures linear actuators and screw jacks, electromechanical devices dedicated to perform positioning of loads even higher than 20 tons, using motors, gear boxes and push tubes to transform the rotatory motion of the motor into a linear movement. Moreover an important customization service offered by the company allows to configure each product in detail, to set it up according to application needs, realizing a tailored solution for each customer.

The high technical level and of specialization achieved with years of experience, together with the great attention MecVel has always given to the field of renewable energies, led the company to join the market of the photovoltaic industry with a specific range of products, in order to meet and improve all the linear motions required by this field.

These products are characterized by resistance and high performance, finding their optimal position in solar trackers, devices dedicated to the orientation of photovoltaic panels and solar concentrators depending on the sunrays grade. The aim is to increase the power of the solar energy captured and maximize the efficiency of the whole system. Their position, in fact, must be continually adjusted to maintain the sunrays constantly perpendicular to the surface, optimizing the conversion of the solar energy into electricity.

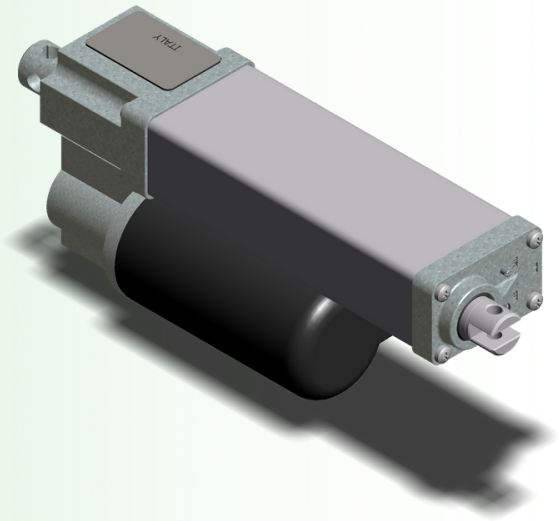
The most classic handling performed by a linear actuator or a screw jack is the rotation on a single axis, east-west direction or north-south direction (particularly indicated for countries with low latitude), allowing to increase considerably the energy generation (+15/20%, if compared to a fixed system). Dual axis trackers have a different kind of construction, to align orthogonally and in real time photovoltaic panels or solar concentrators to sunrays, applying a dedicated product to each axis, and in this case it is possible to reach an increase of 35%-40% of electricity production. Moreover MecVel is able to satisfy both kinds of tracker configurations, from the "building block" solution to the "independent row" solution, so from the simultaneous handling of all the rows and the trackers connected each other, to the individual movement of each single element inside the photovoltaic site, as a further demonstration of the great production capacity of the company.

Some of the plus that characterize this range of products are:
• High level of customization, to achieve a perfect setup and the maximum energy efficiency, with minimum overall dimensions and essential connections to the main structure, thanks to tailored rear and front ends
• No loss of power and consequently the downtime is reduced almost to zero, thanks to an efficient electric system
• Great knowledge and technologies, responding through specific setup to environmental conditions even critical such as humidity and salinity of the air, irradiance in the area, wind, also thanks to the use of protective paintings
• Easy installation of the products, able to work even with high temperatures and dust with low wear and minimum maintenance, ensuring a high reliability for the whole system
• Static load higher than the dynamic one, to provide a further resistance to the atmospheric agents and in case of difficult climatic conditions, first of all the presence of wind
• Speed reduced up to 1 mm/s, thanks to the choice of the most efficient gear motors, able to provide a reduced torque and consequently decrease the time needed to complete the stroke, reaching speed and performance required by the photovoltaic field, together with the lowest energy consumption
• Limit switches, potentiometer and encoder to reach and maintain an optimal and constant control long the whole stroke
• Bellows boot, cover tube and elements in stainless steel to withstand corrosion and extend the life of the whole application, due to the external use

The know-how that MecVel can provide to the photovoltaic industry allows to identify always the most suitable product and the optimal configuration to maximize the efficiency of the single solar field, making unique each linear motion performed.

