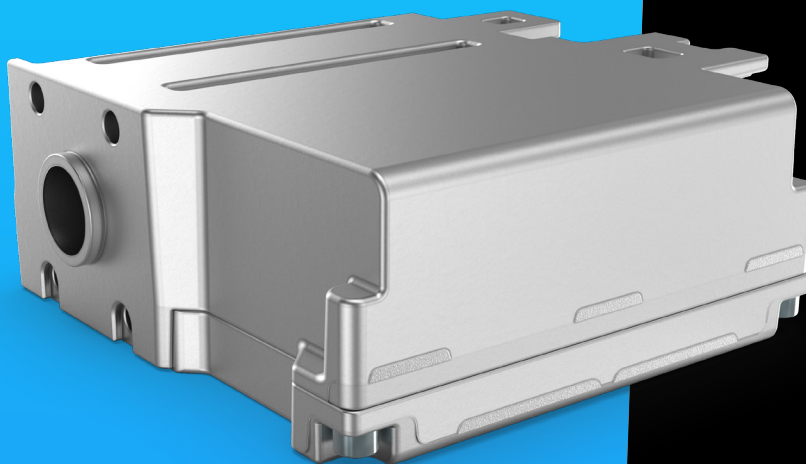


ELECTRO- MECHANICAL ACTUATOR (EMA)

With the Thomas EMA, Off-Highway customers can now replace traditional electro-hydraulic pilot control with a cutting-edge all-electric solution.

At the heart of the system is our intelligent pilot control unit, engineered for high-performance spool control with exceptional responsiveness. By eliminating the need for a separate low-pressure hydraulic circuit, the EMA not only simplifies installation but also enhances system robustness against pressure, temperature fluctuations, viscosity changes, contamination and leakage.

The Thomas EMA combines the directness of mechanical control with the precision of electric actuation, delivering the best of both worlds. It's the smart, sustainable, and scalable solution for the next generation of Off-Highway machinery.





