TECHLINE®
Product overview
Actuators

The actuator LA37 is specifically developed for heavy-duty applications in harsh environments, where there is a need for high lifting capacity and holding force. The LA37 offers the well-known LINAK quality, guaranteeing you a maintenance-free product with a long lifetime.

Specifications:
- Thrust: Up to 15,000 N
- Speed: Up to 10 mm/s
- Stroke length: 100-600 mm
- Voltage: 12, 24 or 48 V DC
- Duty cycle: 10%
- Ambient temperature: -30°C to +70°C (operation)
- IP rating: IP66 dynamic and IP69K static

Option (add-ons):
- A special anodised aluminum housing for the harshest environments
- A wide range of position feedback signals (single hall, dual hall, potentiometer, analogue feedback etc.)
- Parallel run of up to 8 actuators
- An Integrated Controller for IC Basic, IC Advanced, IC Parallel and various industrial interfaces
- Danfoss PLUS+1 Compliant

Commonly used in these applications:
- Mobile Agriculture
- Mobile “off-highway” applications
- Forestry and construction machines
- Hood lifting
- Cabin tilt
- Solar tracking

Important facts:
- Heavy-duty reinforced aluminum housing and solid metal construction
- Tested inside and out to the extreme in a wide range of tests
- Designed for outdoor use
- Offer a high degree of customization (stroke length, built-in dimensions etc.)

The actuator LA36 is one of the most solid and powerful LINAK actuators, designed to operate under extreme conditions. The LA36 is a maintenance-free product with a long lifetime and a high IP degree. It is also available with an extra-long service life. The high-quality actuator offers a very strong alternative to hydraulic solutions.

Specifications:
- Thrust: Up to 6,800 N
- Speed: Up to 160 mm/s
- Stroke length: 100-1200 mm
- Voltage: 12, 24 or 48 V DC
- Duty cycle: 20%
- Ambient temperature: -30°C to +65°C (operation)
- IP rating: IP66 dynamic and IP69K static

Option (add-ons):
- Long-life with brushless DC motor (24 or 48 V)
- Harsh environment housing or reinforced housing (vibration proof)
- A wide range of position feedback signals (single hall, dual hall, potentiometer, analogue feedback etc.)
- Parallel run of up to 8 actuators
- An Integrated Controller for IC Basic, IC Advanced, IC Parallel and various industrial interfaces
- IECEx/ATEX certification
- Danfoss PLUS+1 Compliant

Commonly used in these applications:
- Mobile Agriculture
- Construction
- Marine
- Autonomous Mobile Robots
- Industrial Automation
- Solar tracking

Important facts:
- Heavy-duty aluminium and solid metal construction
- Tested inside and out to the extreme in a wide range of tests
- Designed for outdoor use
- Offer a high degree of customization (stroke length, built-in dimensions etc.)
The actuator LA35 is a powerful actuator with a low noise level. It is designed for a variety of both indoor and outdoor applications and provides a practical, cost-effective solution with low power consumption.

**Specifications:**
- **Thrust:** Up to 6,800 N (push)
- **Speed:** Up to 19.5 mm/s
- **Stroke length:** 100-600 mm
- **Voltage:** 12 or 24 V DC
- **Duty Cycle:** 10%
- **Ambient temperature:** -25°C to +60°C (operation)
- **IP rating:** IP66 dynamic and IP69K static

**Option (add-ons):**
- Large variety of back fixtures and piston rod eyes
- A special anodised aluminium housing for the harshest environments
- Various position feedback signals (single hall, analogue feedback 0-10 V or 0.5-4.5 V)
- An Integrated Controller which eliminates the need for external power electronics (h-bridge)

**Commonly used in these applications:**
- Mobile Agriculture
- Floor sweeper and scrubber
- Industrials Automation
- Mobile "off-highway" applications
- Solar tracking

**Important facts:**
- Heavy-duty aluminium housing and solid metal construction
- Tested inside and out to the extreme in a wide range of tests
- Designed for outdoor use
- Offer a high degree of customization (stroke length, built-in dimensions etc.)

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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 programme forms the basis for the maintenance-free and long-lasting performance of this solid and high-quality actuator.

