



## Why Choose Electric Linear Actuators?

Electric linear actuators are versatile, easy to use and affordable compared to most alternatives. As long as electric power is available, there is likely a suitable electric actuator for the job. The latest generation of actuators, which are smarter, stronger and sturdier, have also created new application possibilities. Where you once had to look for expensive, complex and often custom-built solutions, a standard electric actuator is often now the simple choice.

An electric actuator is often the easiest way to move from manual to powered motion since electricity is the easiest and most readily available power source. It doesn't matter if electricity is from the grid, a battery or any other source since there are actuators for both AC or DC in all the most common voltages. Plug in and run - it is often as simple as that.

### **Smaller, Stronger and More Robust**

Electric motors, drives and batteries have experienced huge technological leaps forward over the past few decades, and the trend of making electric actuators more powerful and efficient continues. At the same time, actuators have become better sealed and more robust, allowing them to be used in even the toughest environments.

### **Clean, Maintenance-Free Operation**

Electric actuators are inherently clean since there are no messy compressors, filters, oils or other mediums involved. Most of them are, in fact, clean enough to be used in areas sensitive to contamination out of the box. Thomson electric actuators are also completely maintenance free - there is no need to remember to check or replace anything. Electric actuators don't carry hidden ownership costs, sparing you of any unpleasant surprises throughout their lifetime.



Modern actuators can work in almost any environment

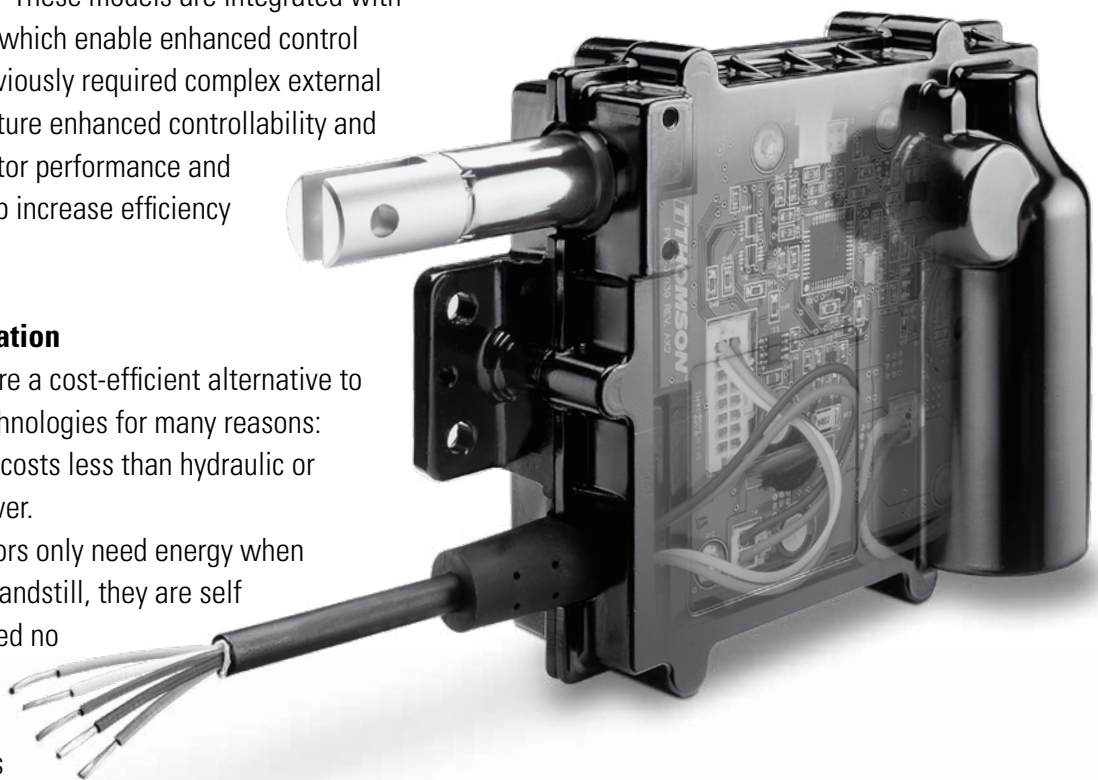
### Smart Actuation

At Thomson, the most advanced actuators today are known as "smart." These models are integrated with onboard controls, which enable enhanced control functions that previously required complex external controls. They feature enhanced controllability and allow you to monitor performance and diagnostics to help increase efficiency and productivity.

### Affordable Actuation

Linear actuators are a cost-efficient alternative to other actuator technologies for many reasons:

- Electric power costs less than hydraulic or pneumatic power.  
Electric actuators only need energy when moving; at a standstill, they are self locking and need no power to keep the position.
- Cables are less expensive than tubes and hoses.
- Cables are a lot quicker and easier to install and commission.
- An electric actuator system is lightweight and requires little space.
- Less or eliminated maintenance reduces total cost of ownership.



