

Focus on

Industrial automation

Electric Actuators - energy efficient solutions for industrial automation

LINAK® improves productivity with simple, safe and powerful electric linear movement for a variety of industrial automation applications. For soldering ovens, packaging, welding and textile machines, bar feeders, conveyor belts, material handling devices and many other industrial automation applications LINAK delivers:

- reliable products
- a good alternative to pneumatic systems
- a turnkey supplier of complete electric linear movement 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 15,000 N, LINAK electric actuators are built for long-lasting durability.

Furthermore, 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

In numerous small and large applications LINAK electric actuators are a low-energy, cost and

resource reductive alternative to pneumatic systems. Due to the technological development and increasing energy prices, linear electric actuators are becoming more and more attractive also in the industrial sector where pneumatics and hydraulics usually dominate. If replaced by an electric system, up to 90% of the energy consumed in a standard pneumatic system can be saved!

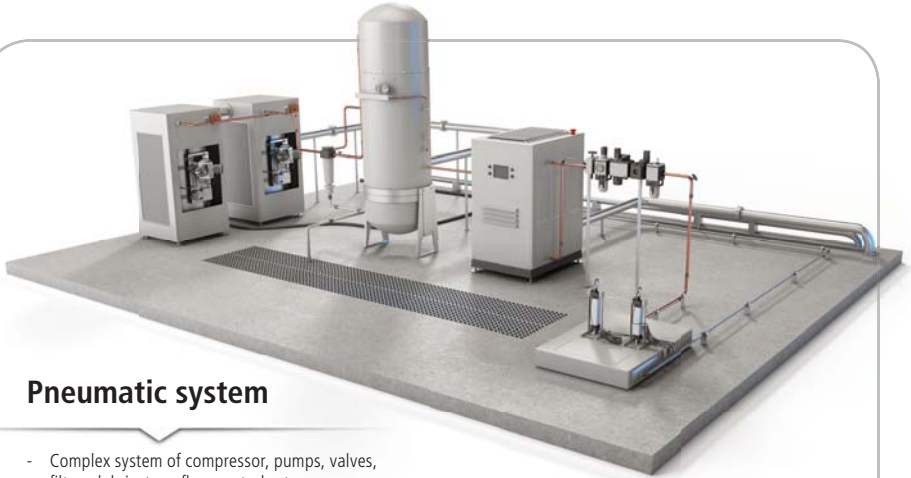
Additionally, electric actuator systems have no need for compressors and have a very low noise level as opposed to pneumatic systems where emissive pressurised air causes considerably more noise.

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

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

LINAK electric actuators work on low voltage DC, provide a high self-locking ability and optional manual operation, creating a safer work environment for the operator.

Furthermore, an electric linear system requires no maintenance, which reduces the downtime of the application.



Pneumatic system

- Complex system of compressor, pumps, valves, filters, lubricators, flow controls etc.
- Elaborate installation due to many components
- Per default no integrated positioning
- Requires routine maintenance
- High energy consumption

VS.

Electric actuator system

- Simple system of actuator, control and power connection
- Easy installation due to few components
- Maintenance-free
- Low energy consumption
- Integrated positioning



What LINAK actuators do for the soldering oven

Due to their high control, electric actuators from LINAK® provide precise parallel movement ideal for lifting the hood of soldering ovens. Furthermore, TECHLINE® actuator systems offer simple installation, multiple feedback options and an 'all in one package' solution, which is easy and cost-efficient.

Additionally, safety is high when choosing an electric actuator solution, because LINAK provides brake and self-locking functions to hold the hood in position to ensure that it will not collapse in case of current cut-offs.

LINAK electric actuators also offer an environmentally clean solution with no leakage, which prevents destruction of products.



Hood

Opening and closing
of the hood



What LINAK actuators do for the packaging machine

TECHLINE® offers electric actuator solutions for packaging machines allowing simple customisation with the press of a few buttons. E.g. it is possible to adapt the machines to various product types, shapes, sizes and weight in order to make the machines more productive. Furthermore, LINAK actuators can adjust the height of the whole line either to suit the operator or to connect to another machine.

