

## MOVE ON – GO ELECTRIC!

A Comparison of motion control systems:

- Hydraulic
- Electric

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# Go electric - Why?

## 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

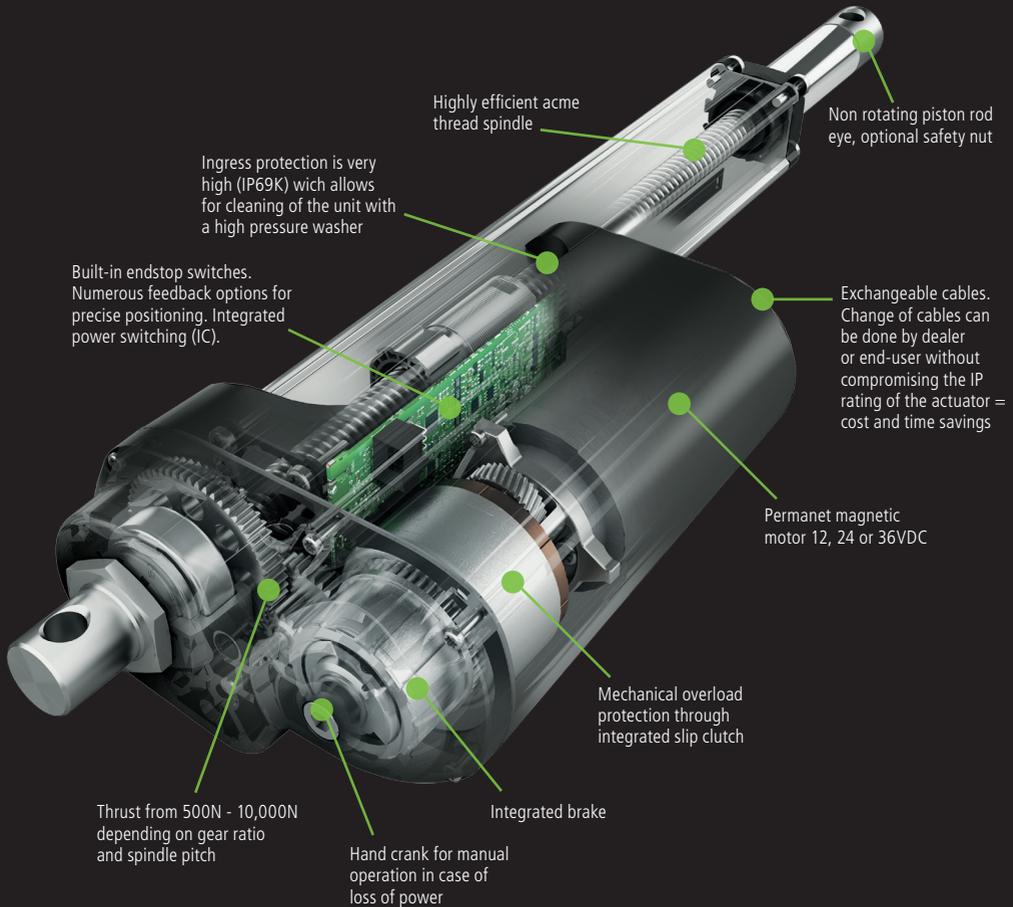


## Electric actuator system

- Simple system of actuator, control and power connection
- Integrated positioning
- Maintenance-free
- Low energy consumption
- No fluids



# What is an actuator - LA36?



## Go electric and get...

- ✓ Reliable, safe and accurate movement
- ✓ Cost effective solution with easy installation, simple set-up and no maintenance
- ✓ Easy control and built-in intelligent features
- ✓ Environmentally friendly solutions – no fluids, no leakage and low power consumption
- ✓ Battery operated options available

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# What is in it for me?



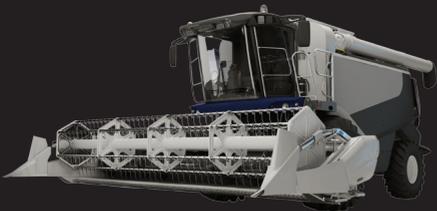
## Trucks

Better fuel mileage is a key factor in the world of modern logistics. Electric actuator solutions, when replacing hydraulic solutions, will reduce the weight of the truck and thus increase fuel efficiency. Furthermore, the electric solutions take up less space, are more user-friendly, environmentally safe with no risk of oil leaks, easy to install, no pipes and pumps and have built-in electric feedback. Typical applications in a truck could be hood tilt, cabin tilt, steps, wind deflector or comfort applications inside the cabin.



## Construction

Comfort, feedback and easy control are key words for electric actuator solutions in construction applications. The actuators can be integrated into sophisticated control systems using data bus communication and provide you with precise position feedback and accurate variable control over acceleration and velocity. The actuators are low on weight, easy to install, environmentally friendly and take up less space than the equivalent hydraulic solution. Typical applications in, for example, a wheel loader, could be cabin tilt, steering wheel adjustment, ladder control or hood lift.



## Mobile agriculture

Durability, reliability and easy control is important in mobile agriculture. Electric solutions are capable of providing that with thoroughly tested maintenance free solutions. Integration into sophisticated control systems make easy control from the cabin possible. Compared to hydraulic solutions, electric actuators are easy to install, maintenance free, take up less space, environmentally friendly and provide position feedback and accurate variable control over acceleration and velocity. Typical application in, for example, a combine harvester could be concave, grain sieve and spout adjustment as well as ladder control, comfort in the cabin or movement and speed regulation of the header.

# What is in it for me?

Electric actuators have the potential to replace hydraulic solutions in a virtuously endless variety of applications and provide:

- more reliable, safe and accurate movement
- More cost-effective solutions with easy installation, simple set-up and no maintenance
- Easier control, and built-in intelligent features
- More environmentally friendly solutions – no fluids, no leakage and low power consumption
- Battery operated options available



# 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!

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## 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.

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## 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



- 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





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



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KNOWLEDGE



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