

Introducing the SILA EC-210

The first linear actuator with fully integrated, non-contact transmission.

SILA delivers outstanding efficiency and performance
across a broad dynamic range.



SILA provides new solutions

Powerful and highly efficient throughout the most demanding duty cycles, SILA offers outstanding reliability, configurability and precision. The unit is compact and easy to integrate, ideal for retrofit or new build.

Outstanding efficiency SILA produces powerful thrust for low input voltage and current. More than 66% of input power is converted to power out.

Endurance and adaptability SILA maintains efficiency and delivers force consistently across the broad dynamic output range needed for human compatible motion and in unstructured environments. It is designed for the marathon as well as the sprint. Electro-mechanical actuators cannot match this adaptability and endurance.

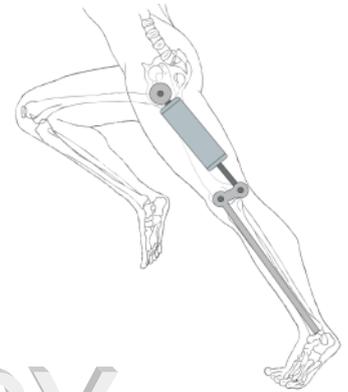
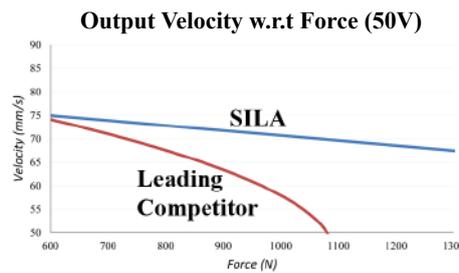
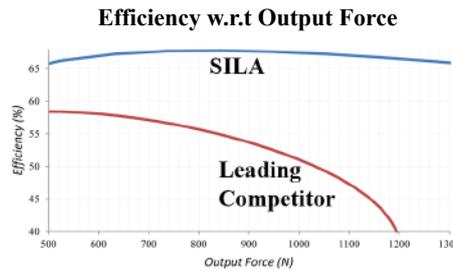
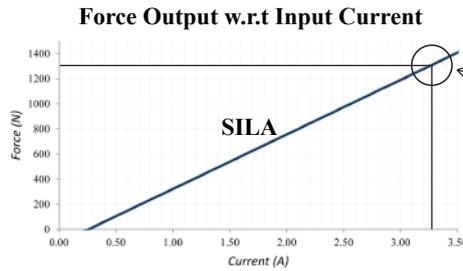
Low lifetime cost Low complexity and part count, absence of wearing surfaces, anti-jam design, high efficiency - low energy consumption, ease of integration, safe operation, low maintenance requirement and recyclability all contribute to reducing through-life cost.

Compact, lightweight and streamlined Tight integration of motor and transmission enables a compact and lightweight package.

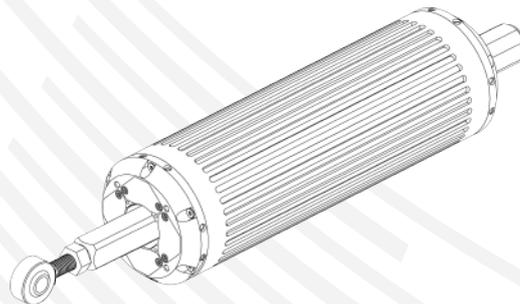
Unobtrusive, quiet operation The SILA EC-210 generates less than 48db noise. This offers meaningful reductions in noise levels relative to other actuation technologies.

Accurate Zero backlash and stiction-free transmission enable smooth, judder-free motion giving high positional accuracy, repeatability and fine control.

Resilient Shaft seal options provide ingress protection to IP66. Should the drive stop due to overload this will not damage the drive.



PRELIMINARY



Highly reliable The non-contact transmission has very low noise, no wear, no friction and no risk of jamming. This also removes the need for lubrication from all but the external bearing races holding the actuator rod.

Scalable and configurable Stroke length can be extended without loss of performance. Backdrive force can be tailored for application. While larger diameter SILA units will provide greater force, smaller units will remain power dense.

Fast and agile The SILA EC-210 has a standard and responsive 5Hz at +/-5% of stroke. Choice of controller determines maximum drive speed. There is no mechanical ceiling.

