Focus on Outdoor Power Equipment

LINAK-US.COM/TECHLINE
What LINAK actuators do for the lawn mower

LINAK TECHLINE® electric actuator solutions provide smooth and precise movement in a wide range of outdoor power equipment applications.

Electric adjustment of the cutter blades on a lawn mower expedites the mowing time and ensures optimum height for a wide range of cutting settings. From very short golf greens to higher zero turn rider cutting heights, LINAK electric actuators work reliably in numerous outdoor environments. Other electrical adjustments include positioning of the steering wheel for a comfortable ride and opening and closing of the engine hatch.

LINAK actuators can be found on lawn mowers used on sports fields, golf courses, and commercial zero turn riders.

Positioning
Positioning of the steering wheel and driver seat for easy access and comfort during operation

Cutter blades
Locking of blades in upward position for transport
Cutter blades
Individual adjustment of the cutter blades

Engine hatch
Opening and closing of the engine hatch for effortless quick access
What LINAK actuators do for the lawn mower

Mower deck
Adjust mower deck up and down for cleaning, maintenance and transport
Clippings hatch
Opening and closing of the clippings hatch for effortless quick access
LINAK® improves productivity with simple, safe and powerful motion-control for a variety of Outdoor Power Equipment. From Zero Turn Radius mowers, golf mowers and Utility Vehicles, to spreaders, sprayers and other turf and snow maintenance attachments, LINAK delivers:

- Reliable products designed for harsh outdoor conditions
- Excellent alternative to many light-duty hydraulic applications
- Turn-key supplier of complete motion-control solutions
- Cutting-edge technology when more sophisticated controls and precise motion is required
- Close collaboration between your team and our application engineers, represented in over 30 countries

From small, light and compact actuators for space savings, to powerful robust systems able to lift up to 10,000 N, LINAK electric actuators are built for long-lasting durability. Our actuators are tested to the highest standards and can be delivered in protection classes up to IP66 and IP69K—water, dust and dirt proof and tested for high pressure cleaning.

Go electric and spot the difference
Customers demand safe, reliable and cost effective operation, without the headaches of oil leaks, costly maintenance, spares, and loss of productivity associated with downtime. With fewer components required to design a system, you can replace an entire fluid system with one electric actuator providing:

- Fewer components and less cost
- Less labor cost
- Quick assembly since there are no hoses, clamps or pumps to install and test
- Expedited time to market

LINAK offers optional built-in positioning feedback, synchronous parallel operation and accurate positioning. Our controls can easily connect to the existing power supply or control systems, offering a simple plug and play solution. This allows you to design innovative and flexible solutions for your customers.

LINAK electric actuators work on low voltage DC, provide high self-locking ability and optional manual operation, creating a safer work environment for the operator. An electric solution is not only more energy efficient but also eliminates the risk of hazardous oil leaks, providing a greener alternative.

Additionally, an electric linear system requires no maintenance, reducing total cost of ownership and improving ROI on your capital investment.
Hydraulic system
- Complex system of oil tanks, pumps, filters and hoses
- Per default no integrated positioning
- Requires routine maintenance
- High energy consumption
- Risk of fluid leaks

Electric actuator system
- Simple system of actuator, control and power connection
- Integrated positioning
- Maintenance-free
- Low energy consumption
- No fluids
What LINAK actuators do for outdoor power equipment

**Boomsprayer**
Precise delivery of spray applications, move from spray to transport & storage mode and adjustment of drift reduction shroud

**Top dresser**
Electric opening and closing of material outlet, precise adjustment of spread pattern, removal of dump material

**Snowblower attachment**
Simple adjustment height of auger box and rotate and adjust angle of chute
Zero Turn Radius mowers & attachments
Electric adjustment of mower deck for precise cutting heights and various functions for lawn attachments

Ride on spreader/sprayer combo
Opening/closing and precise calibration control of spreader outlet and spray nozzle

Aerating machine
Tilting of the aerating roller

Utility vehicle
Easy and steady electrical operation of UTV dump beds
Enhance your competitive edge and step into the future world of movement.

