

Linearmech linear servoactuators are **high performances** electromechanical cylinders, ball screw drive, motorized with brushless servomotors. Specifically developed for applications with high dynamics, this range of electromechanical cylinders is produced with **totally innovative solutions** if compared to more traditional electromechanical cylinders. All internal components are designed and built for maximum performance: **high speed, low inertia, high accuracy and repeatability in positioning, reliability and lifetime.**

Linearmech linear servoactuators best combine the demands for ever higher performance and **higher productivity** with competitive industrial costs. Also ideal for **replacing pneumatic cylinders** in applications requiring high position, speed and force control.

In the design and construction of this range of linear servoactuators, **Servomech** can count on its know-how and expertise from **thirty years of experience** in the field of electromechanical actuators, ball screws and a steady application experience on field. The result is an innovative product, with distinctive features and performances.

The **mechanical construction** of these servoactuators, in compliance with **ISO 1552 standard** for cylinders, allows the mounting of different standard types of fixing elements. This simplify the use and the assembly in systems where movements of controlled axis are required. Also the replacement of the traditional pneumatic cylinders with electromechanical servoactuators is easier, maintaining exactly the same type and size of the fixing.



Five reasons to prefer Servomech electromechanical cylinders to traditional hydraulic and pneumatic cylinders. More informations on **www.servomech.com**

1 GREATER ENERGY EFFICIENCY
WITH REDUCED ENERGY CONSUMPTION

2 GREATER CONTROL:
POSITION - SPEED - FORCE

3 POSITIONING ACCURACY
AND REPEATABILITY

4 GREATER SAFETY
AND RELIABILITY

5 EASIER INSTALLATION AND
LOWER MAINTENANCE COSTS

Linearmech linear servoactuators have been designed and built by Servomech to overcome the performance limits of pneumatic cylinders. Ideal for **high dynamics applications**, high precision and positioning accuracy, reliability over the time. Linearmech servoactuators grant excellent **speed control**, from speed close to zero up to the max permissible speed, excellent **positioning control** in any stroke position, intermediate or extreme, excellent **load control**, within a wide range of values.

There are many different **application fields for the servoactuators products**, but most of all they are suggested in case of applications with high levels of automation, productivity, efficiency and reliability.

Linearmech is a brand of the Servomech Group that brings together products focused on automation and mechatronics.

Product overview

Linearmech servoactuators product range of is based upon **5 series**, differentiated by design, mounting position and input drive.

SA IL Series

- Linear servoactuators with brushless motors
- In-line motor
- Transmission of motion by torsionally rigid coupling
- Linear unit to fit Linearmech brushless servomotor only, motor included
Available for domestic market ONLY


SA PD Series

- Linear servoactuators with brushless motors
- Parallel motor
- Transmission of motion by high performance and accuracy timing belt
- Linear unit to fit Linearmech brushless servomotor only, motor included
Available for domestic market ONLY


SAM IL Series

- Linear servoactuators with universal motor attachment for servomotors
- Prepared to easy-fit third party servomotors
- In-line motor
- Transmission of motion by torsionally rigid coupling


SAM PD Series

- Linear servoactuators with universal motor attachment for servomotors
- Prepared to easy-fit third party servomotors
- Parallel motor
- Transmission of motion by high performance and accuracy timing belt


SA Series

- Mechanical linear unit with cylindrical input shaft
- Simple and flexible, to adapt to any type assembly with motor or gearmotor



/ Size overview

Thanks to the completely modular construction system, each family is available in **7 standard sizes**, to cover a wide range of performances.

