



Electrak[®] HD & MD Actuators

Tested to Endure the Harshest of Environments and Conditions



Built to Perform, Tested to Last

Thomson Electrak HD and MD electric actuators continue to find their way into more and more machine designs thanks in part to their heavy duty construction and unparalleled durability. Their performance capabilities are no accident, however. These actuators have undergone extensive testing during the development process and passed the toughest technical and environmental standards. These measures help ensure customers benefit from:

- 100% performance-tested actuators
- Peace of mind in the actuator's daily performance
- Long, trouble-free and safe operation
- Superior total cost of ownership

Thomson has been manufacturing electric linear actuators for more than 50 years, and we understand which tests are necessary to qualify our products for a variety of applications. It's not enough to build a product that will operate in a clean, indoor "lab" environment. Our actuators are used on heavy duty agricultural and construction equipment that operate outdoors in the dirt and mud, and it's not uncommon for operators to use these products as steps or take a hammer to them. In short, our superior test standards ensure that Thomson actuators can withstand whatever punishment our customers, or the environment, may inflict.

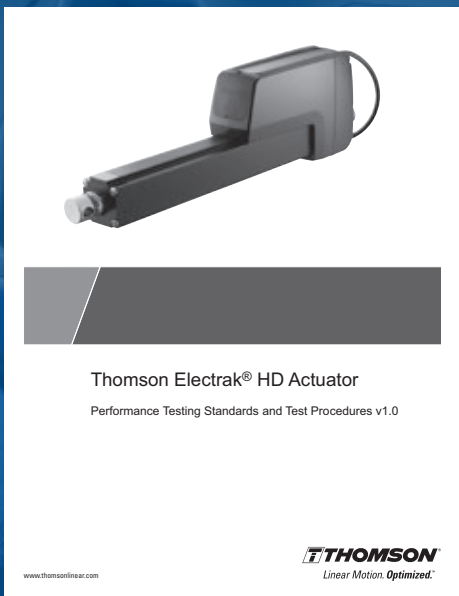


Superior Function Through Superior Testing

The Thomson Test Standard is a 40-day test platform that takes the Electrak HD and MD through some of the harshest conditions imaginable. From hot to cold, wet to dusty, heavy vibration to dropped on the floor, we inflict punishment on our design in an effort to match the real-world environment that our units may be forced to withstand. The cost of a test platform of this magnitude can range from \$75,000-100,000 at an independent lab. Thomson saves their customers this substantial expense by completing testing up front using an independent lab with a common report format.

Development Testing Overview

Environmental Protection	EN60529, DIN40050-9, ASTM B117-11, ISO 15003
Mechanical Function	EN60068-2-27, EN60068-2-32
Electrical Function	ISO 7637-2, ISO 13766, ISO 10605, EN60068-2-1/-2-2



All of the relevant standards and testing procedures used for Electrak HD and MD are described in the Performance Testing Standards and Test Procedures. This document is constantly being updated as these actuators evolve to meet new standards and tougher customer demands, and take advantage of new technologies.

Want to know more about Electrak HD and MD? Visit www.thomsonlinear.com to learn about all of their advantages, download brochures and 3D models, watch instructional videos, use our selector tool and more. You can also request a copy of the Performance Testing Standards and Test Procedures (pictured) via the site's Contact Us page.



Quality Control and Production Testing

We validate Electrak HD and MD through an extensive end-of-line test procedure to ensure that each and every actuator produced meets and exceeds your expectations. We also perform a detailed inspection on the components used to build it.

Production Test Highlights

- Ball screw straightness
- Load holding brake test
- Surface treatment check
- Bolt tightening torque
- Final inspection
 - movement
 - retract length
 - stroke Length
 - no load speed
 - loaded speed
 - overload trip point
 - end play
 - PCB functions
 - sound level



Superior Protection Ensures Reliable Operation

Robust and reliable operation, even in demanding environments, has been a hallmark of Thomson electric actuators. With Electrak HD and MD, we've taken environmental protection to the next level by subjecting them to some of the harshest conditions imaginable throughout our rigorous test protocol.