LINAK actuators are energy saving, easy to control due to feedback options, simple to fit in the product assembly and maintenance-free.

Cover
Opening and closing of the machine cover



Adjustment
Adjustment of speed and tension





Sealing unit

Adjustment and adaptation to suit different packages

What LINAK actuators do for the textile machine

LINAK electric actuators are easy to fit into textile machine applications due to their small sizes and few cables with customised connection and plugs.

The actuators provide e.g. accurate parallel positioning of the cradle ensuring precisely stacked fabric and minimised waste of cloth.

LINAK actuators also offer the possibility of monitoring the position of the actuator via internal feedback systems and iFLEX options. Furthermore, electric actuators only use power when they are moving, which means that no standby power is necessary.



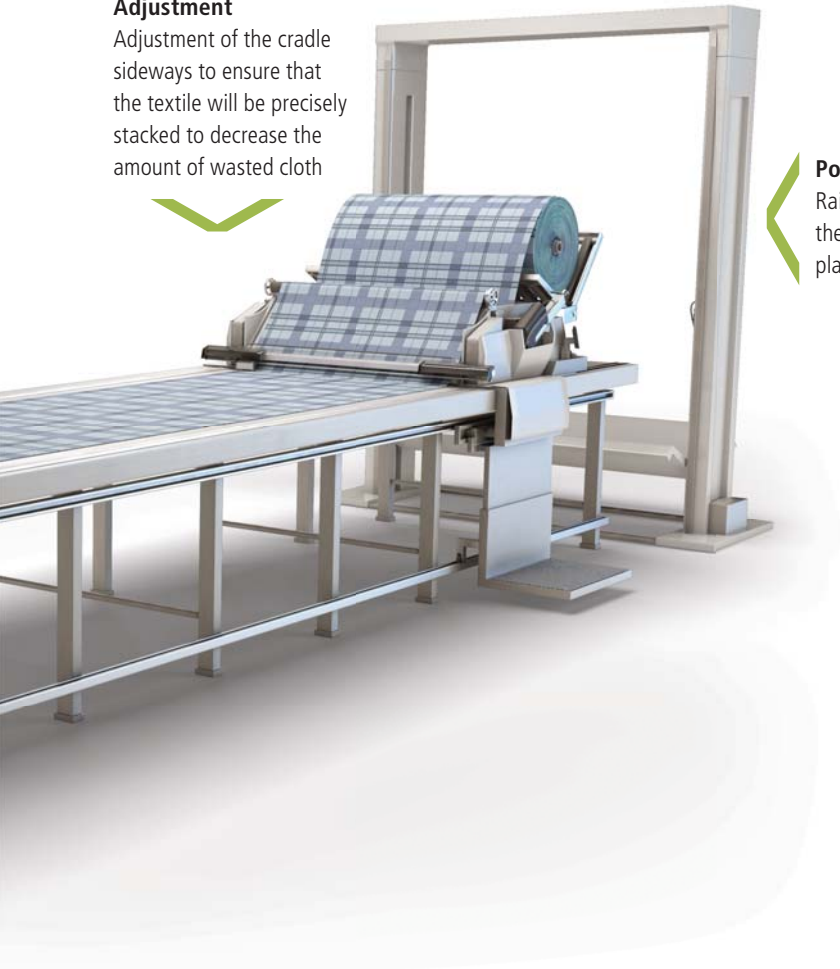
Adjustment

Adjustment of the cradle sideways to ensure that the textile will be precisely stacked to decrease the amount of wasted cloth



Positioning

Raising/lowering of the cradle to easily place a new textile roll



What LINAK actuators do for the bar feeder

Through easy electric linear movement, high control and simple operation TECHLINE® actuator systems provide efficient automation in bar feeders, enabling the machine to run automatically without human help as long as there are enough bars in the system.

With LINAK® actuators it is possible to automate the feeding of the bars into the bar feeder as well as the adjustment of the height of the bar feeder.

LINAK actuators are small, easily integrated into the bar feeder with programmable control systems and require no maintenance compared to more complex hydraulic systems.

