Focus on
Mobile Agriculture

LINAK-US.COM/TECHLINE
What LINAK actuators do for the combine harvester

TECHLINE® actuators provide high flexibility and smooth motion control for the combine harvester. They ensure an interactive application where all elements come together in one unit for user-friendly adjustment as well as easy-to-change settings between crops. This is possible because LINAK actuators easily interface with sophisticated control systems using databus communication. With their robustness and long lifetime TECHLINE actuators also provide high quality performance ideal for heavy-duty machinery.
Grain tank covers
Grain tank extension and / or open and close the grain tank covers for inspection

Thresher
Engage and disengage of the thresher unit

Auger
Move the unloading auger in transport situations

Sieve
Grain sieve adjustment to keep the sieve in horizontal level when operating in hill areas

Outlet
Wind compensation, changing directions of the outlet i.e. in heavy side wind situations

Cutter
Engage and disengage the cutter unit

Blower
Airflow adjustment of blowers

Ladder
Access ladder extension or retraction, or have an angle on the ladder for easy access
What LINAK actuators do for the spreader

TECHLINE® actuator systems provide safe and easy electric linear movement for tractors as well as their attachable applications used for a variety of operations such as spreading, seeding, spraying, chopping, etc. Due to their small size and the fact that they are easily integrated with programmable control systems of the tractor, LINAK actuators are also easier to install compared to more complex hydraulic systems. The actuators provide high control and simple operation of the application even under harsh conditions.
Cabin comfort
Opening and closing of the windows and adjustment of gear shifting or PTO

Tank cover
Opening and closing of the tank cover on the spreader

Border spreading
Border spreading ensures optimal utilization of the fertilizer and that it is not spread into streams and other sensitive areas

Start/stop feature
Automation of start and stop of the supply of fertilizer

Dosing
Helps dosing a correct amount of fertilizer even when speed varies
What LINAK actuators do for the tractors

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Cabin comfort
Electric adjustment on e.g. gear shifting or on the PTO to improve the working environment

Parking break
Automation blocking of wheels to ensure the tractor does not move

Ladder
Ladder extension or retraction for easy access

Ladder extension
Opening and closing of the windows

Positioning
Positioning of the arm rest for comfort during operation

Speed adjustment
Adjusting speed on the PTO
What LINAK actuators do for the baler

For efficiency reasons, bales need to contain as much material as possible, while having the right proportions for easy transport. To obtain these features, the net tightening process in a baler is of the utmost importance. Depending on the net quality, different settings for net braking force is needed to ensure the highest density of the bales. LINAK® actuators provide a very precise positioning and feedback system resulting in high control of the net braking force. Furthermore, the actuators provide power efficient and easy to install movement solutions ideal for the various adjustment requirements in the baler.

| Net tightening | Precise tightening of the net to ensure high bale density and quality |
| Net cutting knife | Fast control of the knife for efficient net cutting |
Pick-up
Raising and lowering the pick-up for
What LINAK actuators do for the seed drill

To achieve faster and more effective seeding, interplay of several components in the seed drill is necessary. TECHLINE® actuators provide precise positioning which ensures that an accurate amount of grain is seeded throughout the field, thereby optimizing the entire process of seeding. Furthermore, actuators make it possible to position the seeded grain precisely which will lead to high output and high quality grain. LINAK® actuators, also communicate smoothly with databus control systems thereby making it easier to attach the seed drill to e.g. a tractor.

**Dosing**
The dosing unit underneath the seed tank is adjusted at crop rotation/seed rotation.
Tank cover
Opening and closing of the tank cover on the seed drill

Marker
Raising and lowering markers that reduce process waste

Dosing
Helps dosing a correct amount of seed even when speed varies
What LINAK actuators do for the straw blower

TECHLINE® actuator systems provide smooth electric linear movement for straw blowers. Everything becomes easy to control and is easily integrated into the straw blower due to the small size. LINAK actuators are generally easy to install compared to more complex hydraulic systems and the actuators provide reliable and simple operation even under harsh conditions.
Knife adjustment
Electric adjustment of the cutting knives

Hatches
Opening and closing hatches electrically
Electric Actuators - tough enough for mobile agriculture

The main concerns when considering an electric actuator solution for mobile agriculture and equipment are durability and reliability.

These machines must work relentlessly in all kinds of weather and withstand dust, dirt and rough handling. Any failure could put both people and values at risk. Not to mention the often costly delays caused by failing equipment.

From harvesters and tractors to spreaders, sprayers, planters and balers, LINAK delivers:

- Reliable, low voltage DC electric actuators designed for harsh outdoor conditions
- Excellent alternative to many light-duty hydraulic applications, without the risk of hazardous oil leaks
- 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

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
- Energy efficient motion-control with high self-locking ability and optional manual operation for a safer working environment
- Expedited time to market

LINAK offers optional built-in positioning feedback, synchronous parallel operation and accurate positioning. This allows you to design innovative and flexible solutions for your customers.

Our controls can easily connect to the existing power supply or control systems, offering a simple plug and play solution.

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

VS.

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 mobile agriculture

Seeding machines
Actuators are used for intelligent adjustment of the amount of seed. In combination with the control system the actuator ensures the amount of seed is correct. Providing accurate feedback and controllability make a successful combination.

Boom sprayers
Actuators are used to control the angle and the height of the outlet nozzles. In windy situations it is important to control the direction to optimize the spraying. The height is adjusted according to the crop.
Self-propelled sprayers
Electric actuators are used for a variety of movements such as automated extension/retraction of the ladder, effortless access to engine compartment with an electric hood lift, remote and precise control of range shift, spray boom lock for safe transport, easy up/down control of chemical mixing stations and electric adjustment of cabin mirrors and cameras.

Choppers
Actuators are used on choppers, harvesters and other equipment to control the outlet direction. Strength and ruggedness are key to the success in such applications.

Balers
On hay balers actuators are used to control the wrappings of the baler. The combination of speed and strength paired with control interface are key.
What the LINAK actuators do for mobile agriculture

**Lettuce harvester**
On lettuce harvesters electric actuators can replace hydraulic systems and remove the risk of messy oil spills. Actuators deliver accurate adjusting of for example the cut height.

**Potato harvester**
On potato harvesters actuators are used for a wide variety of functions from knife and table adjustment, over trencher and auger settings to positioning of the steering wheel and the driver’s seat.
Grape harvester
Grape harvesting is precision work. Actuators supply reliable and accurate adjustment of all the different applications on a grape harvester with systems easily integrated into the harvester’s control system.

Auger mixer
LINAK actuators can be used for several functions on an auger mixer. Adjustment of knives and opening and closing of hatches are just a few examples.

Agriculture trailer
On trailers for agriculture purposes, actuators are used for a number of functions such as hatches, ladders, lids, gear systems and automatic locking systems for the connection to the tractor.
Move for the Future

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
Actuators for mobile agriculture

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 (0.13 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 ICTM 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
- UL 1203 certification
- Class II, Division I, Group F & G
- IECEx/ATEX
- Available with ICT™ and CAN bus SAE J1939
Actuators for mobile agriculture

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 mobile agriculture

**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 mobile agriculture

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
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 IC™**
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.

**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.

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

EN600068-2-1 (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 fulfill 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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