**Cost-effective performance**

When we claim that we can make your application more cost-effective, we base it on our ability to help you ensure less downtime, less time spent on maintenance, easier and faster set-up, more intelligent control and more accuracy in your application. All in all this can ensure a more cost-effective use of your application.

**Ready for the future**

To be ready for the future can mean different things. In our terminology it means being able to ensure that your application has the most up-to-date and intelligent features for performing at its best in regards to control, accuracy and speed.

**Competitive edge**

Cost-effective performance and innovative technology is exactly what you need in your application to make sure that you always keep your competitive edge and your ability to survive as a company in a highly competitive world.

Do you want cost-effective performance, innovative technology and a competitive edge? Go for LINAK actuators with integrated controller, and Move for the Future.
IC - Integrated Controller

IC is the range of integrated control options for TECHLINE® actuators that present you with almost unlimited possibilities for superior control and monitoring, to enhance the value and performance of your application.

Choose between four IC variants:

**IC BASIC**
The plug and play option that comes pre-configured to meet your exact requirements.

**IC ADVANCED**
The customizable option with enhanced monitoring and read-out of actuator information.

**PARALLEL**
The smart and self-configurable option that allows for parallel drive of up to 8 actuators.

**BUS**
The BUS communication option for intelligent controls.

**CAN bus, LIN bus, MOD bus**

For more information on IC go to [LINAK-US.COM/SEGMENTS/TECHLINE/TECH-AND-TRENDS/INTEGRATED-CONTROL](http://LINAK-US.COM/SEGMENTS/TECHLINE/TECH-AND-TRENDS/INTEGRATED-CONTROL)
Actuators for outdoor power equipment

LA37 actuator - solid and powerful

Tough applications require equally tough actuator solutions. Thus the LA37 is specifically developed for heavy-duty applications where there is a need for more lifting capacity and holding force. This solid and powerful actuator also lives up to the well-known LINAK quality, so you can expect a minimum of maintenance and a long lifetime.

LA37 features:

- Max. thrust up to 15,000 N (3,372 lbs)
- Max. speed up to 3.5 mm/s (.13 in/s)
- Standard stroke 100-600 mm (3.93–23.62 in)
- Protection class IP66 / IP69K
- Voltage 12 or 24V DC
- Heavy-duty aluminum housing for harsh conditions
- Integrated brake, high self-locking ability
- Hall sensors or potentiometer for relative or absolute feedback, regardless of the stroke length
- Built-in endstop
- Solid metal construction
- Hand crank for manual operation
- Salt spray and chemical tested
- High-pressure cleaning resistant
- Available with IC™ and CAN bus SAE J1939
LA36 actuator - reliable and tough

The LA36 actuator is a solid and powerful actuator designed to operate under extreme conditions. A very strong alternative to hydraulic solutions.

LA36 features:

- Max thrust up to 10,000 N (2,248 lbs)
- Max speed up to 160 mm/s (6.29 in/s)
- Standard stroke 100-999 mm (3.93–39.33 in)
- Protection class IP66 / IP69K
- Voltage 12, 24 or 36 V DC
- Heavy-duty aluminum housing for harsh conditions
- Integrated brake, high self-locking ability
- Hall sensors or potentiometer for relative or absolute feedback, regardless of the stroke length
- End stops: slip clutch or built-in limit switches
- Solid metal construction
- Hand crank for manual operation
- Salt and chemical tested
- High pressure cleaning resistant
- Available with ICTM and CAN bus SAE J1939
Actuators for outdoor power equipment

LA35 actuator - flexible and powerful

The LA35 actuator is characterized by its robust design allowing the actuator to be used in harsh and extreme conditions for a wide range of applications. The LA35 is a powerful actuator with high flexibility.

LA35 features:

- Max thrust up to 6,000 N (1,349 lbs) in push and up to 4,000 N (899 lbs) in pull
- Stroke up to 600 mm (23.62 in)
- Protection class IP66 dynamic / IP69K static
- Voltage 12 or 24 V DC
- Heavy-duty aluminum housing for harsh conditions
- Easy to use interface – with integrated power electronics for direct connection to control system
- Potential free limit switches as an option
- Hall sensors or potentiometer for relative or absolute feedback, regardless of the stroke length
- Built-in limit switches and brake
- Available with IC™
LA33 actuator - compact and powerful

The actuator LA33 is a true mid-size actuator that combines compact design and high power in one solution, fit for use in the most extreme environments. A thorough and demanding testing program forms the basis for the maintenance-free and long lasting performance of this solid and high-quality actuator.