**Specifications:**
- **Thrust:** Up to 5,000 N
- **Speed:** Up to 35 mm/s
- **Stroke length:** 100 - 600 mm
- **Voltage:** 12 or 24 V DC
- **Duty Cycle:** 20%
- **Ambient temperature:** -40°C to +85°C (operation)
- **IP rating:** IP66 dynamic and IP69K static

**Options (add-ons):**
- Large variety of back fixtures and piston rod eyes
- A special anodised aluminium housing for the harshest environments
- A wide range of position feedback signals (single hall, dual hall, potentiometer, analogue feedback etc.)
- Parallel run of up to 8 actuators
- An Integrated Controller for IC Basic, IC Advanced, IC Parallel and various industrial interfaces
- Danfoss PLUS+1 Compliant

**Commonly used in these applications:**
- Agricultural applications
- Construction machines
- Industrial automation
- Marine
- Mobile "off-highway" applications
- Outdoor power equipment
- Ventilation and farming solutions

**Important facts:**
- Heavy-duty aluminium housing and solid metal construction
- Tested inside and out to the extreme in a wide range of tests
- Designed for outdoor use
- Offer a high degree of customization (stroke length, built-in dimensions etc.)
Actuators

The actuator LA23 is a small and strong push or pull actuator with a high lifting force up to 2500 N. The LA23 can be used in various applications where size is important.

**LA23**

With its robust design, high IP degree and aluminium housing, the actuator 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.

**Specifications:**
- **Thrust:** Up to 2,500 N
- **Speed:** Up to 25 mm/s
- **Stroke length:** 20 - 300 mm
- **Voltage:** 12 or 24 V DC
- **Duty cycle:** 10 %
- **Ambient temperature:** +5°C to +40°C (operation)
- **IP rating:** IP66 dynamic and IP69K static

**Option (add-ons):**
- Large variety of back fixtures and piston rod eyes
- A special anodised aluminum housing for the harshest environments
- A wide range of position feedback signals (single hall, dual hall, potentiometer, analogue feedback etc.)
- Parallel run of up to 8 actuators
- An Integrated Controller for IC Basic, IC Advanced, IC Parallel and various industrial interfaces
- Danfoss PLUS+1 Compliant

**Commonly used in these applications:**
- Agricultural applications
- Outdoor Power Equipment
- Pergola and louvre
- Industrial automation
- Marine
- Ventilation and farming solutions

**Important facts:**
- Heavy duty aluminium housing and solid metal construction
- Tested inside and out to the extreme in a wide range of tests
- Designed for outdoor use
- Offer a high degree of customization (stroke length, built-in dimensions etc.)

The actuator LA25 is a small and strong push or pull actuator with a high lifting force up to 2500 N. The LA23 can be used in various applications where size is important.

**LA25**

**Specifications:**
- **Thrust:** Up to 2,500 N
- **Speed:** Up to 12 mm/s
- **Stroke length:** 20 - 300 mm
- **Voltage:** 12 or 24 V DC
- **Duty cycle:** 20 %
- **Ambient temperature:** -40°C to +85°C (operation)
- **IP rating:** IP66 dynamic and IP69K static

**Option (add-ons):**
- IPX6 dynamic
- Various back fixtures (incl. rotation) and piston rod eyes
- Various position feedback signals (single hall, dual hall potentiometer, analogue feedback etc.)
- An Integrated Controller which eliminates the need for external power electronics (h-bridge)

**Commonly used in these applications:**
- Agricultural applications
- Outdoor Power Equipment
- Pergola and louvre
- Industrial automation
- Marine
- Ventilation and farming solutions

**Important facts:**
- Heavy duty aluminium housing and solid metal construction
- Tested inside and out to the extreme in a wide range of tests
- Designed for outdoor use
- Offer a high degree of customization (stroke length, built-in dimensions etc.)
Actuators

The actuator LA14 is a very tough actuator with a high IP degree and aluminium housing, making it ideal for use in harsh and demanding environments.

The LA14 offers top quality in every detail and ensures reliable performance in temperatures ranging from -40° to +85 °C. With its small size the LA14 is well suited for applications that require short linear movements.

