Beckhoff — AL Linear Motors

AL2006-0000-0000



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The **AL2006-0000-0000** is a coil unit manufactured by Beckhoff for the AL Linear Motors series. Classified in the company's linear servo motor product range, it generates thrust directly along an iron-core secondary track for positioning and transport tasks in industrial automation. The unit contains six coils arranged as one assembly, arrives without connectors, and includes a 1 m unassembled cable that allows the use of a field-terminated plug. Its standard winding design is intended for general-purpose operation. The unit does not have a water-cooling path, so heat is removed through the aluminum housing and mounting surface.

The coil produces a continuous force of **200 N** when the mover operates in open air with a continuous phase current of **2.15 A**. For rapid indexing or load spikes, the drive may apply a peak phase current of **6.5 A**, allowing the coil to deliver a peak force of **450 N**. This dynamic range is supported by a winding inductance of **108 mH**, which limits the rate of current change and filters switching harmonics from the servo inverter. Under nominal loading, the copper and core dissipate 150 W of power, and the magnetic circuit develops 950 N of attraction toward the toothed secondary. With a motor constant of 380 N^2/W, the coil converts electrical input into linear thrust efficiently. A winding resistance of 14.4 ? determines the voltage demand at the stated currents.

The thermal resistance is **0.48 °C/W**, so 150 W of loss raises the winding temperature by approximately 72 °C above the mounting base after the system reaches a steady state. The thermal time constant is **77 s**. A mechanical gap of **0.5 mm** must be maintained between the coil face and the permanent-magnet track to preserve force linearity and prevent contact under vibration. The mover has a width of **80 mm** and weighs 1.5 kg, which affects

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carriage design and acceleration limits. Its 24 mm pole pitch sets the commutation feedback spacing and supports sinusoidal force production during motion.

Specifications

Air Gap:	0.5 mm	**Coil Unit Weight:**	1.5 kg	**Connection:**	Without Connectors
Continuous Current:	2.15 A	**Continuous Force (air):**	200 N	**Continuous Power Loss:**	150 W
Magnetic Attraction Force:	950 N	**Motor Constant:**	380 N²/W	**Num. of Coils:**	6
Peak Current:	6.5 A	**Peak Force:**	450 N	**Pole Pitch:**	24 mm
Product Range:	Linear servo motors	**Thermal Resistance:**	0.48 °C/W	**Thermal Time Constant:**	77 s
Unassembled Cable Length:	1 m	**Water Cooling:**	Without Water Cooling	**Width:**	80 mm
Winding:	Normal Winding	**Winding Inductance:**	108 mH	**Winding Resistance:**	14.4 ?
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