

**When push comes to shove,
Olsen have the answer!**

EXLAR LINEAR SERVO MOTORS

A unique marriage of mechanical and electrical technology

Based upon over 20 years of experience in traditional drive systems and applications, Olsen Engineering was founded to promote and provide technical consultancy on modern motion control solutions being the modern alternative to traditional hydraulic and pneumatic systems.

The electromechanics department is dedicated to Exlar linear servo motion solutions. The company has accumulated substantial operational experience with partners in supplying linear motion solutions to major users and OEMs in the food preparation and packaging sectors from applications covering volumetric filling, positioning, labeling, cam replacement etc.

Olsen Engineering can provide the most efficient solutions and equipment appropriate in the fields of linear actuators, variable frequency drives, mains filtration systems, active filters and uninterruptible power supplies.



EXLAR



Official partner of Exlar in UK, Russia and CIS

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ABB **SIEMENS**
MOOG **Rexroth**
Bosch Group

Rockwell
Automation
GEFRAN
OMRON

Compatible
with most
servo
controllers



EXLAR linear servo motors —

A unique marriage of mechanical and electrical technology

The electrical components comprise a synchronous PM servo motor equipped with a choice of feedback types (discrete encoder, incremental or absolute; in some cases a resolver). The mechanics comprise a patented inverted roller screw motion drive. The electric motor stator consists of laminated winding sections designed to provide optimum torque (patented technology – T-LAM).

How do we get linear motion from a rotary drive?

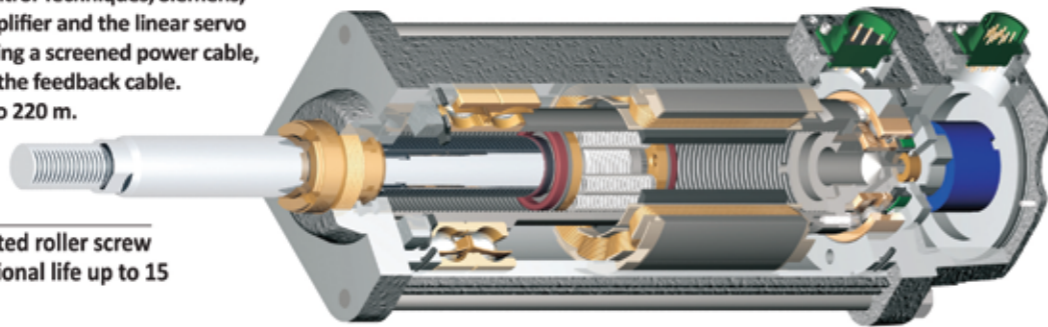
It is the roller screw mechanism that converts the motor's rotation into linear shaft movement. The stator's rotating magnetic field drives the rotor, a hollow cylinder. The rotor is powered by the permanent magnet sets mounted on its exterior. The number of magnets determines the rotor torque and hence the linear force developed. Inside this hollow cylinder is an ID thread arrangement, within which the roller screw mechanism, with a high number of rollers, engages. As the rotor turns, so the rollers push the shaft in a linear direction.

So how can we offer such a high resolution and precision of positioning?

Modern servo motors use feedback sensors with a minimum 4096 pulses per revolution. One shaft revolution corresponds to the internal thread pitch size, for example, 2.54 mm.

Principle of the control system arrangement

With the exception of the Tritex units, Exlar linear servo motors require a power supply from a servo-amplifier from any one of a number of manufacturers: e.g. Exlar, Control Techniques, Siemens, Omron, Allen-Bradley etc. The servo-amplifier and the linear servo motor are cabled together, one cable being a screened power cable, the other a control cable screened from the feedback cable. The maximum length permissible is up to 220 m.



* Cutaway diagram showing the patented roller screw technology which guarantees operational life up to 15 times that of ball screw units.