Benjamin Henrich
Product Manager



Thomas GmbH
Innomotion Park 3
D-57562 Herdorf, Germany



benjamin.henrich@thomas-group.com



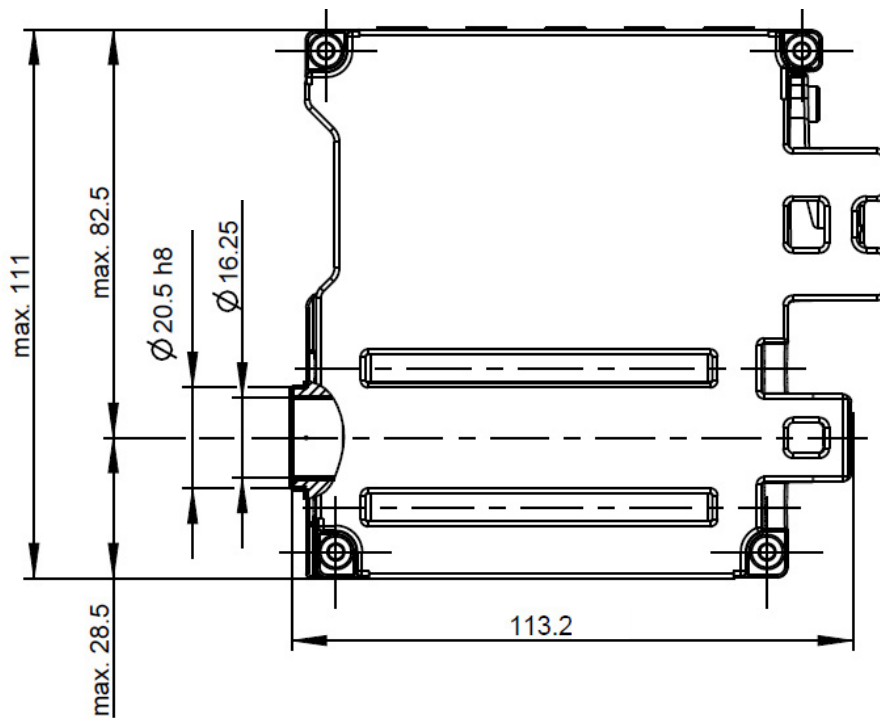
01

System Configuration

System Configuration

01

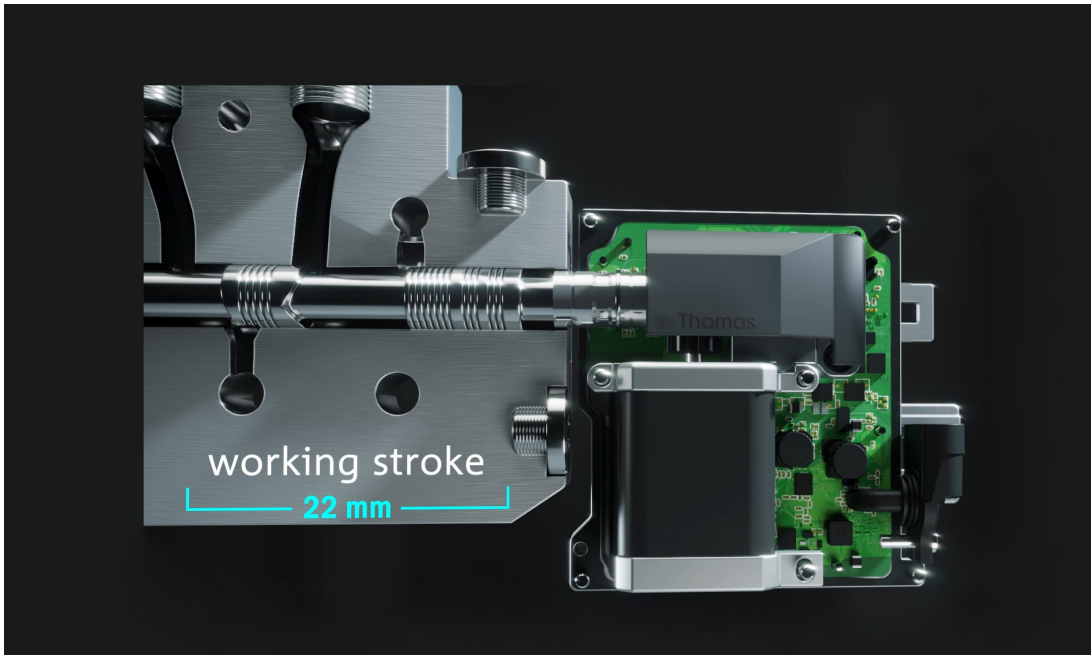
Dimensions [mm]



