

# LDC-Series™ and LDL-Series™ Linear Servo Motors



Cost-Effective, High Performance Linear Motion

Linear Motors have long been established as a reliable means of achieving precise linear positioning at very high speeds. In fact, you're probably already familiar with their successful implementation in applications involving semiconductor manufacturing equipment and electronic packaging machines.

However, you may not realize that advances in technology and reduction in costs have made linear motors a practical, cost-effective choice for an increasingly wide range of machine applications, including: packaging; on-the-fly inspection, shape cutting, dispensing machines; material handling machines; flat and solar panel scribing machines; pick and place machines, and many more applications.



## Practical and Cost-Effective

The new Allen-Bradley® LDC-Series and LDL-Series Linear Servo Motors address growing interest in linear motor technology as it becomes more affordable and is increasingly recognized as a practical means of improving machine performance. Designers are now looking to linear motors to help:

- minimize waste by increasing precision
- increase machine capabilities by expanding the range of motion while improving efficiency
- enhance machine productivity by improving reliability

And, with a choice of iron core or ironless models, you now have new cost-effective options to help you improve your machine design.

## Improved Reliability

One of the big advantages of using Allen-Bradley® linear motors instead of other linear actuation methods centers on reliability. The LDC-Series and LDL-Series Servo Motors have no "wear" parts. As a result, they are very reliable from a mechanical standpoint. The alternatives typically contain "wear items" that routinely need to be maintained or replaced, such as bearings, gears, belts, etc.

## Servo Responsiveness

Linear motors are also known as direct drive linear motors because they are connected directly to the payload that needs to be moved. Consequently, there is no mechanical power transmission chain to add "spring" to the servo system. Because of this direct connection, the LDC-Series and

LDL-Series Linear Motors provide excellent servo responsiveness, resulting in faster settling time for any move, which in turn can provide improved system productivity.

## Precision

The high degree of servo responsiveness also allows these linear motors to be extremely precise. Precision is further enhanced by incorporating linear encoders with resolutions measured in sub-microns that can be mounted in close proximity to your point of interest.

## Flexibility

Unlike pneumatic or hydraulic solutions, Allen-Bradley linear motors have the flexibility to maintain quick movement while handling multiple motion profiles.

## Additional benefits:

- Ability to size and optimize Allen-Bradley linear motors and corresponding servo drives using Motion Analyzer software reduces product selection time and minimizes cost.
- Full setup and programming support through RSLogix 5000 software reduces set up time by making commissioning fast and easy.
- Linear motors simplify assembly since clearance between coil and magnet channel can be designed into the machine. Alternatives require careful, time-consuming alignment during assembly.
- The LDC-Series and LDL-Series Motors are capable of very high speeds and acceleration which can help greatly increase the throughput of your machine.

LISTEN.  
THINK.  
SOLVE.™

## LDL-Series Ironless Core Linear Servo Motors

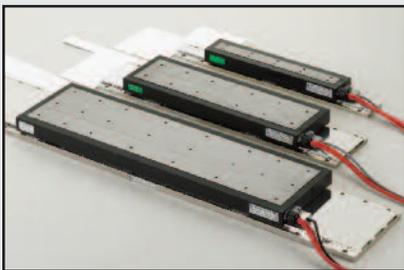


Amplifier Input Voltage	230V AC rms
Maximum Applied bus voltage*	325V DC
Maximum Operating Speed	10 m/s or 32.8ft/s
Continuous Force Rating <sup>(1)</sup>	63 to 596N or 14 to 134lbf
Peak Force Rating <sup>(2)</sup>	209 to 1977N or 47 to 444lbf
Windings	High and Low Speed
Drive Compatibility	Kinetix® 2000, Kinetix® 6000 and Ultra™3000

\* Maximum cable length of 10m. If longer cable is required, contact your Allen-Bradley distributor or Rockwell Automation sales office

- (1) Based upon: coils at max temperature, 130°C, mounted to an aluminum heat sink of specified area and in an ambient temperature of 40°C. All phases sharing equal load. A moving coil and load mounted to the wide surface of the coil.  
 (2) Based upon an 11% duty cycle for 1s max. For higher peak forces, contact Application Engineering.

## LDC-Series Iron Core Linear Servo Motors



Amplifier Input Voltage	230 and 460V AC rms
Maximum Applied bus voltage*	650V DC
Maximum Operating Speed	10 m/s or 32.8ft/s
Continuous Force Rating <sup>(1)</sup>	74 to 1922N or 17 to 432lbf
Peak Force Rating <sup>(2)</sup>	188 to 5246N or 42 to 1179lbf
Windings	High and Low Speed
Drive Compatibility	Kinetix 2000, Kinetix 6000, Kinetix 7000 and Ultra3000

\* Maximum cable length of 10m. If longer cable is required, contact your Allen-Bradley distributor or Rockwell Automation sales office

- (1) Based upon: coils at max temperature, 130°C, mounted to an aluminum heat sink of specified area and in an ambient temperature of 40°C. All phases sharing equal load. A moving coil and load mounted to the wide surface of the coil. Higher forces are achievable with water cooling option.  
 (2) Based upon a 20% duty cycle for 1s max. For higher peak forces, contact Application Engineering.

## Motor Comparison

Feature	Iron Core	Ironless	Benefit
Non-Cogging	No	Yes	Ironless motors were developed for applications that require extremely smooth motion such as scanning or printing/scribing
High Force Density	Yes	No	Iron Core allows for the use of smaller, less expensive motors. Also allows for higher available force motors.
No Magnetic Attraction Between Coil and Magnet Track	No	Yes	Ironless allows you to use smaller, less expensive linear bearings to guide the coil.
No Magnetic Field Exposure	No	Yes	Ironless eliminates the need for shielding in cases where the application is sensitive to magnetic fields.
Max Amplifier Input Voltage	460V AC	230V AC	



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