	Exlar Roller Screws	Acme Screws	Hydraulic Cylinders	Pneumatic Cylinders
Load Rating	Very High (up to 288 kN)	High	Very High	High
Lifetime	Very Long (>10 years)	Very Low, due to high friction and wear	Long	Long
Electronic Positioning	Easy	Moderate	Difficult	Very Difficult
Stiffness	Very High	Very High	Very High	Low
Maintenance Requirement	Very Low	High due to poor wear characteristics	Very High	High
Installation Difficulty	Compatible with standard servo electronic controls	User may have to engineer a motion/actuator interface	Complex; requires servo-valves, high pressure plumbing, filtering pumps, linear positioning and sensing	Very complex; requires servo-valves, plumbing, filtering, compressors, linear positioning and sensing
Environmental impact	Minimal	Minimal	Hydraulic fluid leaks and disposal	High noise levels
Relative space requirements	Minimum	Moderate	High	High
Efficiency	>80%	Approx 40%	<50%	<50%

GS series

Force Rating – up to 55 kN
Max velocity – up to 950 mm/sec
Stroke – up to 455 mm
Accuracy – up to 2.5 µm
Enclosure - IP 54/65/67

FT series

Force Rating (N) – up to 288 kN
Max velocity – up to 1.5 m/sec
Stroke (mm) – up to 1.2 m
Accuracy – up to 2.5 µm
Enclosure - IP 65/67

I series

Roller screw actuator for any motor
Gearbox option up to 10:1 ratio
Force Rating – up to 17 kN
Max velocity – up to 950 mm/sec
Stroke – up to 455 mm
Accuracy – up to 5 µm
Enclosure - IP 65/67

SL series

Traditional servo motors
Torque moment – up to 500 Nm
Integrated gearbox option to 100:1 ratio

EL/ER series

Linear and traditional servo motors, certified for hazardous zones

TRITEX

Linear servo actuators with built-in positioner
Force Rating – up to 5.5 kN
Max velocity – up to 848 mm/sec
Stroke – up to 455 mm
Accuracy – up to 5 µm
Enclosure - IP 54/65



Process control
Valves and D-valves of steam turbine set.
Operating mechanism of control valves (suitable for use with a manual alternative and restitution spring to zero position)



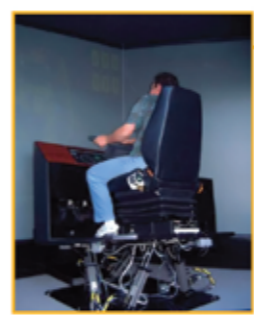
Military and aerospace industries
Positioning and guidance systems
Pushers and hoists
Tracing guiding
Conveyors
Valve operating systems
Helicopter rotor positioners
Flight stabilizers
Steering systems



Forestry and sawmills
Lathe and wood-peeling machines
Material feed systems
Sawmill equipment
Overhead canters
Planing machines
Edgebanders
Grinding and turning centers
Presses



Mechanical engineering and metallurgy
Furnaces with vibratory mechanisms
Hydraulic pressure mechanisms
Cranking mechanisms
Flying shears and saws
Spindles
Cross bars of hydraulic presses
Elevating scaffolds
Welding equipment



Training equipment and simulators
Wave simulation
Motion simulation
Cabin, seat and platform movement actuators
Hexapod and three-pod machines
Vibration-testing machinery
Blood pressure stimulators
Earthquake simulators
Game simulation cabins



Automotive industry
Welding guns
Adjustable clamps
Stamp operators
Presses
Drilling equipment
Pressure guns and extrusion machines
Punching and forging
Riveting



Food industry
Packaging machinery
Dosing units and pressure guns
Mills and vibro-dosimeters
Cutters and other cutting systems
Feed systems



Plastic material industry and others
Extrusion machines
Induction valves
Filling and dosing machines
Tension and spreading systems
Robot devices

Key Advantages:

- High reliability
- High linear speed
- High precision
- Safety
- Smoothness of operation
- Very high stiffness
- Lower cost of operation
- High operating speed
- Ease and practicality
- Monitoring and diagnosis
- Low maintenance
- Efficiency > 85%
- Operating temperature: -40°C to +80°C