The "smart" Electrak Throttle and Electrak® HD actuators



## Why Convert to Electric Actuators?

There are many reasons to switch from a pneumatic or hydraulic actuator solution to an electric one. Better controllability, reduced complexity and a smaller footprint are often the main ones. Less energy consumption, cleaner operation and reduced maintenance are others but often you will also experience additional benefits such as better performance, reduced downtime, and faster assembly and commissioning.

### Better Controllability

An electric motor and a lead screw are much easier to run than a pneumatic or hydraulic cylinder, since essentially all you need to do is plug it in. They are also easier to control precisely since they react faster, are more accurate and do not suffer from creep at standstill or power off. In addition, they are easier to equip with onboard feedback and controls, making them easy to connect to other controls.

### Modular Control Concept

State-of-the-art electric actuators, such as the Thomson Electrak® HD, have a modular control architecture and can be ordered with anything from a simple motor to full bus communication functionality that let you control and monitor every aspect of the actuator and its performance.

### Reduced Costs and Improved Environment

There are many reasons why electric actuators can help you both save money and improve the environment, including:

- Increased energy efficiency and environment-friendly features.
- No need for costly compressors and the supporting infrastructure.
- Cleaner and safer to use in places sensitive to contamination.
- No risk of leaks – small, undetected leakages add hidden costs, while larger leaks can be hazardous, messy and costly.
- No maintenance required, reliable and easy to replace if necessary.
- Quick and simple to install and commission.