Height adjustment
Adjustment of the
height of the bar feeder





Bar feeding

Automation of the feeding of the bars into the machine

What LINAK actuators do for the AGV

TECHLINE® actuator systems provide electric solutions for Automated Guided Vehicles (AGV) enabling the lifting of heavy loads as well as the transport and transfer of these weights to the next station within a production unit. TECHLINE actuator systems are energy efficient, as no auxiliaries like e.g. hydraulic pumps and air compressors need to be kept in a constant operating mode, and oil and air leakages are non-existing in an electric system.

Furthermore, electric actuators are maintenance-free. This saves costs and increases the simplicity of the application.

The plug and play solution provided by LINAK, allows a simple and quick installation and exchange of the actuator.

LINAK offers a wide range of products, from small size actuators to large actuators with high force. LINAK stands for high flexibility and easy integration, including programmable control systems.

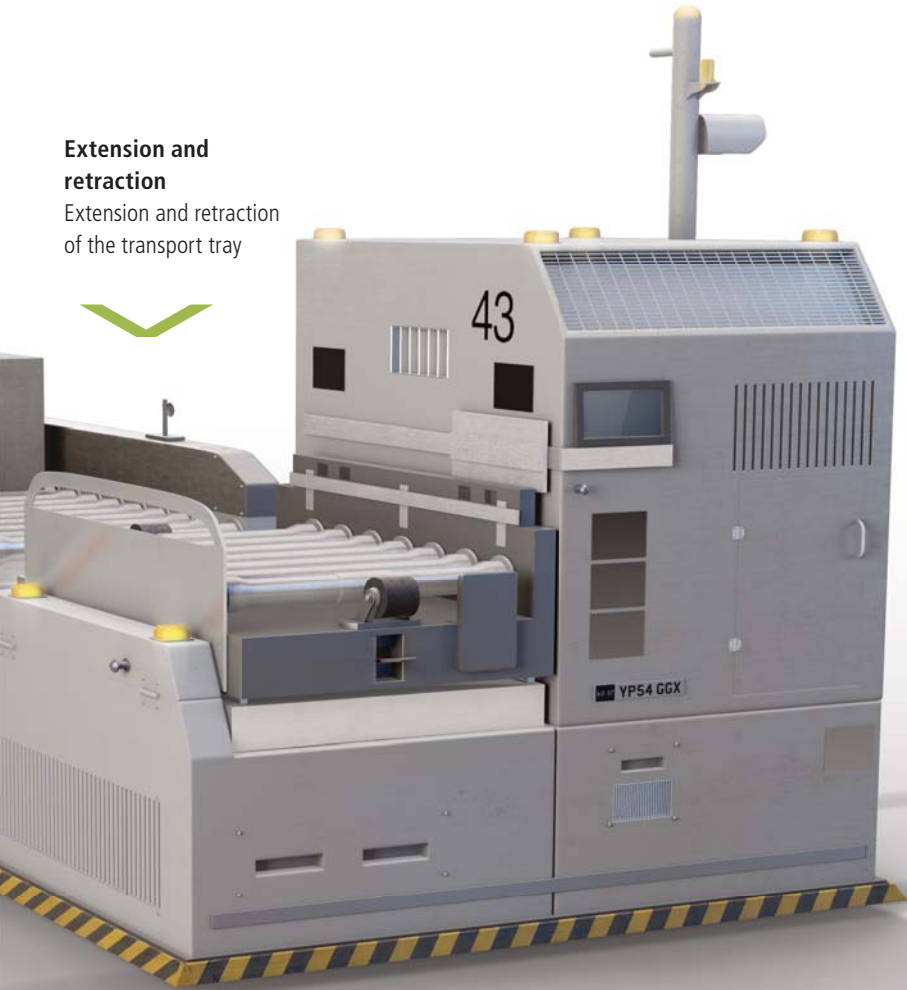


Height adjustment

Adjustment of the height of the application and the transport tray

Extension and retraction

Extension and retraction of the transport tray



Activation

Activation of the locking mechanism

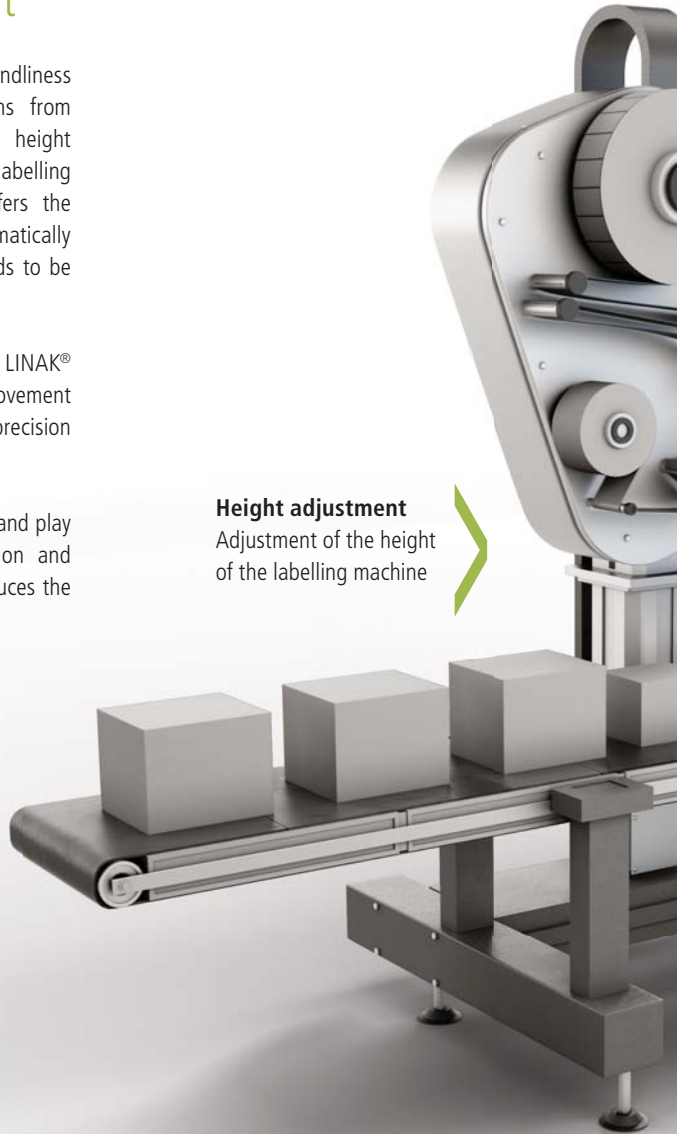
What LINAK actuators do for labelling equipment

Through the flexibility and user-friendliness that the electric actuator solutions from TECHLINE® provide, automatic height adjustment and positioning of labelling equipment is made easy. This offers the possibility to adapt the machine automatically depending on the product that needs to be labelled.

The robustness and rigidity of LINAK® columns effectively prevent any movement of the application, ensuring high precision during the labelling process.

Furthermore, the simple LINAK plug and play solution provides a quick installation and exchange of the actuator, which reduces the downtime of the application.

