



# Focus on Grain handling



### 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
- Integrated positioning
- Maintenance-free
- Low energy consumption

# Electric Actuators - fully integrated systems for grain handling

For all types of grain handling systems and facilities, LINAK® offers complete electric actuator systems providing improved performance in harsh conditions, easy installation and built-in intelligence.

## For grain handling LINAK delivers:

- Reliable products designed for harsh environments and certified for dust explosive atmospheres
- Few cables and components for easy installation and little or no maintenance
- Accurate positioning with analogue or digital feedback ensures a precise grain mix
- Excellent alternative to AC motor, pneumatic or hydraulic systems
- Close collaboration between your team and our sales and application engineers represented in more than 30 countries
- Available with IC™ for full integrated control, from basic to advanced intelligent features, feedback and a high degree of flexibility

With IECEx/ATEX dust explosion certification, accurate position control, analogue or digital feedback, available system monitoring and a minimum of maintenance, LINAK actuators are able to withstand the harsh environment of grain facilities while optimising both grain handling and safety with automated processes replacing manual labour in high-risk areas of your facility.

## Go electric and spot the difference

Electric linear actuators from LINAK are the perfect solution when you need reliable movement with built-in positioning feedback. They offer high flexibility in movement for your application, also when ongoing adjustment of stroke, speed or feedback is needed.

Electric actuators can easily be integrated into sophisticated control systems using data bus communication, and they have a high selflocking ability that will support a safe working environment for the operator.

*LINAK electric linear actuators are an excellent alternative to AC motor, pneumatic or hydraulic systems - with advantages like accurate positioning, easy installation and no maintenance.*

Compared to AC motors, pneumatic and hydraulic systems LINAK actuators are a low-energy, cost and resource reductive alternative. They provide easy and time-saving installation and require no maintenance as there are no hoses, filters or pumps to install or maintain. It is even possible to replace an entire AC motor/ gearbox, pneumatic or hydraulic system with a single electric actuator which will provide fully integrated control, feedback and built-in limit switches.

Furthermore, if replaced by an electric system, up to 90% of the energy normally consumed in a standard pneumatic system can be saved!

LINAK offers service  
worldwide

Please contact your local LINAK office with  
your enquiry



# What LINAK actuators do for the grain handling facility

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LINAK® TECHLINE® electric actuator solutions provide reliable and precise movement in grain handling facilities. From diverter valves, gates, and hoppers, to conveyors and transfer equipment, LINAK electric actuators improve automation performance.

Furthermore, TECHLINE actuator systems offer simple installation with few components and an easy 'all in one package' solution.

With their multiple and advanced feedback options, LINAK actuators ensure a reliable and high level performance as well as a safe working environment.

All these advantages combined provide cost-efficient automation for grain handling facilities.





# What LINAK® actuators do for grain handling applications

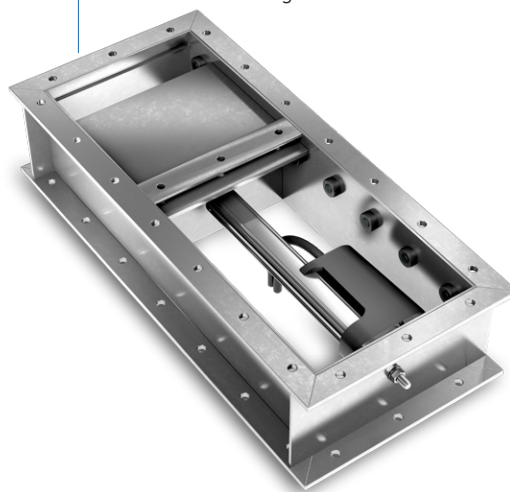
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TECHLINE® offers electric actuator solutions for opening and closing of grain doors, diverting, blending and transporting grain around grain handling facilities.

TECHLINE solutions provide precise blending due to accurate positioning of valves and grain doors. Moreover, they ensure an efficient transporting process in the grain elevator with advanced feedback solutions reducing the risk of overloading the system.

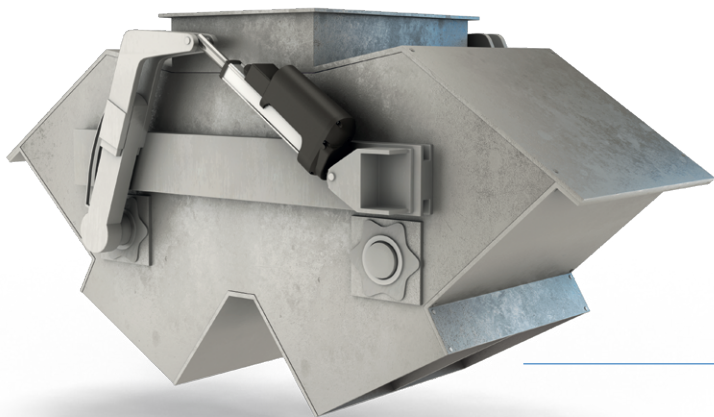
## Grain door

Opening and closing with built-in feedback and endstop signals for precise positioning, and accurate blending