Easy integration This is achieved through the drive's compact, streamlined shape and weight, configurability, choice of industry standard controllers, and low power DC/battery operation.

for demanding motion control problems

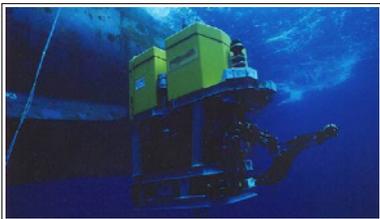
SILA will enable highly competitive, energy efficient products in many markets.



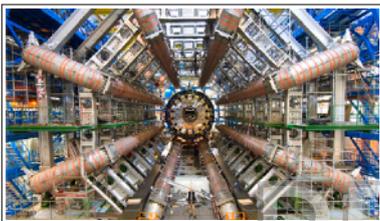
Aerospace and defence Existing actuation technologies are being pushed to their limit in the competition to supply next generation electric aircraft. SILA breaks through conventional electromechanical actuator limitations to align perfectly with aerospace requirements such as reliability.



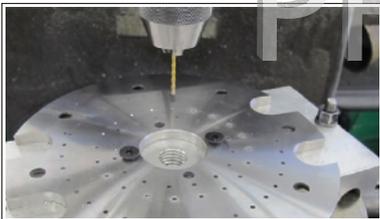
Industry and agriculture Compared to hydraulic and pneumatic systems, electric actuators can be controlled more precisely, present significantly reduced environmental and workplace hazards, and minimal maintenance related downtime. SILA electric actuators offer unrivalled power density, reliability and significant reductions in through-life cost.



Underwater and marine Marine exploration and resource recovery rely on highly capable actuation technologies to meet increasingly demanding objectives. SILA has inherent ingress protection, shock and vibration resistance, off-power backdriveability, low/no maintenance requirement and brings new problem solving capabilities to the industry.



Science and research From bench-top, battery powered prototypes to highly reliable, high performance, production-ready solutions, SILA offers research facilities, national laboratories, industry R&D and universities flexible and configurable motion control to extend the performance of experimental facilities and add competitive advantage to new products.



Test and measurement SILA provides superior motion control in all four dimensions (x,y,z,t) ensuring rapid acceleration, fine position control, backdrivability and repeatability. Stroke length is extendable without loss of performance and high power density is present even at smaller scales.



Medical Actuation and motion control systems are a critical component of many life-saving medical devices. Safety, reliability, accuracy, quiet operation and the ability to fit within constraints imposed by co-operating medical systems are pre-eminent concerns addressed by the SILA range. SILA's off-power backdrivability will be an advantage for tele-haptic operations.



Prosthetics and exoskeletons Initially envisaged for these developing markets, SILA meets the requirements for an active knee prosthesis: quiet operation, power to weight, fit within the leg envelope, free swing, energy harvesting, low maintenance/high reliability and affordability.



Domestic, health and social care Electric actuators such as SILA will be key to the next generation of connected, interoperable, actuated products needed to enable our aging population to live well, independently at home.

SILA EC-210 specification*:

Dimensions	L210mm, ø64mm
Power/ Weight	161W/kg
Mass	1.6kg
Lift	1.3kN peak, 0.7kN constant
Efficient	>80%
Positioning accuracy	1.52µm, no backlash
Bandwidth	5Hz @ (+/-) 5% stroke
Power requirements	>24V driver requirement
Safety	Desktop voltages
Bi-directional	Backdriveable off power. Configurable
Operating noise	Quiet relative to all other actuator types. 44.8dB @ 18mm/s
Part count	Low complexity & part count
Reliability	High due to no mechanical gearing
Velocity	Max 83mm/s, dependent on voltage
Mobility	Battery power option
Stroke & modularity	75mm. Stroke length extendable indefinitely
Controller	Industry standard interface
Force constant	>434N per amp
Ingress Protection	IP 66 with correct shaft seal
Scalability	Will scale up/down and extend to meet requirements

* includes estimates based on development trajectory of current version



SILA uses patented WaveDrive actuation technology. WaveDrive employs dynamic electromagnetic fields to create force and motion with unparalleled levels of efficiency and a wealth of new beneficial characteristics that challenge conventional actuation solutions. The SILA EC-210 is the first actuator to bring WaveDrive technology to market and offers a new toolkit for early adopters seeking competitive advantage for their product and platform developments.

For further information and to participate in pilots please contact us on:
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