Height adjustment
Adjustment of the height
of the labelling machine





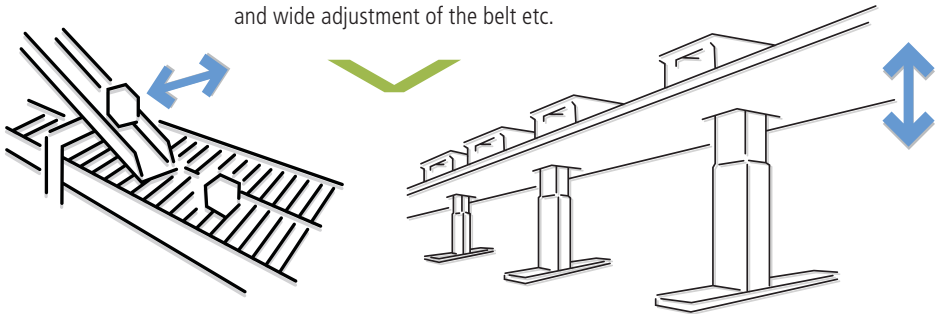
Positioning adjustment

Sideways adjustment of the position of the labelling machine

What LINAK actuators do for industrial automation

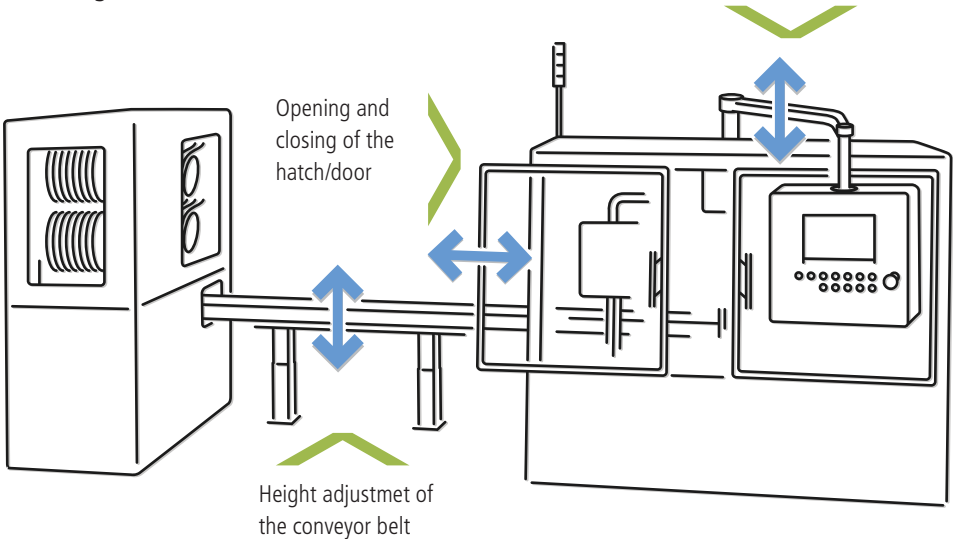
Conveyor belt

Height adjustable conveyor belts, regulations and wide adjustment of the belt etc.

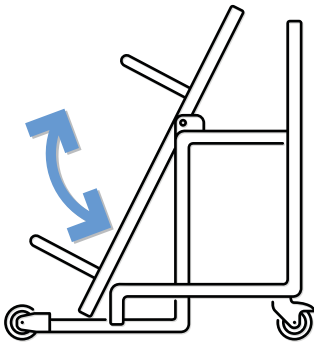
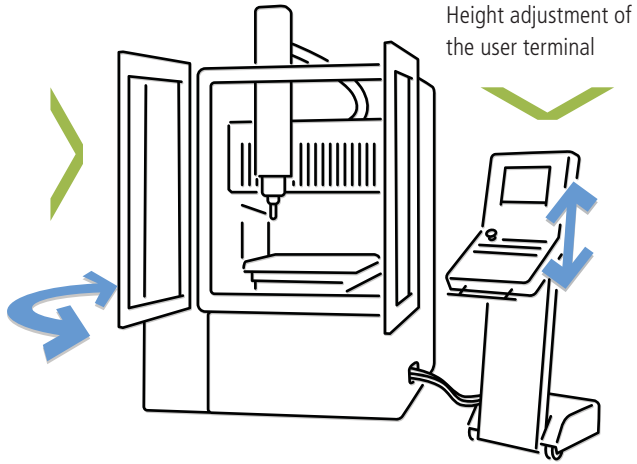


Tooling machine

Height adjustmet of the user terminal

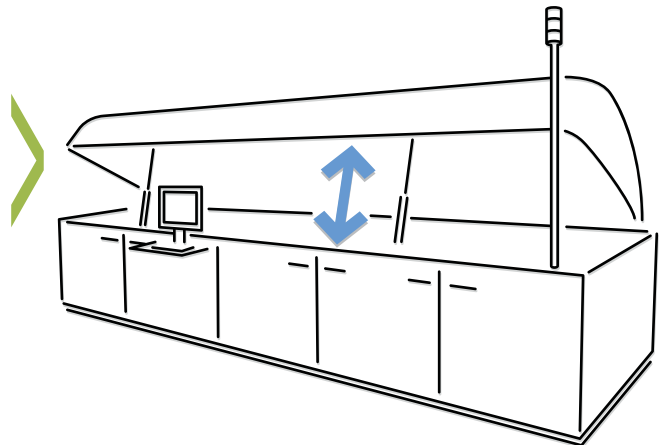


Plastic machine
Opening and
closing of the door



Library automation
Tilting of the stacking plate

Welding machine
Opening and closing of
the machine cover



No control boxes. Fewer Cables. Smarter options. - This is iFLEX™

TECHLINE® actuators with iFLEX™ all feature an integrated H-bridge motor controller. This is why an iFLEX solution requires less space and fewer cables while providing everything from the most basic control to truly advanced intelligent features and feedback.