## Diverter valve

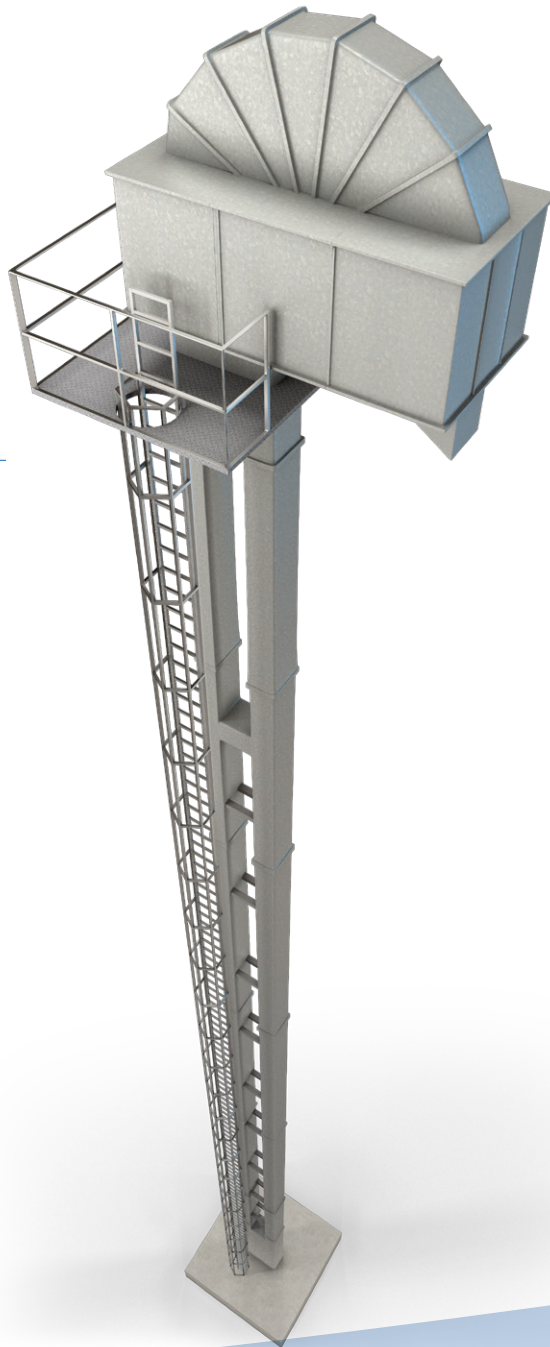
Adjustment of the diverter with built-in feedback and endstop signals for a reliable overview of the grain flow



### Grain elevator

Controls the inlet flow to allow the grain elevator to operate efficiently and prevent overloading

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# Explore the rich technology behind actuators

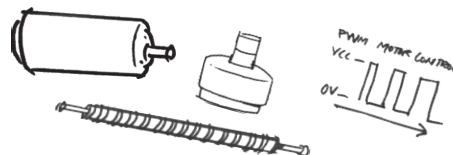
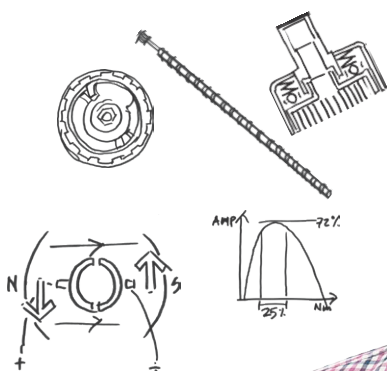


At the Actuator Academy™, you will find a library of videos and information about actuator components, actuator testing, and intelligent actuator control.

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.

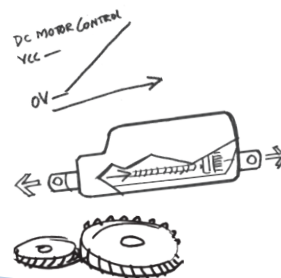
We hope to inspire you and ultimately make you wiser on the moving electric revolution we are all part of.