# ELECTRIC LINEAR ACTUATORS

## IMPROVE

EFFICIENCY  
RELIABILITY  
PRODUCTIVITY  
PERFORMANCE  
CONTROLLABILITY

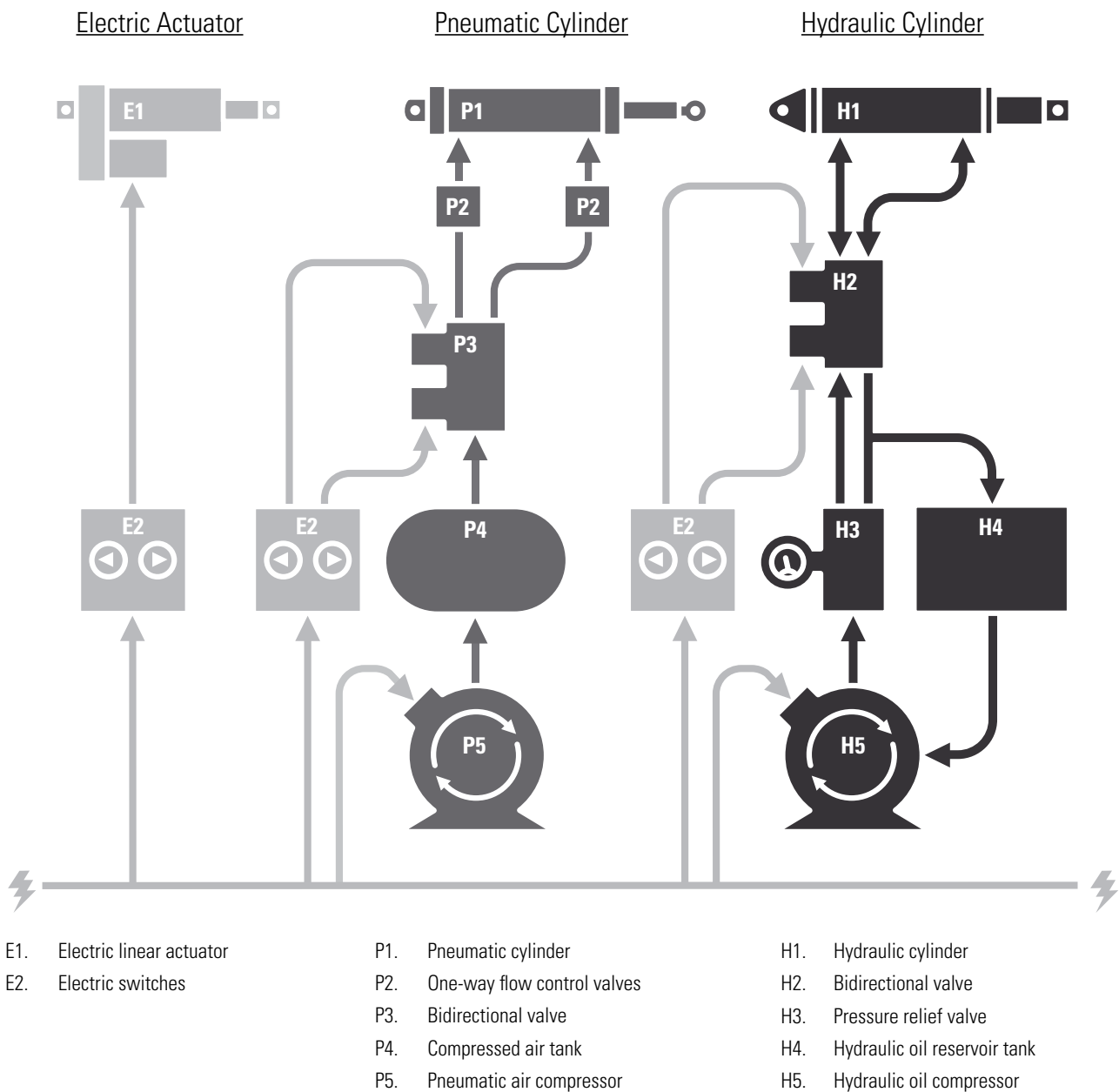
## REDUCE

COMPLEXITY  
ENGINEERING  
COMPONENTS  
OVERALL COSTS  
INSTALLATION TIME

**Reduced Complexity and Smaller Footprint**

The illustration below compares three common, simple ways to run an electric actuator, a pneumatic cylinder and a hydraulic cylinder back and forth.

It appears obvious that both the pneumatic and hydraulic cylinder require more complex, space-demanding solutions that add more weight to the complete system.



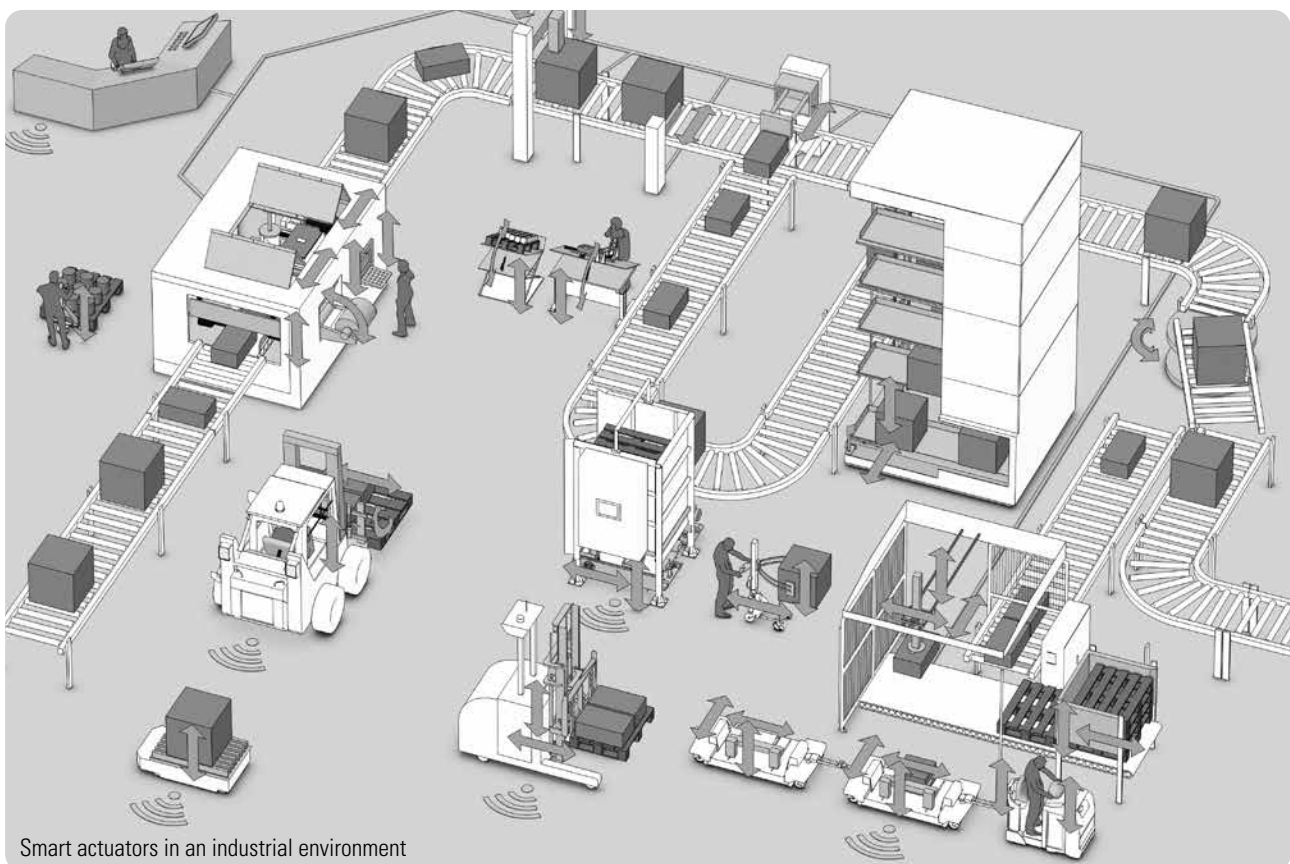


## Smart Actuators

As the industrial world becomes increasingly connected, the designer's need for intelligent components that can communicate with each other and operate without the need for manual interaction is growing. Thomson is meeting this demand and helping to usher in a new generation of "smart" actuators where a modular onboard control architecture and the possibility to use bus communication are key features.