You only need two cables to gain complete control of the actuator. There is no need for external control boxes, relays or other high power electronics. With iFLEX it is all built into the actuator – without the actuator taking up additional space.

iFLEX is based on many years of experience and know-how, and as always every option is

subjected to the thorough and rigorous testing procedures that is the trademark of LINAK® TECHLINE actuators.

Flexibility means choice – and depending on your needs, TECHLINE currently gives you a choice between four smart iFLEX options to optimise the performance of your application and to minimise the maintenance costs.

For more information on iFLEX, please go to www.linak.com/techline

IC BASIC

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

IC ADVANCED

The customisable 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 with either Modbus RTU RS485 or LINbus.

iFLEX in industrial automation



TECHLINE® iFLEX actuators present you with almost unlimited new possibilities for superior control and monitoring to project and enhance the value and performance of your application.

For industrial automation applications iFLEX offers the following features:

H-bridge

TECHLINE actuators with iFLEX feature an integrated H-bridge motor controller, which is the heart of all iFLEX options.

Now there is no need for external control boxes, relays or other high power electronics. Everything is simply built into the actuator.

Besides, an electric actuator has a self-locking function without an external activation, therefore it is not necessary to have external equipment like valves or controls which then does not consume extra energy.

Easy customisation

iFLEX actuators are easily customised at your production line. This means that one actuator can be configured to fit multiple movement solutions in a single application. Furthermore, you can adjust the current limit, the virtual end-stop and the soft start and stop function.

– You can also make a manual run to check that your chosen settings are suitable for your application.

Advanced feedback

iFLEX gives you a great number of feedback options. You can choose between relative or absolute positioning such as Hall, PWM, current or voltage analogue feedback.

Current (4-20 mA), voltage (0-10 V) and PWM (10-90%) can all be customised to fit exactly to your needs and application.

Furthermore, compared to a pneumatic system it is much easier to control an electric actuator, because with the positioning system that electric actuators from LINAK offer, you are provided with high positioning accuracy.

Monitoring

The advanced monitoring offered by iFLEX allows you to perform quick and reliable read-out of information about the condition of the actuator such as the temperature inside the actuator, number of starts and stops, voltage input and output as well as current measurements.

Monitoring also facilitates both easy daily maintenance and preventive maintenance of your application to avoid downtime.

Actuator reliability

iFLEX provides features such as smooth movement to reduce mechanical stress and ensure a long actuator lifetime.

The smart iFLEX actuators are also able to act in terms of self-preservation and shut down if their temperature or current measurements rise above a certain level. This way iFLEX provides actuator reliability and prevents any damage in case of e.g. an overload or a mechanical blockage. All components integrated in an iFLEX actuator are covered by the actuator's IP degree (up to IP66/IP69K).

Actuators for industrial automation

Actuator LA37 - 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, which guarantees you a maintenance-free product with a long lifetime.



LA37 features:

- Max thrust up to 15,000 N
- Max speed up to 3,5 mm/sec
- Standard stroke 100-600 mm
- 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 iFLEX™**



Actuator LA36 - reliable and tough

The actuator LA36 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
- Max speed up to 160 mm/sec
- Standard stroke 100-999 mm
- 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 iFLEX™**



Actuators for industrial automation

Actuator LA35 - flexible and powerful

The actuator LA35 is characterised 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 in push and up to 4,000 N in pull
- Stroke up to 600 mm
- Protection class IP66 dynamic / IP69K static
- Voltage 12 or 24 V DC
- Heavy-duty aluminium 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 iFLEX™**



Actuator LA30 - rugged and compact

The LA30 is a powerful actuator yet small enough to fit most applications. The actuator can be supplied with options such as built-in potentiometer for servo operation or an extra powerful motor for increased speed and strength (S-motor).