Passed Development Tests Highlights

- Operational low temperature (-40°C for 96 hours)
- Operational high temperature (+85°C for 96 hours)
- Hose washing (IPx6)
- Submersion (IPx7)
- High-pressure washing (IPx9k)
- Dust ingress (IP6x)
- Salt environment (500 hours)
- Chemical resistance
 - diesel
 - hydraulic oil
 - brake oil
 - ethylene glycol
 - urea nitrogen
 - diesel exhaust fluid
 - NPK fertilizer*9

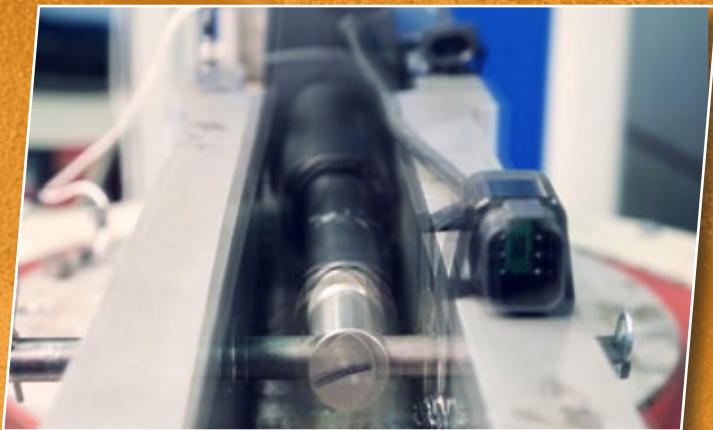


Guaranteed Performance with No Surprises

Electrak HD and MD are designed around consistent and reliable performance. Load, speed, current and duty cycle are among the many specifications that we guarantee will be consistent throughout their entire lives. These parameters are tested to some of the strictest values in the industry.

Passed Development Tests Highlights

- Random vibration immunity
- Operational shock immunity
- Handling/drop shock immunity
- Life expectancy
- Duty cycle
- Static maximum load capacity
- Dynamic maximum load capacity
- Sound emission
- Speed variation
- Current draw
- Operational voltage
- Manual override function
- PCB function



Safe Operation in All Conditions

It doesn't matter how strong, sturdy or smart a product is if it isn't safe. Thomson's extensive testing ensures that Electrak HD and MD continue to run safely in any application – keeping people, equipment and environments out of harm's way.

Passed Development Tests Highlights

- Operational over voltage
- Operational under voltage
- Operational reverse polarity
- Short circuit handling
- Operational electrostatic discharge
- End-of-stroke limit switch function
- Overload protection
- Duty cycle protection
- Static load holding brake test
- EMC tests
 - inductive load switching
 - positive inductance transient test
 - positive and negative coupling test
 - cranking test
 - load dump
 - electromagnetic immunity
 - conducted emissions
 - radiated emissions





How Thomson Built a World-Class Linear Actuator

1. Start with the proven, rugged Electrak electric linear actuator.
2. Add state-of-the-art onboard controls, feedback, CAN bus networking protocols and eliminate the need for standalone controls.
3. Boost the power, increase stroke lengths and reduce current draw.
4. Design it all into a more compact envelope with the best environmental protections on the market today.

INDUSTRY LEADING ONBOARD CONTROLS

The Electrak Modular Control System (EMCS) is the foundation of the best onboard controls available today for electric linear actuators and includes optional, built-in CANopen® or SAE J1939 CAN bus support.

1 Electrak Modular Control System

- Electrak Monitoring Package (standard)
- End-of-Stroke Indication Output Option
- Analog Position Output Option
- Digital Position Output Option
- Low-Level Signal Motor Switching Option
- CANopen or SAE J1939 CAN Bus Control Option