Specifications:
- Thrust: Up to 750 N
- Speed: Up to 45 mm/s
- Stroke length: 19 - 130 mm
- Voltage: 12 or 24 V DC
- Duty cycle: 20 %
- Ambient temperature: -40°C to +85°C (operation)
- IP rating: IP66 dynamic and IP69K static

Option (add-ons):
- Large variety of back fixtures and piston rod eyes
- A special anodised aluminum housing for the harshest environments
- A wide range of position feedback signals (single hall, dual hall, potentiometer, analogue feedback etc.)
- Parallel run of up to 8 actuators
- An Integrated Controller for IC Basic, IC Advanced, IC Parallel and various industrial interfaces
- Danfoss PLUS+1 Compliant

Commonly used in these applications:
- All kinds of mobile applications, especially fertiliser spreaders and salt gritters
- Industrial automation
- Valves
- Ventilation and farming solutions

Important facts:
- Designed for outdoor use
- Compact design
- Tested inside and out to the extreme in a wide range of tests
- Offer a high degree of customization (stroke length, built-in dimensions etc.)

The actuator LA12 provides a practical and cost-effective alternative to small-scale traditional hydraulic and pneumatic systems. The LA12 is ideal for applications requiring short linear movements.

After many years on the market, the actuator LA12 demonstrated that it is a very reliable and robust actuator that can handle almost any situation and challenge.

Specifications:
- Thrust: Up to 750 N
- Speed: Up to 40 mm/s
- Stroke length: 19 - 130 mm
- Voltage: 12 or 24 V DC
- Duty cycle: 10 %
- Ambient temperature: -20°C to +60°C (operation)
- IP rating: IP66 dynamic

Option (add-ons):
- Large variety of back fixtures and piston rod eyes
- Harsh environment housing or reinforced housing (vibration proof)
- A wide range of position feedback signals (single hall, dual hall, potentiometer, analogue feedback etc.)
- Parallel run of up to 8 actuators
- An Integrated Controller for IC Basic, IC Advanced, IC Parallel and various industrial interfaces
- Danfoss PLUS+1 Compliant

Commonly used in these applications:
- All kinds of mobile applications
- Industrial automation
- Valves
- Ventilation and farming solutions

Important facts:
- Designed for outdoor use
- Compact and lightweight
- Tested inside and out to the extreme in a wide range of tests
- Offer a high degree of customization (stroke length, built-in dimensions etc.)
**Actuators**

<table>
<thead>
<tr>
<th>Actuator</th>
<th>LA28</th>
<th>LA30</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thrust:</strong></td>
<td>Up to 3,500 N</td>
<td>Up to 6,000 N</td>
</tr>
<tr>
<td><strong>Speed:</strong></td>
<td>Up to 46 mm/s</td>
<td>Up to 65 mm/s</td>
</tr>
<tr>
<td><strong>Duty cycle:</strong></td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td><strong>IP rating:</strong></td>
<td>IPX6 dynamic</td>
<td>IP66 dynamic</td>
</tr>
</tbody>
</table>

The actuator LA28 (with standard or fast motor) is a very quiet and powerful actuator, designed for use in furniture, rehabilitation, and hospital bed industries. Agricultural machinery and other outdoor equipment are also other main areas of application.

The actuator LA30 is a powerful actuator yet small enough to fit to 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.

<table>
<thead>
<tr>
<th>Actuator</th>
<th>LA20</th>
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</thead>
<tbody>
<tr>
<td><strong>Thrust:</strong></td>
<td>Up to 2,500 N</td>
</tr>
<tr>
<td><strong>Speed:</strong></td>
<td>Up to 8.9 mm/s</td>
</tr>
<tr>
<td><strong>Duty cycle:</strong></td>
<td>10%</td>
</tr>
<tr>
<td><strong>IP rating:</strong></td>
<td>IPX6 dynamic</td>
</tr>
</tbody>
</table>

The actuator LA20 is a slim inline actuator created to cover a wide range of applications, where design, size and power are crucial. The combination of a high lifting capacity of 2,500 N with its robust but stylish and small form factor, makes the LA20 the ideal solution for many of today’s demanding applications.
It is important for us to meet your needs - no matter what they are. That is why we offer a wide range of products from our trusted third party suppliers. Here is a selection of the products in the portfolio. Read more and see them all on www.linakthirdparty.com

**TR-EM-273 - Parallel Motor Driver**

Designed for parallel operation of up to four actuators. It synchronises the actuators through the pulse or analogue feedback signal from each actuator.