LA33 Features:

- Max thrust up to 5,000 N (1,124 lbs)
- Max. speed up to 30 mm/s (1.18 in/s)
- Stroke up to 600 mm (3.93-23.62 in)
- Protection class IP66 dynamic / IP69K static
- Voltage 12 or 24 V DC
- Heavy-duty aluminum housing for harsh conditions
- Integrated brake, high self-locking ability
- Solid metal construction
- Hand crank for manual operation
- Built-in limit switches
- Available with IC™ and CAN bus SAE J1939

Options:

- Hall effect sensor
- Endstop signals
- Possible IC options for LA33: IC Basic, IC Advanced, Proportional control, LINbus and CANbus
Actuators for outdoor power equipment

LA31 actuator - reliable and compact

The LA31 actuator is a very quiet and powerful actuator designed for a variety of applications. Due to its high capacity, design and protection class up to IPX6 the actuator is ideal for industrial applications. The various combinations of motor, spindle pitch, back fixture and piston rod eye make it a good candidate for a number of solutions.

LA31 features:

• Max. thrust up to 6,000 N (1,347 lbs) in push and 4,000 N (898 lbs) in pull
• Stroke up to 50–600 mm (1.97–23.62 in)
• Voltage 12 or 24 V DC
• Analog or digital feedback
• IPX6 housing
• Signal switches
• Safety nut in push
• Built-in limit switches
LA25 actuator - compact and robust

With its robust design, high IP degree and aluminium housing, the LA25 is ideal for harsh environments where operation under extreme conditions is required. Furthermore, the compact dimensions of the LA25 make it applicable for confined spaces.

LA25 features:

- Max thrust up to 2,500 N (561 lbs)
- Max speed 13 mm/s (.39 in/s)
- Standard stroke 20-300 mm (.79-11.81 in)
- Protection class IP66 and IP69K
- Voltage 12 or 24 V DC
- Heavy duty aluminium housing for harsh conditions
- Available with ICT™ and CAN bus SAE J1939
Actuators for outdoor power equipment

LA23 - small and strong

The LA23 actuator is a small and strong push or pull actuator. The LA23 actuator can be used in various applications where size is important.

LA23 features:

- Max thrust up to 2,500 N (562 lbs)
- Max speed 9.4 mm/s (.37 in/s)
- Standard stroke 20–300 mm (.78–11.81 in/s)
- Protection class IP66 dynamic
- Voltage 12 or 24 V DC
- Electrical and mechanical end stop
- Available with Basic IC™
LA14 actuator - robust and reliable

The LA14 is a very tough and reliable actuator ideal for use in harsh and demanding environments. With its small size the LA14 actuator is well-suited for applications that require short linear movements.

LA14 features:

- Max thrust up to 750 N (169 lbs)
- Max speed up to 45 mm/s (1.77 in/s)
- Standard stroke 40-130 mm (1.57–5.11 in)
- Protection class IP66 dynamic / IP69K static
- Stainless steel inner tube and piston rod
- Voltage 12 or 24 V DC
- Heavy-duty aluminum housing for harsh conditions
- Built-in limit switches
- Wide range of customized feedback options
- Operation temperature from -40°C to 85°C
- Available with ICT™ and CAN bus SAE J1939
Actuators for outdoor power equipment

LA12 actuator - light and compact

Thanks to its small size and outstanding performance, the LA12 actuator provides a practical and cost-effective alternative to traditional hydraulic systems. The LA12 actuator is ideal for applications requiring short linear movements. After many years on the market, the LA12 actuator has shown that it is a very reliable and robust actuator that can handle almost any situation and condition.