SIZE	ISO 15552 profile [mm]	Push rod diameter [mm]	Ball screw $d_o \times Ph$ [mm]
SA • SAM 0	Ø 32	Ø 20	12 × 5
			12 × 10
SA • SAM 1	Ø 40	Ø 22	14 × 5
			14 × 10
SA • SAM 2	Ø 50	Ø 25	16 × 5
			16 × 10
			16 × 16
SA • SAM 3	Ø 63	Ø 30	20 × 5
			20 × 10
			20 × 20
SA • SAM 4	Ø 80	Ø 35	25 × 5
			25 × 10
			25 × 25
SA • SAM 5	Ø 100	Ø 50	32 × 5
			32 × 10
			32 × 20
			32 × 32
SA • SAM 6	Ø 125	Ø 60	40 × 5
			40 × 10
			40 × 20
			40 × 40

/ Main features

- Modular structure, robust and compact.
- **7 standard sizes** available at catalogue.
- **In-line or parallel motor.**
- **High precision ball screw drive**, made in Servomech.
Standard execution with rolled ball screw ISO IT7 accuracy grade.
Available upon request ball screw ISO IT3 and IT5 accuracy grade, ball nuts zero backlash or preloaded.
- **Integrated lubrication system for the ball nut** with sealing for lubricant. The lubricant is only where needed, no leakage even in case of high dynamic conditions.
- **Transmission of motion with zero backlash and low inertia**, to get maximum performances with high dynamics and speed conditions.
- Wide range of fixing elements according to the **ISO 15552 standards**.
- Compensation of air flows and the relative pressure through breathers both outwards and inwards. No seals failure, no energy waste, no lubricant leakage thanks to the special design of the ball nut.
- Non-sliding contact lubricant seals to prevent wear, overheating and frictional losses.
- Elastic cushioning elements at stroke-end position protect the mechanics in case of accidental impacts.
- **Anti-turn device** of the push rod included as standard.
- **Stroke end limit sensors** integrated into the profile.
- On demand: IP65 protection. For more informations, please contact our technical support.

/ Sizing and selection

Linearmech electromechanical servoactuators have been specially developed for applications with **high dynamics**, and in general where the precise and **accurate control of position, speed and force** is a crucial factor. Sizing your electromechanical cylinder correctly means finding the most cost-effective solution that meets the application requirements.

1 Identify the performances and technical specifications required by the application.

- **Load** (static and dynamic load, pull and push load, moving mass, side loads, shock loads, vibrations).
- **Working position** (horizontal, vertical, inclined, load guided, holding the position).
- **Stroke** (stroke length required, max. dimension in closed position).
- **Linear speed** (max. speed, min. speed).
- **Precision** (accuracy, max. backlash).
- **Duty cycle** (total cycle time, required lifetime, accurate description of the working cycle with load and speed diagram referred to time).
- **Environmental condition** (operating temperature, outdoor, washdown, IP grade required).
- Presence of **contaminants** (powders, liquids).
- **Motor and driver** required.

2 Select the product series.

Depending on the mounting position of the motor (in line or parallel mounting) and on the presence of the motor in the supply (motor included or linear unit prepared to fit third-party motor).

3 Select the size of the servoactuator.

Using the summary tables in the Technical data section of each series.

4 Mechanical checks.

- **Lifetime check.**
According to the duty cycle, check the life of the ball screw. Refer to the information in chapter **7.2 / Ball screw sizing and service life** (page 42).
- **Buckling resistance.**
In case of push load (static or dynamic) applied on the servoactuator, the buckling resistance of the screw must be checked. Refer to the information and diagrams in chapter **7.3 / Push load limit** (page 47).
- **Critical speed / Max rotating speed of the screw.**
Refer to the information and diagrams in the chapter **7.4 / Critical speed limit** (page 48).
- **Permissible side load.** In case of side load applied on the push rod, this must be lower than max permissible side load. Refer to the information and diagrams in chapter **7.5 / Side load limit** (page 50).

5 Motor sizing.

See chapter **7.1 / Motor sizing** (page 40).

6 Options and accessories.

Mounting options and rod end options see chapter **5 / Mounting options** (page 30).

Stroke end limit switches sensors see chapter **6 / Limit sensors** (page 37).

7 Check actuator dimensions and fixing options.

Refer to the tables to know the overall dimensions of the actuator and accessories and verify that they are compatible with the application. By visiting our website **www.servomech.com** you can download the 3D models of our products for free.

8 Fill the ordering code.

See chapter **9 / Ordering code** (page 61).

Our team of application engineers are at your disposal for more information and to support you in the correct product selection. We ask you to fill in the **application worksheet form** available on page 54 of this catalog and send it by e-mail to: sales@linearmech.com