

Beckhoff — AL Linear Motors

AL2815-0000-0000-0001



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The **AL2815-0000-0000-0001** is a coil unit from Beckhoff's AL Linear Motors series. This moving-coil module belongs to the linear servo motor product range and generates direct thrust against a stationary magnetic plate, eliminating the need for mechanical transmissions in automation axes. A fixed 0.5 mm air gap separates the coil face from the magnets. The unit is supplied without connectors, allowing custom cable routing in compact machine frames.

During continuous operation, the coil produces **950 N** of force while drawing **4.2 A**. These ratings indicate the steady load that the axis can handle without exceeding the permitted winding temperature. The voltage constant is **107.48 V/m/s**, linking back electromotive force to slider speed for drive sizing. A winding inductance of **120 mH** influences current ripple under pulse-width modulation control, while the winding resistance of 15.2 Ω contributes to predictable copper losses at rated current. The motor uses a normal winding configuration and has a power constant of 186 N/A, indicating the amount of force generated per ampere. Its maximum translational speed is **3 m/s**, subject to the motor's electrical time constants and the servo amplifier's available voltage. The assembly contains 15 coils, weighs 5.9 kg, and uses natural convection because it does not have water cooling.

For short-duty operation, the motor can deliver a peak force of **2250 N** with a corresponding peak current of **13.5 A**, allowing rapid acceleration of light payloads. When the slider is de-energized, the magnetic circuit exerts an attraction force of **4150 N**, so rigid guidance is required to withstand the magnetic load and maintain proper alignment. Mechanical integration is supported by the module's **130 mm** width, which provides a clear reference for

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carriage and guide placement. The accompanying magnet track adds 10.5 kg of mass per meter, which must be considered when sizing the supporting machine structure. Natural convection requires sufficient open space around the coil housing to release heat during continuous high-load cycles.

Specifications

Air Gap:	0.5 mm	Ambient Temperature (operation):	+5...+40 °C	Approvals/markings:	CE, EAC, CSA
Attraction Force:	4150 N	Coil Unit Weight:	5.9 kg	Connection:	Without Connectors
Continuous Current:	4.2 A	Continuous Current With Air Cooling:	4.2 A (N), 10.2 A (S)	Continuous Force:	950 N
Continuous Force With Air Cooling:	950 N	Force Constant:	225 N/A (N), 93 N/A (S)	Magnetic Plate Weight:	10.5 kg/m
Material:	Aluminum	Max Velocity:	3 m/s	Max. Speed:	2.5 m/s, 6 m/s
Motor Type:	3-phase synchronous linear servomotors	Nominal Voltage:	100...480 V AC	Num. of Coils:	15
Peak Current:	13.5 A	Peak Force:	2250 N	Power Constant:	186 N/A
Product Range:	Linear servo motors	Protection Rating:	IP64	Voltage Constant:	107.48 V/m/s
Water Cooling:	Without Water Cooling	Width:	130 mm	Winding:	Normal Winding
Winding Inductance:	120 mH	Winding Resistance:	15.2 ?	Last Verified:	10/26/2026 5:32 AM

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