### Smart Actuator Benefits

- Increased efficiency and productivity.
- Fewer components and less cabling.
- Minimized complexity and easier installation.
- Reduced hardware and software costs.
- Decreased machine development time.
- Reduced overall system weight.
- Improved machine functionality and performance.
- Bus communication between host control and actuators.
- Synchronized actuator motion without having to add any extra external controls.
- Better and more accurate controllability.
- Speed and force control.
- Enhanced diagnostic and monitoring capabilities.

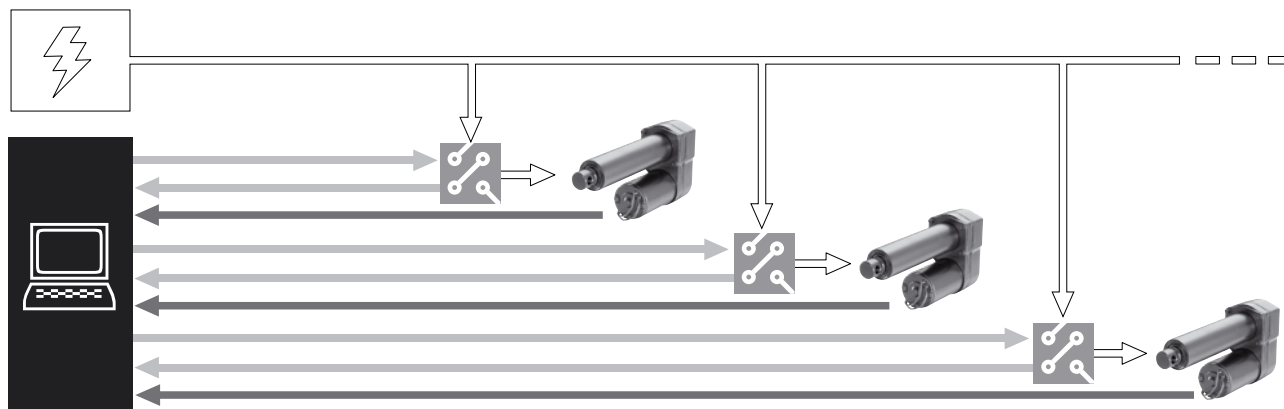


Learn more about smart actuators at [www.thomsonlinear.com/smart](http://www.thomsonlinear.com/smart)

**Traditional vs. Smart Systems**

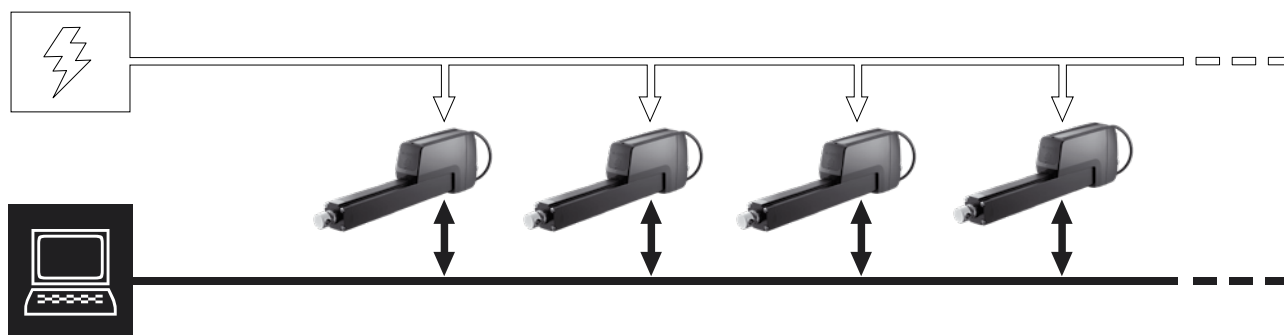
Traditional System

Each actuator is controlled by the host individually. By using control boxes, switches, sensors and position feedback devices, the host controls and keeps track of each actuator.



