Beckhoff — AL Linear Motors

AL2418-0001-0001



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The **AL2418-0001-0001** belongs to the AL Linear Motors series developed by Beckhoff. As a linear servo motor coil unit, it produces direct thrust along an iron-mounted magnet track, eliminating rotary-to-linear conversions in pick-and-place axes, gantries, and high-speed transport sections. Electrical power is supplied through factory-installed M23 and D-Sub connectors, and the 50 mm-wide housing contains 18 coils arranged on a 24 mm pole pitch. The moving element engages a permanent-magnet secondary with 1,300 N of magnetic attraction force, while the machine guideway maintains the required air gap.

Under forced-air conditions, the coil delivers a continuous thrust of **360 N** while drawing only **9.23 A**. During acceleration or short load peaks, it withstands bursts of up to **25.10 A** and generates a maximum thrust of **720 N**. Continuous power loss is limited to 296 W, so airflow must remove the resulting heat from the machine envelope. The motor reaches a top speed of **10 m/s**, allowing long-stroke movements without mechanical transmissions. The power constant of 39 N/A indicates the force available per ampere. The speed-optimized winding supports a responsive current rise. Operation is strictly air-cooled because the stator design omits liquid channels and requires no external pumps or hoses.

A motor constant of **570 N²/W** relates continuous force to thermal dissipation and reflects the low thermal resistance of **0.25 °C/W**. With a thermal time constant of 75 s, the coil temperature changes gradually enough for standard drive monitoring to protect the winding. The electrical circuit has an inductance of **11 mH** and a resistance of 1.7 ?, which the servo inverter uses for current-loop tuning. A voltage constant of **22.63 V/m/s** indicates how

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back electromotive force rises with speed and helps establish the required DC-bus voltage near the upper operating range.

Specifications

Connection:	With M23 and D-Sub Connectors	**Continuous Current:**	9.23 A	**Continuous Force Air Cooling:**	360 N
Continuous Power Loss:	296 W	**Magnetic Attraction Force:**	1300 N	**Max Velocity:**	10 m/s
Motor Constant:	570 N²/W	**Num. of Coils:**	18	**Peak Current:**	25.10 A
Peak Force:	720 N	**Pole Pitch:**	24 mm	**Power Constant:**	39 N/A
Product Range:	Linear servo motors	**Thermal Resistance:**	0.25 °C/W	**Thermal Time Constant:**	75 s
Voltage Constant:	22.63 V/m/s	**Water Cooling:**	Without Water Cooling	**Width:**	50 mm
Winding:	Speed Winding	**Winding Inductance:**	11 mH	**Winding Resistance:**	1.7 ?
Last Verified:	11/23/2026 3:54 AM				

Contact Us

1620 Old Apex Road, Cary, NC 27513, USA

Toll Free: 1-888-551-3082

International: 1-919-443-0207

Fax: 1-919-867-6204

Email: sales@wakeindustrial.com

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