Main products of the range dedicated to the photovoltaic industry:

• ALI1-PF: linear actuator with parallel motor, for a further reduction of the overall dimension, with a "tie-rod" function, connected to a simple lever in order to amplify the handling of small photovoltaic panels or solar concentrator connected in line each other.
Technical data:
- Load max: 2.500 N
- Speed max: 2,8 mm/s
- DC motor
- Stainless steel push rod
- Limit switches, potentiometer and encoder,
for an optimal control long the whole stroke available on request
- Front and rear ends designed by MecVel technical office
for tailored connections to the main structure

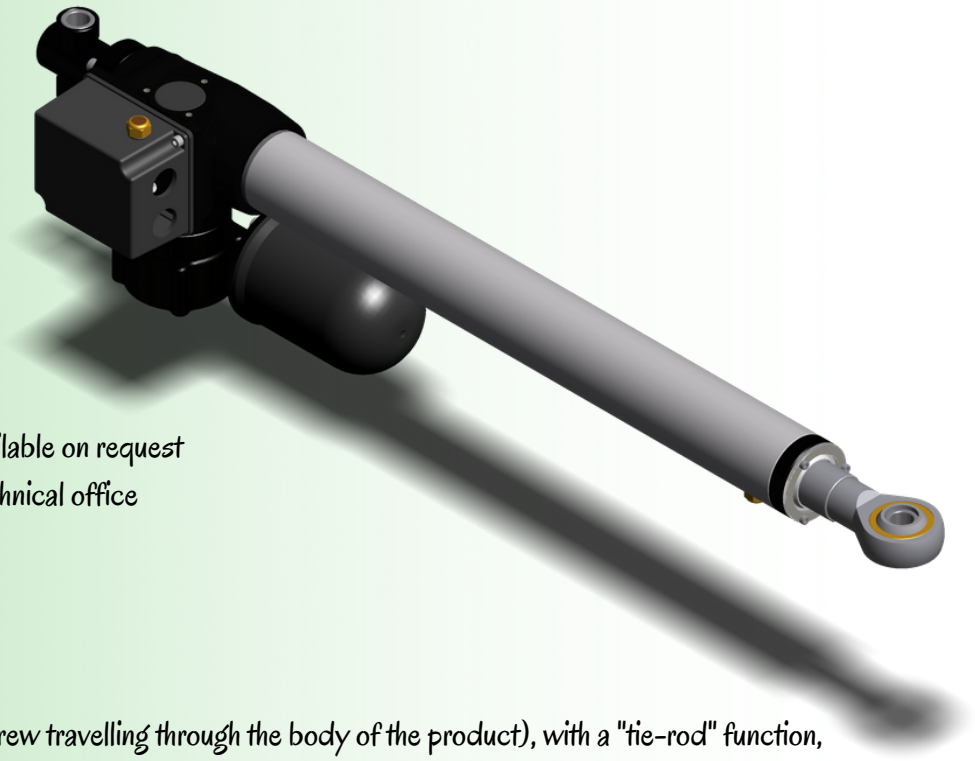


• ALI3 and ALI3-S: linear actuators applied directly to the structure of the module, for the handling of a single photovoltaic panel or solar concentrator.
Technical data:
- Dynamic/static load: 6.500/8.000 N
- Speed: from 2,5 to 5 mm/s
- DC motor
- Chromed steel push rod
- TPN or VRS screw (for an absorption reduction, and a consequent increase in performance)
- Limit switches, potentiometer and encoder, for an optimal control long the whole stroke available on request
- Front and rear ends designed by MecVel technical office for tailored connections to the main structure

• AL14F-P: linear actuators applied directly to the structure of the module, for the handling of a single photovoltaic panel or solar concentrator. The version with parallel motor allows a further reduction of the overall dimension.