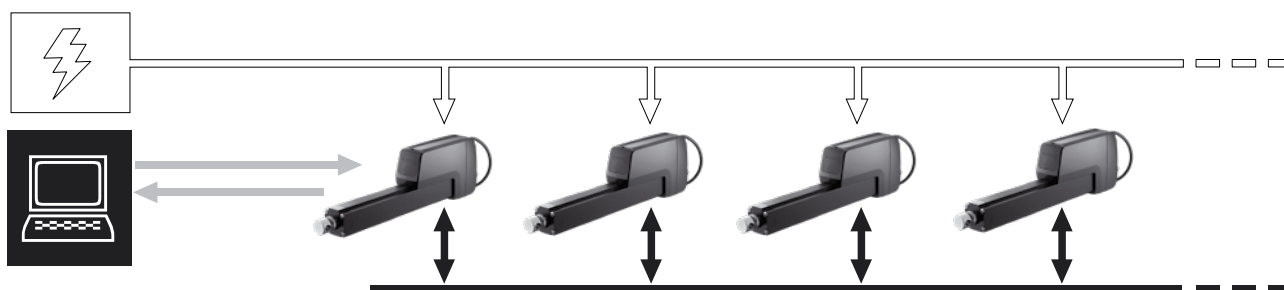
Bus Communication System





All actuators speak to the host control over the same bus, and each actuator does what it is commanded to and reports back when done or if something goes wrong.

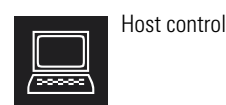
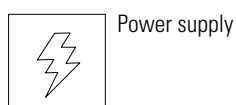


Synchronization System

The host control runs one actuator, which becomes the master. The other actuators follow the master as slaves without having to communicate with the host control.

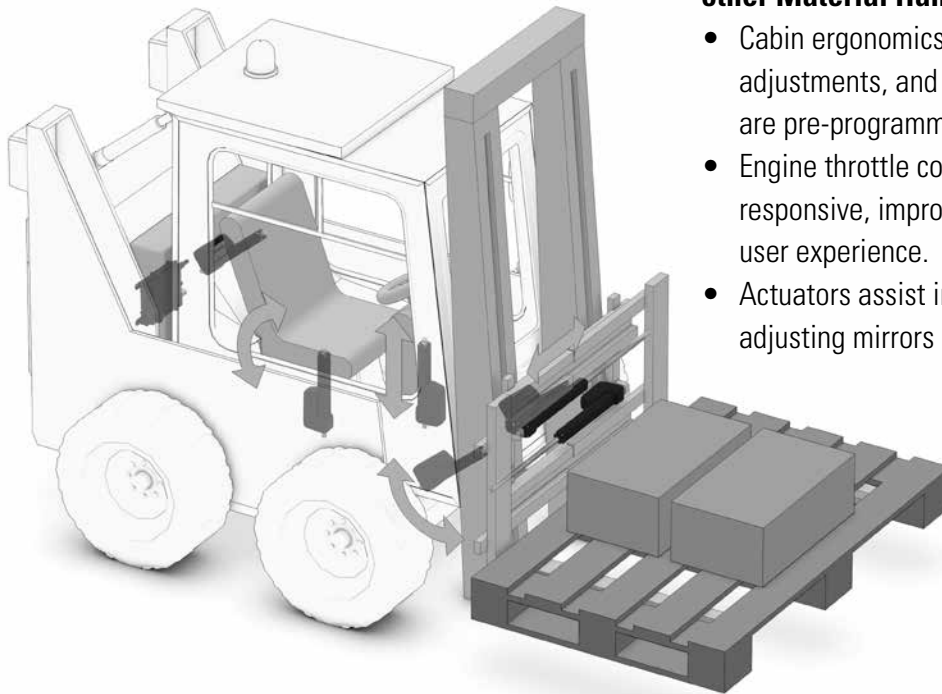


-  Power lines
-  Control signals
-  Position feedback signals
-  Bus communication