**Happy exploring!**

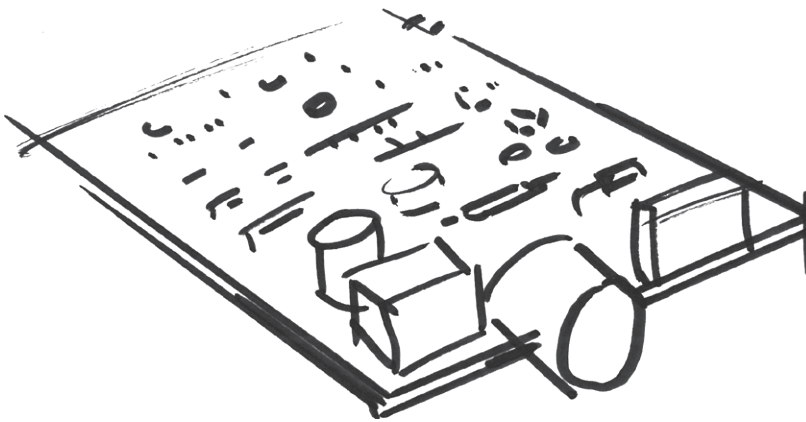


Check out the  
Actuator Academy

**LINAK.COM/  
ACTUATOR-ACADEMY**



# Smart movement for grain handling



A LINAK® IC actuator with built-in controller reduces the number of external components and the need for a third-party supplier for power electronics.

It also offers a comprehensive range of interfaces and gives you access to productivity enhancing data - all delivered by a single supplier you can trust.

By helping you move smarter at every stage of your application process, from development, installation and integration to tailored movement and improved productivity, our IC actuators add value across the board.

## IC INTEGRATED CONTROLLER™

Choosing an IC actuator for your application is a smart move in many ways:

- Reduced complexity for faster development and production
- Flexible integration with a variety of industrial interfaces
- Data monitoring that minimise downtime and boost productivity
- Benefit from one single supplier



For more information on IC, please visit [LINAK.COM](https://www.linak.com) or scan the QR code.

# Actuators for grain handling

LINAK® industrial actuators offer a versatile array of movement solutions for grain handling.

With **thrusts up to 15,000 N, max speeds up to 160 mm/s, and strokes between 20 and 999 mm**, the actuators are highly adaptable for a wide variety of applications.

Industrial actuators with **heavy-duty aluminium housings** are very suitable for use in corrosive environments. Having been thoroughly **salt spray and chemical resistance** tested and approved for ratings up to IP66 and IP69K static, these actuators will work reliably for years, even when exposed to salt, water, wind, and sun.

**Operating temperatures between -40°C to +85°C** make them fit for work in numerous settings. Also, the actuators LA36, LA25 and LA14 are certified according to IECEx and ATEX and can be operated in dust explosive atmospheres.



Actuator LA36



Actuator LA25



Actuator LA14



# IECEx and ATEX

## EX approvals

For dust-approved operation, equipment used in explosion protected (Ex) industries must be certified in accordance with the IECEx international certification system or the EU directive 94/9/EC, also called the ATEX directive.

The IECEx and ATEX directives describe safety requirements for applications and products in explosive atmospheres and account for both mechanical and electrical sources of ignition in these areas.

**LINAK® offers products that have been tested and certified for electrical operation in dust explosive atmospheres. Our actuators displayed in this folder have all been certified according to both IECEx standards and the ATEX 2D and 3D categories. This means that they can be used in Ex zones 21 and 22.**



Category 1 equipment

### Dust occurs continuously

Zone 20 is a place in which an explosive atmosphere in the form of a cloud of combustible dust in the air is present continuously, for long periods or frequently. This would typically include the inside of containers or pipelines and enclosed conveying equipment.



Category 2 equipment

### Dust occurs occasionally

Zone 21 is a place in which an explosive atmosphere in the form of a cloud of combustible dust in the air is likely to occur in normal operation occasionally, for example when discharging and filling equipment.



Category 3 equipment

### Dust occurs in short periods

Zone 22 is a place in which an explosive atmosphere in the form of a cloud of combustible dust in the air is not likely to occur in normal operation but – if it does occur – it will persist for a short period only. Areas in which dust escapes from leaks and forms dust deposits are included in this category.





# We understand your business

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On the cooperational side, it must be easy for our customers to do business with LINAK®.

Therefore, we offer both standard components and customised solutions according to demand.

In close cooperation with our sales engineering team you can develop an optimal solution that fits perfectly to your task and demands.

Our LINAK TECHLINE® division is committed to offering innovative solutions that help improve life for you and for the end-user of the system.



In-depth knowledge of the market and the market trends makes LINAK a true solutions provider.