Technical data:

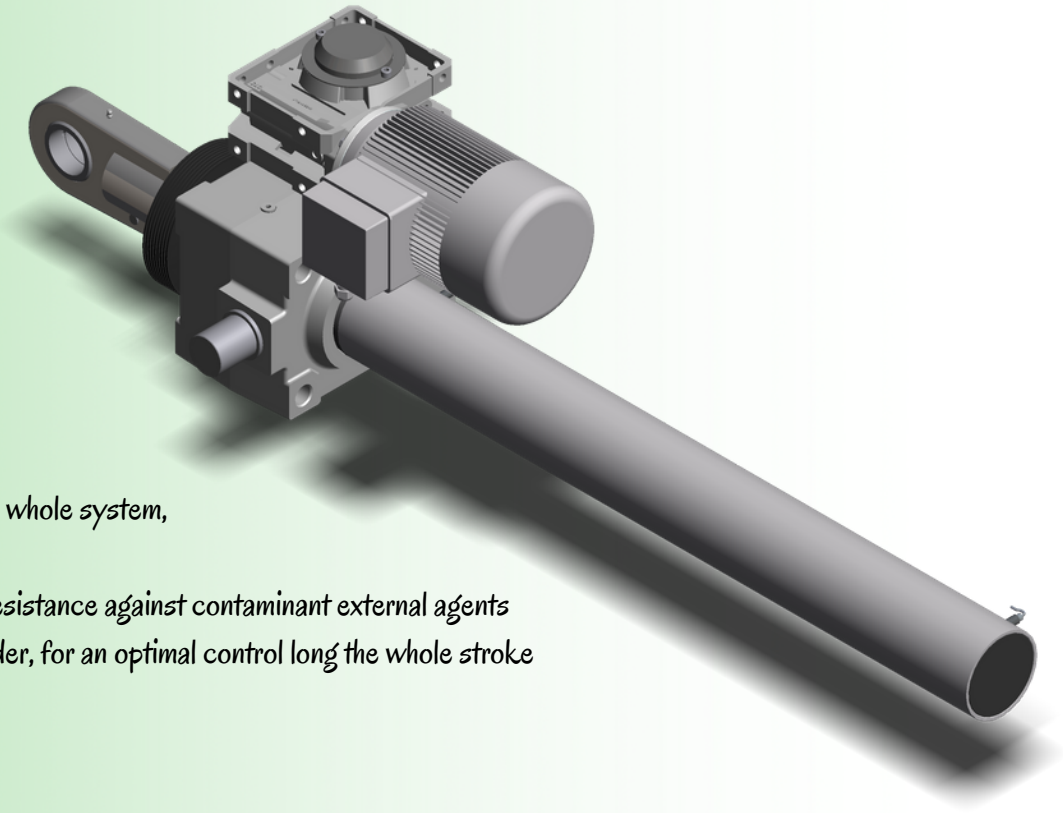
- Dynamic/static load: 10.000/20.000 N
- Speed: 1,25 mm/s
- DC motor
- Chromed steel push rod
- TPN or VRS screw (for an absorption reduction, and a consequent increase in performance)
- Limit switches, potentiometer and encoder, for an optimal control long the whole stroke available on request
- Front and rear ends designed by MecVel technical office for tailored connections to the main structure



• HT200: screw jack (version with an acme screw travelling through the body of the product), with a "tie-rod" function, for the handling of single sectors up to the whole photovoltaic site, where all the modules are connected together and to a central lever moved by the screw jack itself.

Technical data:

- Load max: 200.000 N
- Speed max: 1 mm/s (using a gear motor to provide a reduced torque and consequently to decrease the time needed to complete the stroke, reaching speed and performance required in the photovoltaic field with the lowest energy consumption)
- AC motor
- Supply of bellows boot and cover tube as further protection of the screw, and the whole system, against contaminant external agents
- Ball joint made in inox to offer a higher resistance against contaminant external agents
- Limit switches, potentiometer and encoder, for an optimal control long the whole stroke available on request



To remember once again that every product from MecVel range can be customized depending on the specific needs of each application.

For more information or to set up your product dedicated to the photovoltaic industry please contact us at:
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