## Applications

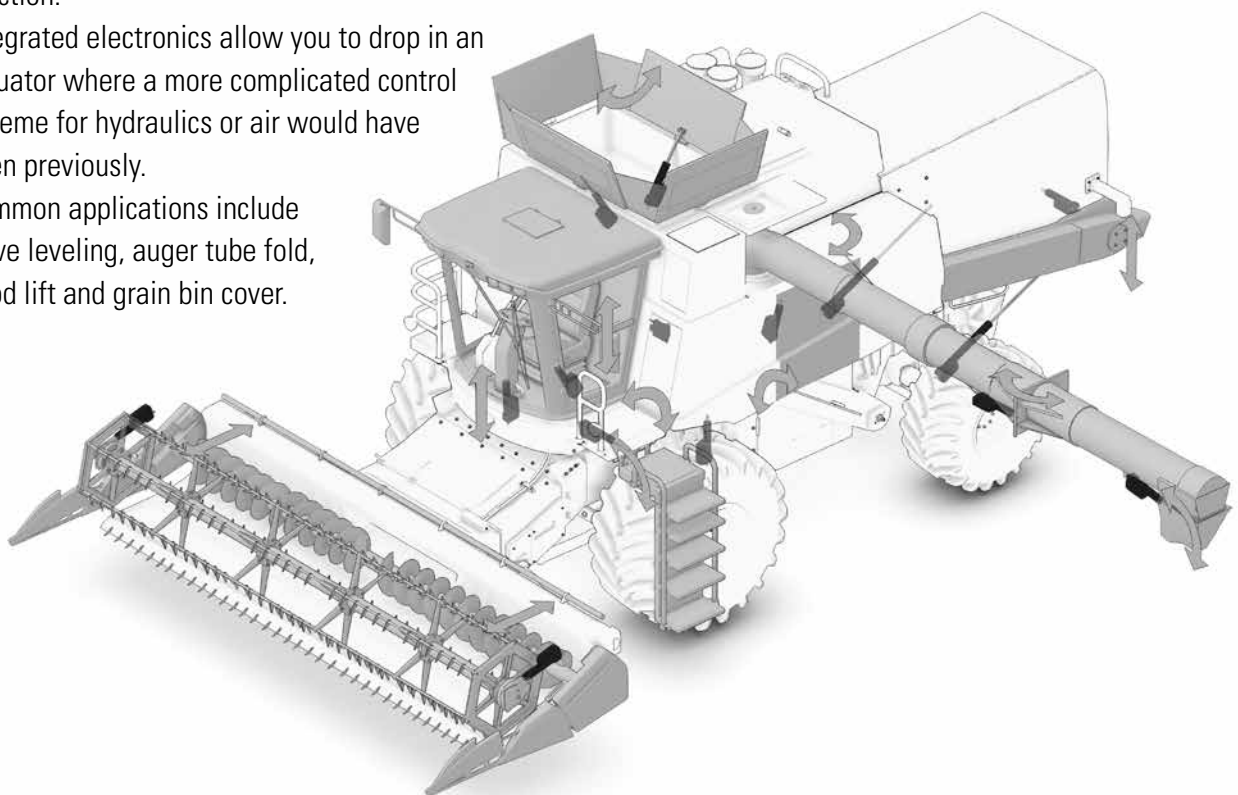


### Lifting Devices, Fork Lifts, Driver Cabins and other Material Handling Vehicles

- Cabin ergonomics are improved with seat adjustments, and individual, user-defined settings are pre-programmed for quick changes.
- Engine throttle control is more precise and responsive, improving fuel consumption and the user experience.
- Actuators assist in opening hoods and doors, and adjusting mirrors and ladders.

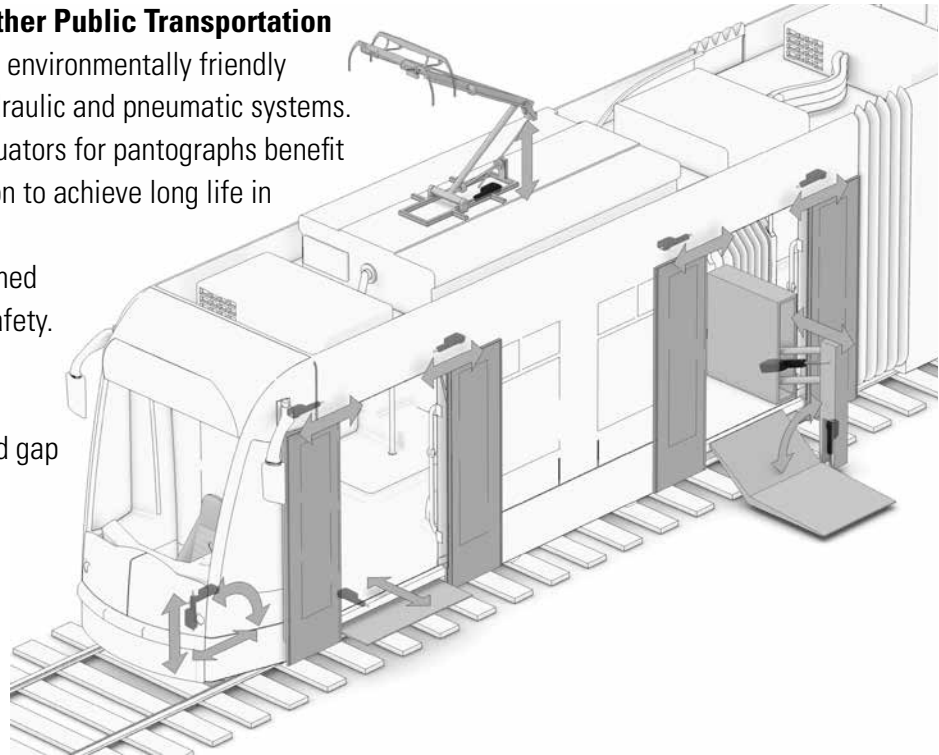
### Combines and other Agricultural Vehicles

- Electromechanical actuation is ideal for hard-to-reach places that may require complex control to function.
- Integrated electronics allow you to drop in an actuator where a more complicated control scheme for hydraulics or air would have been previously.
- Common applications include sieve leveling, auger tube fold, hood lift and grain bin cover.