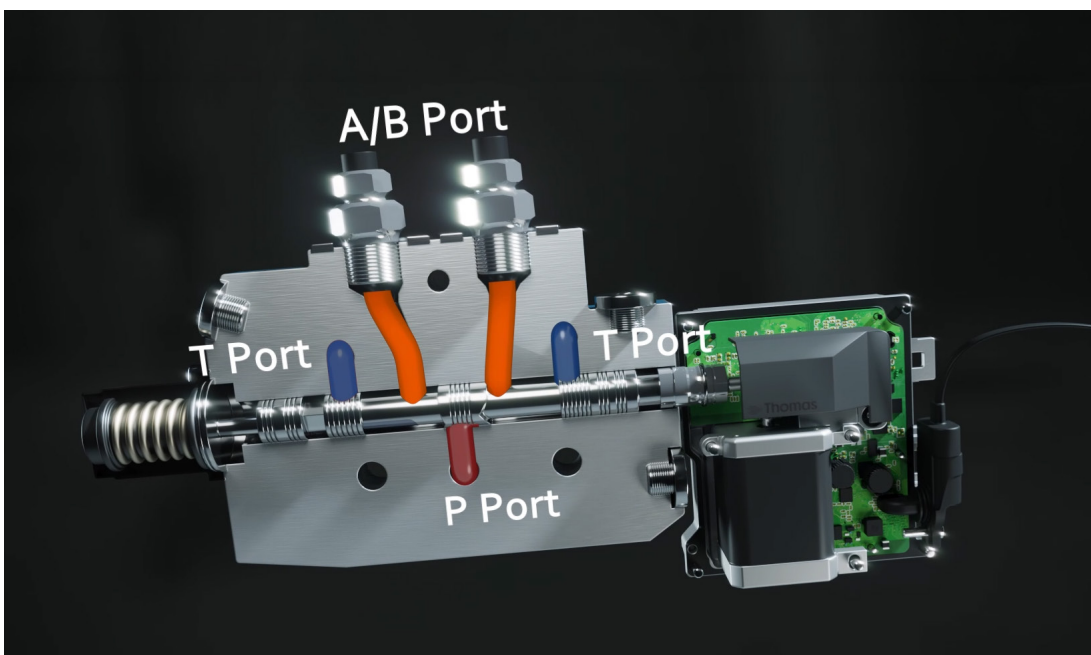
System Configuration

01

Forces: actuation 315 N, dynamic start up 410 N, holding 410 N



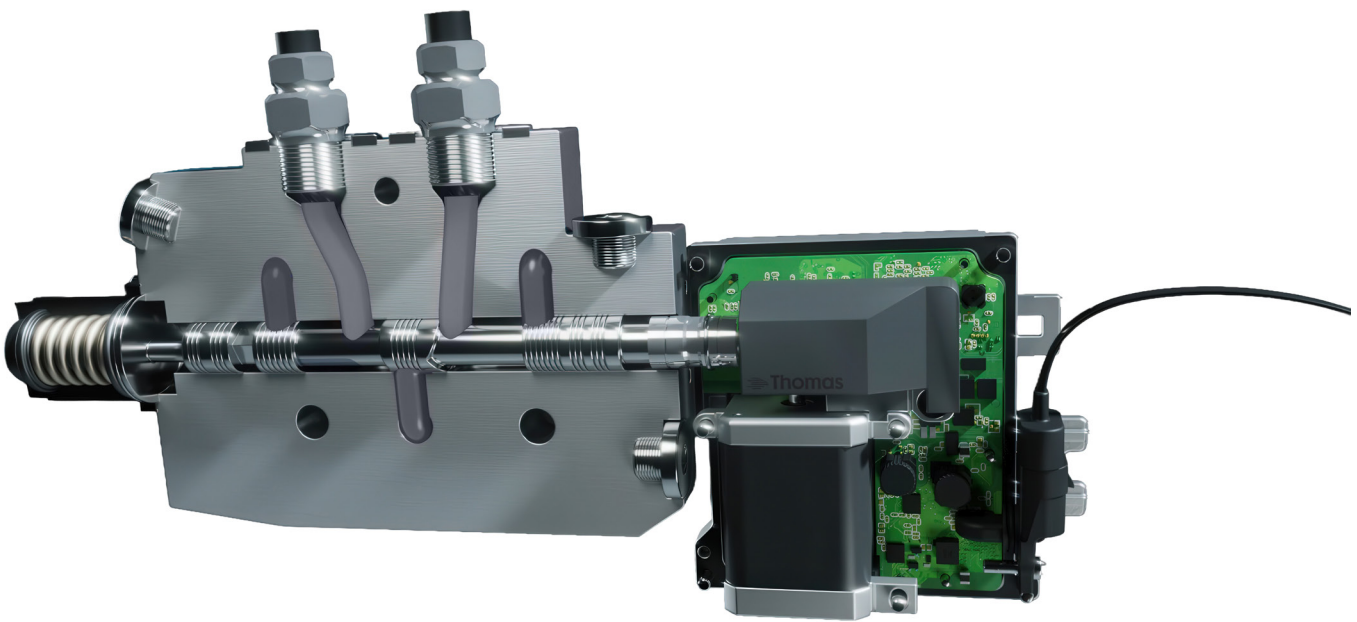
Precise spool position detection (inclusive identification of a stuck spool)