LA30 features:

- Max thrust up to 6,000 N
- Max speed up to 65 mm/sec
- Standard stroke 50-600 mm
- Protection class IP66
- Stainless steel piston rod
- Potentiometer for positioning
- Elegant and compact construction with small installation dimensions
- Self-locking ability

Actuators for industrial automation

Actuator LA23 - small and strong

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



LA23 features:

- Max thrust up to 2,500 N
- Max speed 9.4 mm/sec
- Standard stroke 20-300 mm
- Protection class IPX6
- Voltage 12 or 24 V DC
- Electrical and mechanical end stop
- **Available with iFLEX™**



Actuator LA14 - robust and reliable

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



LA14 features:

- Max thrust up to 750 N
- Max speed up to 45 mm/sec
- Standard stroke 40-130 mm
- Protection class IP66 dynamic / IP69K static
- Stainless steel inner tube and piston rod
- Voltage 12 or 24 V DC
- Heavy-duty aluminium housing for harsh conditions
- Built-in limit switches
- Wide range of customised feedback options
- Operation temperature from -40°C to 85°C

Actuator LA12 - light and compact

Thanks to its small size and outstanding performance, the LA12 provides a practical and cost-effective alternative to traditional hydraulic systems. The actuator LA12 is ideal for applications requiring short linear movements. After many years on the market, the actuator LA12 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
- Max speed up to 50 mm/sec
- Standard stroke 40-130 mm
- 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 iFLEX™**



Lifting columns for optimal automation

Lifting column DL2 - strong stability

The lifting column DL2 is designed for applications where it can be operated as a single column or in parallel. An obvious choice for height adjustable workstations, conveyor belts etc.



DL2 features:

- Built-in limit switches
- For indoor use
- Speed up to 20 mm/sec with CBD4
- Stroke up to 500 mm
- Thrust up to 2,500 N

Lifting column LP2 - extremely powerful

The parallel functionality gives a variety of application opportunities from work platforms to advanced industrial automation.



LP2 features

- Max load per leg 6,300 N in push
- Stroke length up to 500 mm
- Up to four columns in parallel
- Extremely high self-locking ability

Accessories for industrial automation

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 (*)

Rocker switch - easy operation



- For all actuators with limit switches
- Easy operation of actuators without use of further electronics
- IP66 for outdoor use
- Easy to install
- Tested with an LA36 12 V DC for 50,000 operations

(*)

Parallel controller - Complete control



- Synchronised 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

(*)

(*) "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 iFLEX there is no need for these accessories!

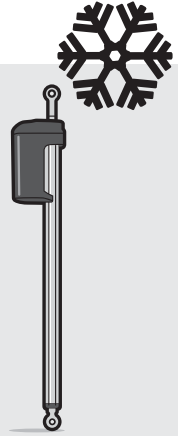
100% function tests

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.

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.

Cold test: EN600068-2-1 (Ab)

Dry heat: EN60068-2-2 (Bb)

Change of temperature: EN60068-2-14

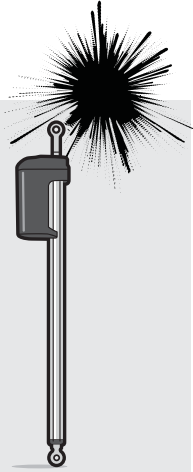
Damp heat: EN60068-2-30

Salt spray: EN60068-2-52

Degrees of protection: EN60529-IP66

Chemicals: BS7691/96 hours

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.

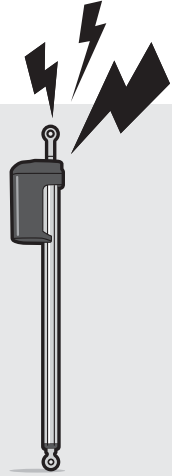
Bump: The actuator receives bumps of up to 40 G in each of six directions several hundred times.

Vibration: EN60068-2-36 (Fdb)

Bump: EN60068-2-29 (Eb)

Shock: EN60068-2-27 (Ea)

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.

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



Global presence

LINAK has a well-developed sales and service organisation 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 websites:
www.linak.com/techline

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