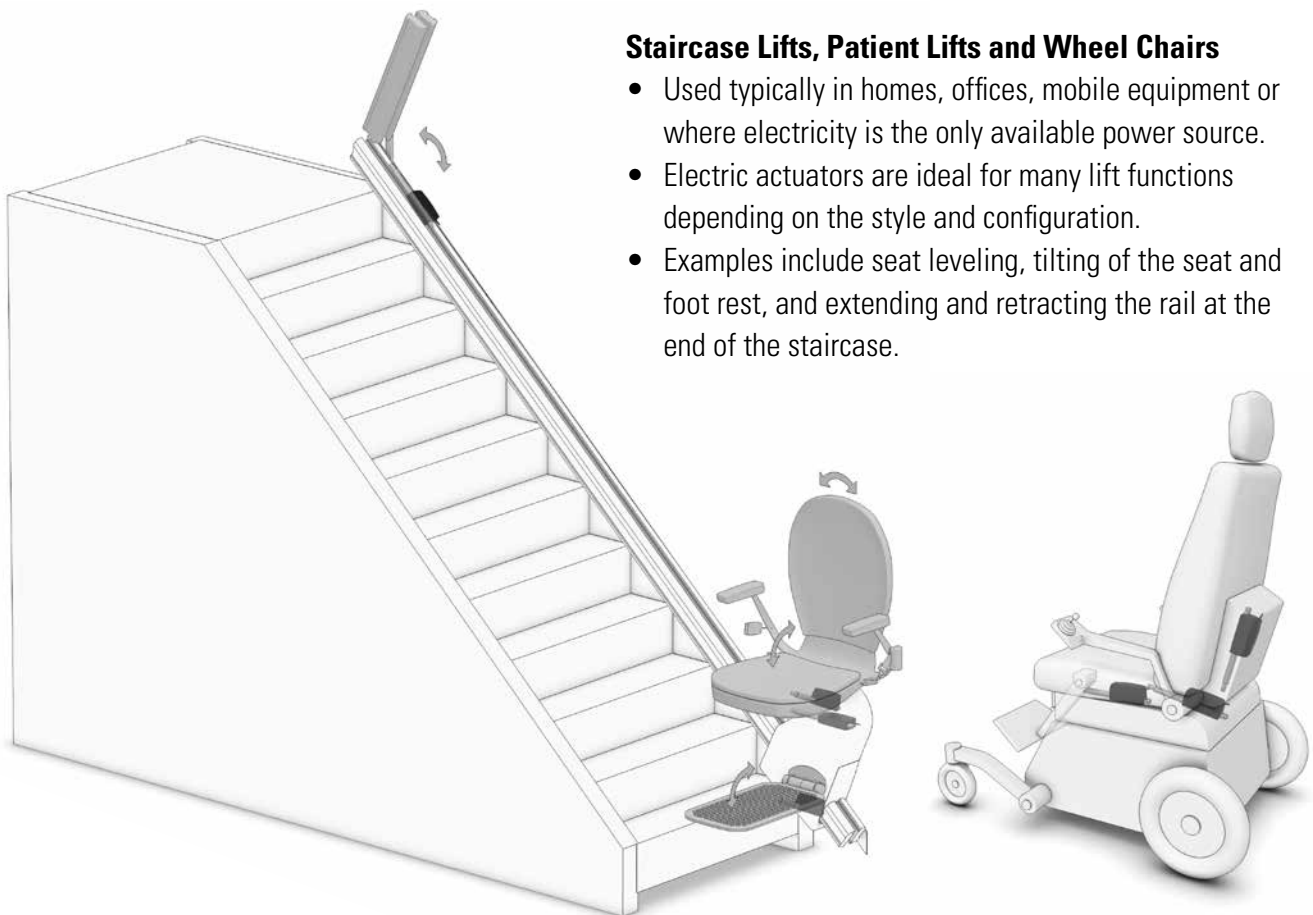
### Trains, Trams, Buses and other Public Transportation

- Electric actuators are more environmentally friendly and cost effective than hydraulic and pneumatic systems.
- Trains and buses using actuators for pantographs benefit from the robust construction to achieve long life in harsh environments.
- Overload sense and confirmed position are vital to user safety.
- Other public transport applications include door actuation, step leveling and gap control.



### Staircase Lifts, Patient Lifts and Wheel Chairs

- Used typically in homes, offices, mobile equipment or where electricity is the only available power source.
- Electric actuators are ideal for many lift functions depending on the style and configuration.
- Examples include seat leveling, tilting of the seat and foot rest, and extending and retracting the rail at the end of the staircase.







## Online Sizing and Selection Tools

Thomson LinearMotioneering® for Linear Actuators is a self-service, online sizing and selection tool that saves you time and cost and helps avoid misapplication. It allows you to quickly and accurately find your ideal solution by completing a self-guided, interactive series of questions that taps into the extensive application engineering knowledge base of Thomson experts.