# Testing programme

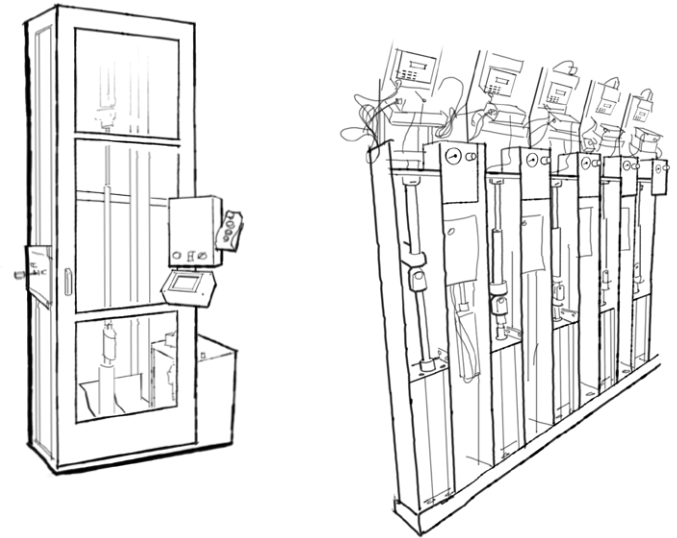
In each industrial application, the actuator is just one component of many, but at LINAK® we fully appreciate that it is of utmost importance to you and your customers. Not a single actuator leaves the factory until it has undergone a 100% function test.

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



## 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**

- Dust

**EN60529-IPX6**

- Water

**ISO16750- IP69K**

- High pressure cleaning

**IEC60068-2-3**

- Moisture storage

**IEC60068-2-30**

- Operation in moisture

**ISO16750-4:2010**

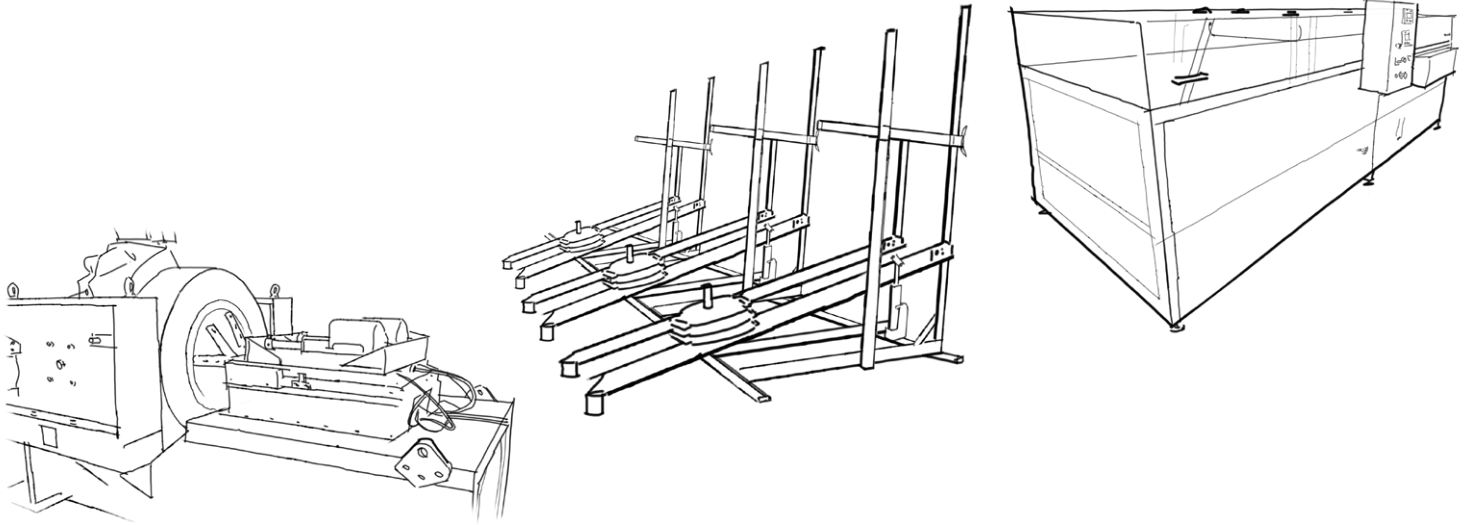
- Dunk test

**EN60068-2-52**

- Salt spray

**BS7691 Section 6.11.2.4**

- Chemicals



### 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.\*

<b>EN/IEC 61000-6-4</b>	- Generic standard emission industry
<b>EN/IEC 60204</b>	- Electrical equipment of machinery
<b>EN 50121-3-2</b>	- Railway applications - Rolling stock apparatus
<b>94/25/EC</b>	- Recreational crafts directive
<b>EN/ISO 13766</b>	- Earth moving machinery
<b>EN/IEC 61000-6-2</b>	- Generic standard immunity industry
<b>2004/104/EC</b>	- Automotive Directive
<b>EN/ISO 14982</b>	- Agricultural and forestry machines
<b>EN/ISO 13309</b>	- Construction machinery

### 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

Find out more about how we test actuators to the extreme:

[linak.com/segments/techline/tech-trends/testing/](http://linak.com/segments/techline/tech-trends/testing/)



\* These tests do not apply to third party products!



For further information, please visit our website:  
**LINAK.COM/BUSINESS-AREAS/FARMING/GRAIN-HANDLING/**

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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 is a natural part of who we are.



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