2 Built-in, End-of-Stroke Limit Switches

3 Mounting Slots for External Limit Switches

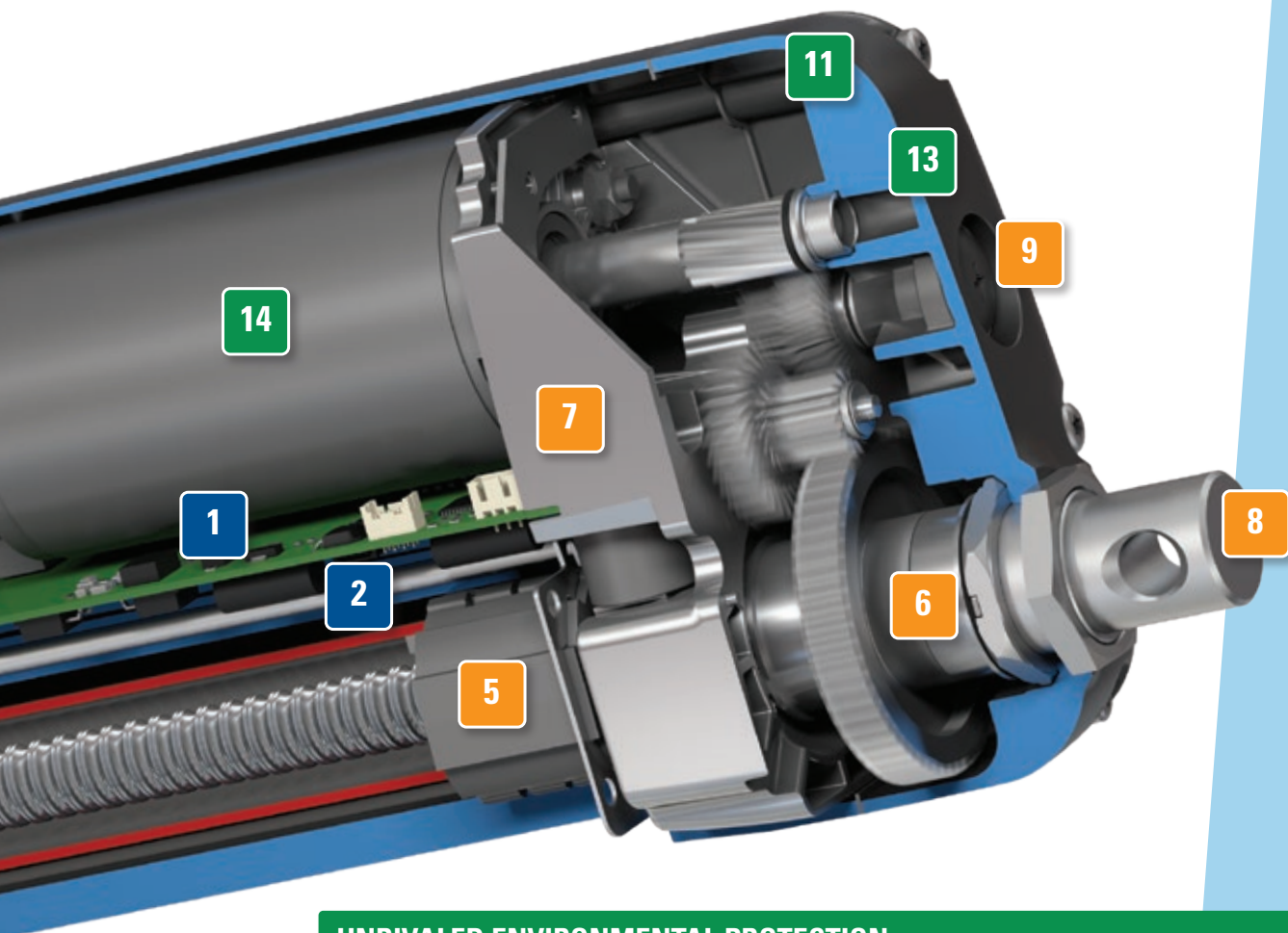


Electrak HD shown

SUPERIOR PERFORMANCE

Higher power and longer stroke lengths enable Electrak HD and MD to tackle applications outside the range of other electric linear actuators.

- 4 Modular Cabling
- 5 Standard Anti-Rotation Feature
- 6 Static Load-Holding Brake
- 7 Robust Zinc Housing
- 8 Large Variety of Adapters
- 9 Integrated Manual Override
- 10 High-Efficiency Ball Screw Assembly



UNRIVALED ENVIRONMENTAL PROTECTION

Electrak HD and MD are tested to meet and exceed the toughest OEM mechanical and electronic component acceptance tests in the market today.

- 11 IP67/IP69K Protection Class
- 12 Stainless Steel Extension Tube
- 13 Salt Spray Tested for 500 Hours
- 14 Large Operating Temperature Range
- 15 Hard-coat Anodized Aluminum Cover Tube

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Linear Motion. Optimized.[™]

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