LinearMotioneering is an easy-to-use, step-by-step tool that gathers all necessary information and then presents you with suitable solutions. Once the best candidate among the options is defined, LinearMotioneering will let you download all of the technical data and a 3D CAD model of the selected actuator, show you the cost and delivery time, and even let you purchase it from the Thomson online store.

### Your Own Project Library

All of your projects are stored in your own library so that you can return and continue working on them

or use an old project as the basis for a new one. Since projects are stored online, you can open them from any computer, mobile phone or tablet - from anywhere in the world

### Help with Custom Solutions

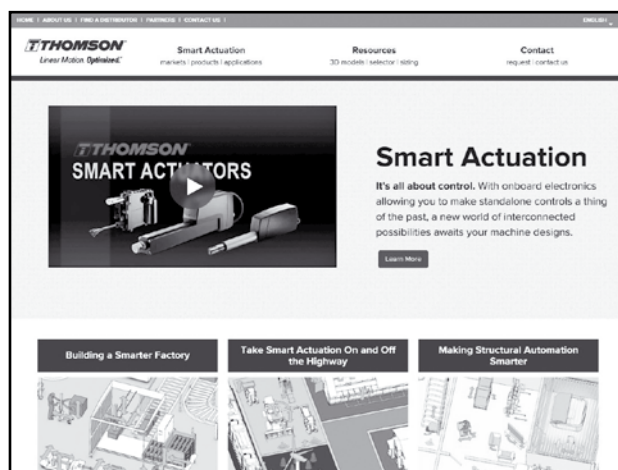
If LinearMotioneering can't find a suitable actuator for your project, you have the option to ask for a custom solution. The tool will ask for the necessary data so that our engineers can have a look and help you get what you need.

**Do you want help to size and select the best match for your application?  
Please visit: [www.linearactuators.linearmotioneering.com](http://www.linearactuators.linearmotioneering.com)**

Thomson offers a wide variety of online resources to help you learn more about electric linear actuators. An experienced team of application engineers is also available to help you. To explore additional technical resources and options, contact Thomson customer support at [www.thomsonlinear.com/cs](http://www.thomsonlinear.com/cs).

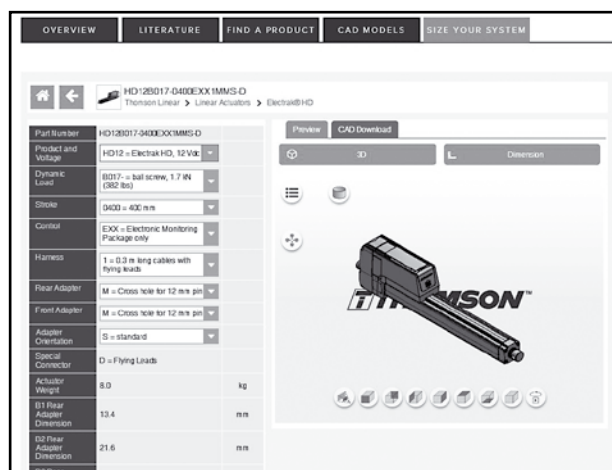
### Smart Actuators Product Website

Learn more about smart actuators and how they can help you build better machines at: [www.thomsonlinear.com/smart](http://www.thomsonlinear.com/smart)



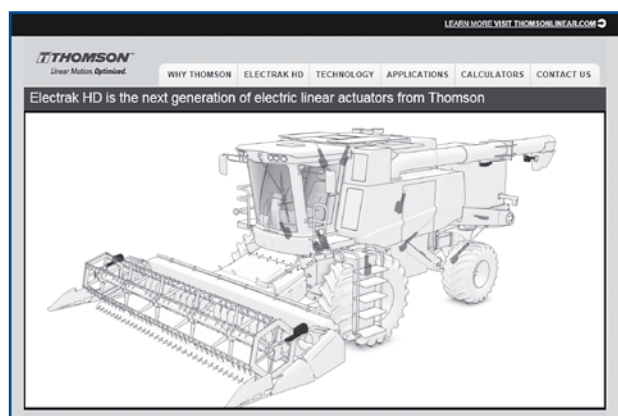
### Free CAD Models

Download free interactive 3D CAD models in the most common CAD formats at: [www.thomsonlinear.com/en/products/linear-actuators-drawings](http://www.thomsonlinear.com/en/products/linear-actuators-drawings)



### Electrak® HD Product Website

Get additional information and learn more about Electrak HD at: [www.thomsonlinear.com/hd](http://www.thomsonlinear.com/hd)



### Linear Actuator Selector Tool

The tool walks you through the selection process to your ideal actuator model. [www.thomsonlinear.com/en/products/linear-actuator-products](http://www.thomsonlinear.com/en/products/linear-actuator-products)