LA12 features:

- Max thrust up to 750 N (169 lbs)
- Max speed up to 50 mm/s (1.96 in/s)
- Standard stroke 40-130 mm (1.57–5.11 in)
- Protection class IP66
- Voltage 12 or 24 V DC
- High quality reinforced plastic housing protects motor and gear
- Built-in limit switches and EOP
- Hall sensors or potentiometer for relative or absolute feedback, regardless of the stroke length
- Available with Basic IIC™
Accessories for outdoor power equipment

Motor controller TR-EM-208 - Complete control

- Variable power supply 12-36 V DC
- Overload protection - adjustable current limit 1-20 A
- Adjustable soft start and stop
- Several versions for different applications
- Integrated brake

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Rocker switch - easy operation

- For all actuators with limit switches
- Easy operation of actuators without use of further electronics
- IP 66 for outdoor use
- Easy to install
- Tested with an LA36 12 V DC for 50,000 operations

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Parallel controller - Complete control

- Synchronized parallel control for 2 actuators
- Operates with pulse feedback (Hall or Reed)
- Current and temperature limited
- Soft start/stop
- Adjustable drive speed
- Accurate repeatability
- Easy setting via serial interface

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(*) “The specified product is a third party product that is produced by third party and distributed by LINAK as a supplement to LINAK’s existing product range. It is the responsibility of the product user to determine the suitability of the product for a specific application. LINAK will at point of delivery replace/repair defective products covered by the warranty if promptly returned to LINAK.”

(*) If you use IC there is no need for these accessories!
100% function tests

In each application, the actuator is just one component of many, but at TECHLINE® we fully appreciate that it is of utmost importance to you and your customers. Not a single actuator leaves LINAK until it has undergone a 100% function test.

Depending on the actuator type, various tests have been carried through. Please consult your local LINAK office or take a look at the actuator data sheet in question to get a thorough test overview.

This is your guarantee that a solution based on LINAK TECHLINE electric actuator systems is a solution that will work reliably for years and years.

Electrical tests:

All electrical parts are tested i.e. power supply, power and signals cables, control signals etc. Electrical immunity is tested according to industrial standards i.e. for radio noise, electrical discharge and burst.

(*) These tests do not apply to third party products!

Climatic tests:

In the climatic test the actuators are tested to operate in extreme temperatures as well as to endure rapid changes in temperature. In some tests, the actuator has to withstand going from a +100°C environment to -30°C repeatedly and still maintain full functionality.

Mechanical tests:

Vibration: The actuator must withstand continuous vibration in three directions.
Shock: The shock test puts the actuator through 3 shocks of up to 100 G in each of 6 directions.
Bump: The actuator receives bumps of up to 40 G in each of six directions several hundred times.
EN/IEC 61000-6-4 - Generic standard emission industry
EN/IEC 60204 - Electrical equipment of machinery
EN 50121-3-2 - Railway applications - Rolling stock apparatus
94/25/EC - Recreational crafts directive
EN/ISO 13766 - Earth moving machinery
EN/IEC 61000-6-2 - Generic standard immunity industry
2004/104/EC - Automotive Directive
EN/ISO 14982 - Agricultural and forestry machines
EN/ISO 13309 - Construction machinery

EN60068-2-1 (Ab) - Cold test
EN60068-2-2 (Bb) - Dry heat
EN60068-2-14 - Change of temperature
EN60068-2-30 - Damp heat
EN60068-2-52 - Salt spray
EN60529-IP66 - Degrees of protection
BS7691/96 hours - Chemicals

EN60068-2-36 (Fdb) - Vibration
EN60068-2-29 (Eb) - Bump
EN60068-2-27 (Ea) - Shock
Global presence

LINAK has a well-developed sales and service organization in Europe, America, Asia and Australia. Therefore, we can assist you and your customers locally, under the global sales concept idea: Be global, act local.

For further information, please visit our website:
LINAK-US.COM/TECHLINE

TERMS OF USE

The user is responsible for determining the suitability of LINAK products for a specific application. LINAK takes great care in providing accurate and up-to-date information on its products. However, due to continuous development in order to improve its products, LINAK products are subject to frequent modifications and changes without prior notice. Therefore, LINAK cannot guarantee the correct and actual status of said information on its products. While LINAK uses its best efforts to fulfil orders, LINAK cannot, for the same reasons as mentioned above, guarantee the availability of any particular product. Therefore, LINAK reserves the right to discontinue the sale of any product displayed on its website or listed in its catalogues or other written material drawn up by LINAK.

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