**TR-EM-288 - Single Motor Driver**

Designed for operation of a single actuator. Protects the actuator and application and disconnects the actuator’s motor if it exceeds a pre-defined power limit.

**TR-EM-322 BASIC - Ventilation control unit**

Intended to power an actuator and its controller. The housing class IP66 enables outdoor use.

**WCU - Water Valve Control Unit**

Designed to perform the opening and closing movement of valves. Easy installation.

**RF Remote Control**

The small and compact RF receiver enables easy control of one actuator. The small form factor makes this device easy to implement in your application.

**TP1 - Waterproof control**

A waterproof desk switch made for rough working conditions. It is appropriate for use in locations with a wet and damp environment.
The lifting column DL2 is designed for workstations and is the ideal choice for duties such as height adjustment on computer workstations, work benches or a wide selection of other duties. Inside each column is a modified LA31 actuator.

**Features:**
- Thrust: Max. 2,500 N
- Speed: 43 mm/s
- Stroke length: 500 mm
- Duty Cycle: 5 %

**Options:**
- Mounting bracket (order number 0578006)
- Hall sensors to ensure memory drive and parallel drive

**Scope of application:**
- Computer workstations
- Work benches
- Platforms

**Facts:**
- Low noise level
- Compact and mounting friendly design
- Single drive
- Parallel drive

The 3-part lifting column BL1 is specially designed for applications where compact lifting is necessary in connection with a long stroke length. With its strong stability it is suited for boat applications and recreational vehicles.

**Features:**
- Thrust: Max. 2,000 N
- Speed: Max. 18 mm/s
- Duty Cycle: 10 %
- Protection class: IPX6

**Options:**
- Dual Hall for positioning
- Safety nut

**Scope of application:**
- Recreational vehicles (RV)
- Boats
- Pet/Veterinary equipment

**Facts:**
- High degree of stability
- Esthetic and compact design
- Synchronised movement of profiles in column
- Easy cleaning and low maintenance
- Low noise level, increased comfort
Lifting columns

The LC3 2-stage and 3-stage set the standard for vertical lifting columns. This compact lifting columns fulfils the market requirements for a solid and stable lifting column. High speed and advanced memory options ensure fast and easy positioning at the application.

**Features:**
- Thrust: Max. 6000 N
- Speed: 43 mm/s
- Stroke length:
  - 3-stage: 400-700 mm in steps of 50 mm, 200-700 mm in steps of 1 mm on request
  - 2-stage: 200-700 mm in steps of 50 mm, 200-700 mm in steps of 1 mm on request
- Duty Cycle: 10%

**Options:**
- Positioning option: Dual Hall, Potentiometer
- Protection class: IPX4 standard, IPX6 optional

**Scope of application:**
- Computer workstations
- Work benches
- Platforms

**Facts:**
- Low noise level
- Compact and mounting friendly design
- Single drive
- Parallel drive
Interfaces

LINAK® electric actuators offer a variety of industrial- and mobile off-highway interfaces, enabling manufacturers to easily integrate intelligent and reliable movement with existing control systems.

Modern industrial machinery relies heavily on data feedback from multiple sources and components must react fast to leverage the full potential of the machine. Whether this is achieved by running CAN J1939, IO-Link or one of the other protocols, LINAK® IC actuators (Integrated Controller) can enable you to integrate movement fast and with relatively simple means.

- **IC Integrated Controller**
  
  With integrated controller, there is no need for external control box or relays. Actuators with integrated controller offer various feedback types, easy control solutions, end of stroke in/out signal, customisation and actuator monitoring possibilities. It also enables parallel movement and integrated BUS communication.

- **CAN SAE J1939**
  
  CAN SAE J1939 is a standardised method for communication across ECUs (Electronic Control Units) – offering a common language across all manufacturers. The protocol is widely used in mobile off-highway machinery as it supports smart automation. Discover what CAN bus actuators can do for your industrial machinery.

- **CANopen**
  
  CANopen is a communication protocol that relies on the CiA 301 standard and is the main network architecture used in industries such as Railway, Agriculture, Heavy Truck & Bus, Marine, Off-Highway and Factory Automation.