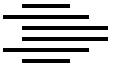
System Configuration

01

Comprehensive UDS diagnostics



Compatible with J1939 CAN protocol



02

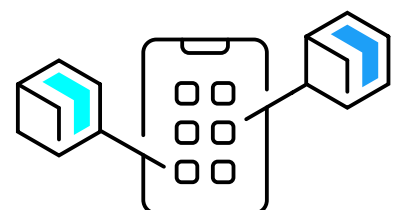
Product Benefits & Services

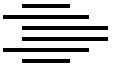
Product Benefits

- **All-electric pilot control:** No hydraulic pilot oil circuits required – lower system costs: Reduced material and maintenance expenses. Reduction of leak points in the system Improved product standardization due to independence from a central oil supply
- **Faster setup:** Fewer components, easy installation
- **Superior reliability:** Immune to external influences
- **Decentralized architecture:** Flexible integration with electric cables, fully electrical power and command supply
- **Enhanced user experience:** Smooth, intuitive operation and parameterization
- **Overshoot free precisely controlled movement:** Due to physical connection to the mainspool, very high positioning accuracy ($\pm 16 \mu\text{m}$)
- **Minimized TCO:** Proven reliability evidenced by stringent test runs
- **Minimizes costs for testing:** Easy configuration with Thomas Software Control (TSC)
- **Seamless adaption to existing machines:** Fully integrated control system with embedded software

Services

- **Customer support team:** Helps to speed up the time to market and prevents costly delays





03

Functional Description

Functional Description

Performance Data

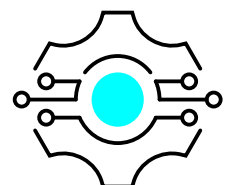
Temperature range for normal operation	- 40 °C to + 100 °C (ambient temp. with circulating air. EMA mounted to a sectional valve)
Temperature range for reduced operation	+ 100 °C to + 120 °C (ambient temp. with circulating air. EMA mounted to a sectional valve)
Working stroke	22 mm
Speed	up to 90 mm/s
Forces typ. max. actuation: typ. max. holding: typ. dyn. start up:	315 N @ 7 A 410 N @ 7 A 410 N @ 8,5 A
Repeatability	± 16 µm
Resolution	6 µm

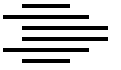
Electrical Data

Voltage	12 V	24 V
Operating voltage	$U_{min} = 9 V$ $U_{max} = 16 V$	$U_{min} = 15,5 V$ $U_{max} = 33 V$
Idle current (without holding current)	80 mA	60 mA
Holding current Extend / Retract Neutral	~ 470 mA ~ 180 mA	500 mA 300 mA

Additional Data

Weight	1027 g (without gear rack)
Protection class	IP6K6 / IPX9K





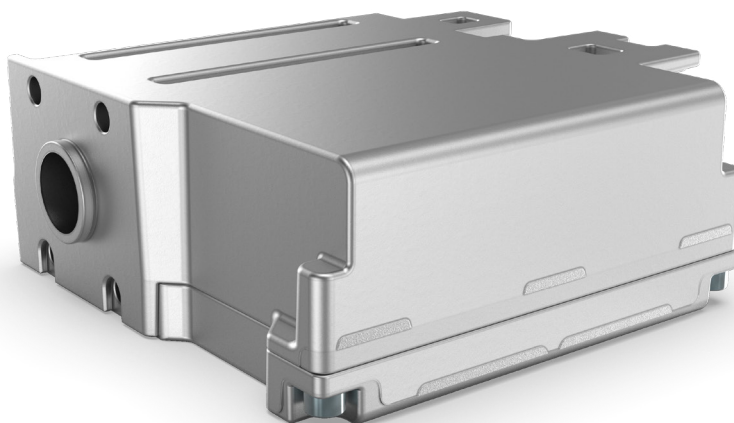
04

Configuration Options

Configuration Options

04

EMA 1.46 Standard					
Part No.	Voltage	UpForce	HoForce	ActForce	J1939
1020288	12 V	410 N	410 N	315 N	<input checked="" type="checkbox"/>
1019537	24 V	410 N	410 N	315 N	<input checked="" type="checkbox"/>



Thomas GmbH
Innomotion Park 3
57562 Herdorf
Germany
Tel. +49 [0]2744 929-0
thomas-group.com