- **IO-Link**
  
  IO-Link is a point-to-point industrial network standard used to connect digital sensors and actuators to an industrial fieldbus or Ethernet. It is used with simple three-wire cables, without the need for additional shielding. The bidirectional communication ensures rapid parameter setting and diagnostics, thereby increasing the efficiency and reducing down-time in e.g. industrial automation and packaging machinery.
<table>
<thead>
<tr>
<th>Interfaces</th>
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### Modbus

[Modbus logo]

Modbus is a serial communication protocol used for industrial electronic devices, which is often connected to a PLC. Using Modbus makes it easy to integrate and maintain many devices on the same network. Actuators with Modbus can be used for industrial automation, solar tracking etc.

### Linbus

[Linbus logo]

LIN bus is a cost-effective supplement to CAN bus. The overall performance and reliability of the network is lower compared to CAN bus, but the protocol is very suitable for non-critical components (such as electric adjustment of seat and/or windows in a cabin).

### PLUS+1

[PLUS+1 logo]

PLUS+1 is a development tool invented by Danfoss. An intuitive programme interface where the designing engineer can use it to add, move, drag and drop all the components and parts he needs to meet the requirements of a modern vehicle. LINAK® actuators are compatible through a extension software called ‘compliance block’.

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Download a free Buslink Software to configure your BUS actuators to fit your application.

Explore the rich technology behind actuators

At the Actuator Academy™, you will find a library of videos and information about actuator components, actuator testing, and intelligent actuator control.

Find out what you should expect of a good industrial actuator, what affects its performance and efficiency, and how to best utilise your linear motion actuator.

We hope to inspire you and ultimately make you wiser on the moving electric revolution we are all part of.

Happy exploring!

Check out the Actuator Academy
LINAK.COM/ACTUATOR-ACADEMY
Intelligent movement

Enhance the value and performance of your application with the intelligent movement of IC actuators. LINAK® actuators with Integrated Controllers (IC) present you with various feedback outputs, smart actuator control, customisation, and monitoring possibilities.

IC actuators unlock the benefits of a true Plug & Play™ solution, making external control boxes and relays superfluous and reducing the wiring complexity.

A comprehensive testing programme ensures that the integrated electronics are well protected for use in tough environments.

If you are looking for a movement solution that will help you stay competitive in the future, then go for LINAK actuators with integrated controller, and Move for the Future.

Actuators with IC provide intelligent and cost-effective performance:

- Simple installation with built-in electronics.
- Precise control of actuator movement
- Feedback and movement customisation
- On-site configuration
- Easy actuator status monitoring

For more information on IC, please please visit LINAK.COM or scan the QR code.
Testing programme

In each industrial application, the actuator is just one component of many, but at LINAK® we fully appreciate that it is of utmost importance to you and your customers. Not a single actuator leaves the factory 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.

"Our actuators must never malfunction. Therefore, it is important that all our products are tested inside and out, and to the extreme in a wide range of tests."

- Claus H. Sørensen, Director R&D

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 50 G in each of six directions.
Bump: The actuator receives bumps of up to 30 G in each of six directions several hundred times.

EN60068-2-64 (Fh) - Random vibration
EN60068-2-27 (Ea) - Shock
EN60068-2-29 (Eb) - Bump

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

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 a dunk test, the actuators have to withstand repeating temperature fluctuations between +85°C to -40°C and still maintain full functionality and ingress protection.

EN60529-IP6X
EN60529-IPX6
ISO16750- IP69K
IEC60068-2-3 - Moisture storage
IEC60068-2-30 - Operation in moisture
ISO16750-4:2010 - Dunk test
EN60068-2-52 - Salt spray
BS7691 Section 6.11.2.4 - Chemicals

* These tests do not apply to third party products!

Actuator testing

See how LINAK industrial actuators are tested:
LINAK.COM/SEGMENTS/TECHLINE/TECH-TRENDS/TESTING/
For further information about TECLINE:
LINAK.COM/SEGMENTS/TECLINE/

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Built by market leading experts, using state-of-the-art technologies and perfected production methods, you can expect the same quality worldwide.

Innovation is in our core. We take the lead and have the courage to make it real.

We are responsible in what we do – towards customers, employees and environment. Creating trust and taking care is in our DNA.

From global presence to local understanding. We believe in world-wide support and being close to our customers.