Allen-Bradley® Integrated Linear Thruster

Allen-Bradley

An Iron Core Linear Motor Actuator with a Built-in Linear Guide

Features

A precise, high-speed linear actuator with an integrated linear guide, the Integrated Linear Thruster provides:

- High velocity (to 5 m/s) and acceleration (5 g standard, higher with review)
- Direct drive technology that increases reliability by eliminating wear items associated with rotary to linear motion conversion
- Integrated linear bearing providing the ability to carry a load without having to mount and align external bearings
- A pre-engineered solution that can reduce engineering, design and documentation time
- Multiple mounting surfaces and methods for ease of mounting into your machine
- Selection software, Motion Analyzer 6.0, that allows for quick and easy sizing to optimize the actuator and drive selection to minimize energy consumption
- Optional strip cover that provides added protection for bearings, maximizing life
- Standard rotating SpeedTec DIN connectors that integrate with standard Allen-Bradley extension cables

High-speed, load-bearing linear motion out-of-the-box

To produce a high-speed, load-bearing linear actuator today, many machine builders invest a lot of time and money to design a mechanism with rotary-to-linear motion conversion. With the Allen-Bradley Integrated Linear Thruster, machine builders can get high-speed, load-bearing linear motion out-of-the-box. The LDAT-Series Integrated Linear Thruster is a reliable, high-speed linear actuator with an integrated linear guide that is capable of pushing, pulling or carrying a load.

The linear thruster combines high velocity, up to five meters per second, high levels of acceleration and peak thrust forces ranging from 168 to 4,305 Newtons to help maximize performance. Ideal applications are those which currently use a custom-designed belt actuator or linkage device that converts rotary into linear motion, including cartoners, stackers, case packers, case and tray formers, in-out feeds, diverters, ejectors, drop gates and horizontal conveyors.

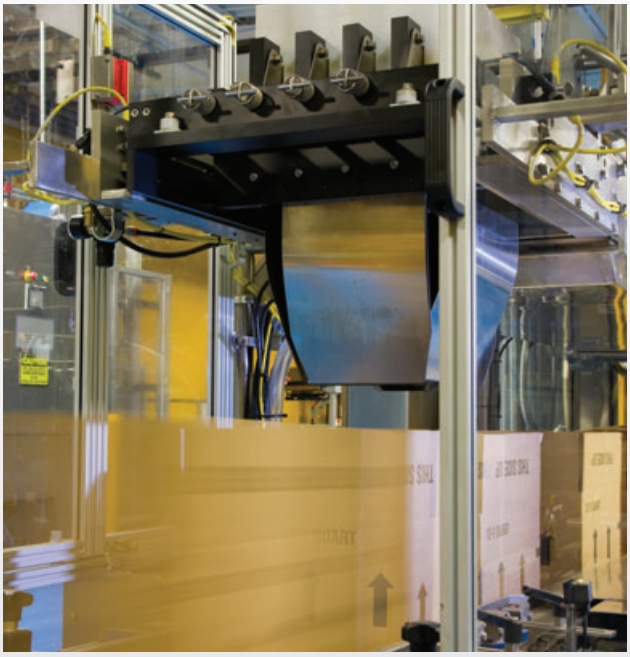
Using direct drive technology, the linear thruster helps improve reliability and makes maintenance easier by reducing the number of wear items. Eliminating power transmission components such as couplings, gear boxes, belts, pulleys and other motion conversion mechanisms also saves energy by avoiding frictional losses attributed to these components.

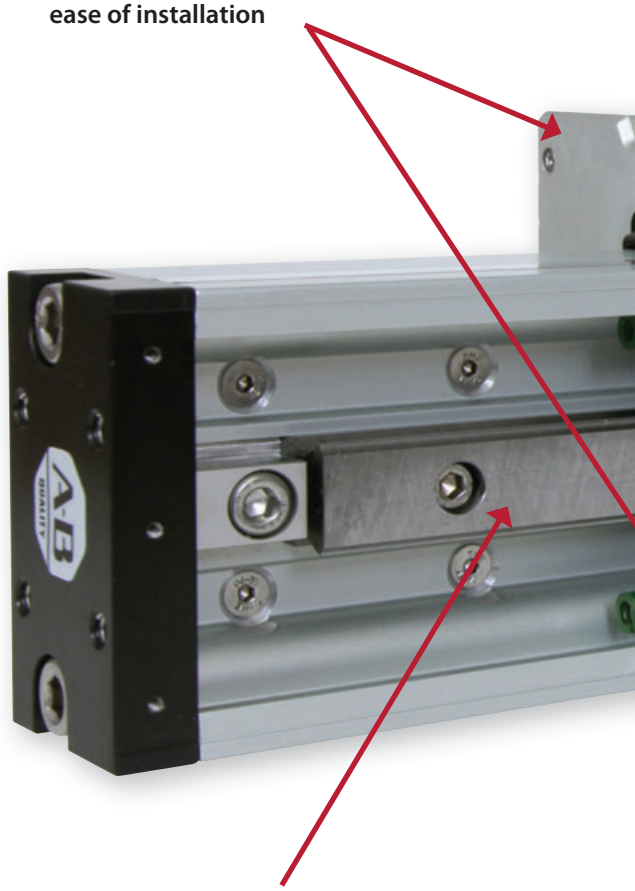
A High-Performance, Highly Reliable Guided Linear Actuator Designed to Simplify Your Machine

As a pre-engineered solution, the Integrated Linear Thruster can help reduce engineering, design and documentation time, decrease the amount of mechanisms and components needed to build a custom solution and reduce the time to install the axis into a machine.

Use the mechanical design software, Motion Analyzer (version 6.0 or higher), to select and simulate the most efficient drive-actuator combination to optimize performance and minimize energy consumption.

To minimize installation time, the Integrated Linear Thruster can be used with any Allen-Bradley servo drive, and it uses the same innovative SpeedTEC® DIN connectors as the rest of the Allen-Bradley servo motor family, for a quick, secure assembly.

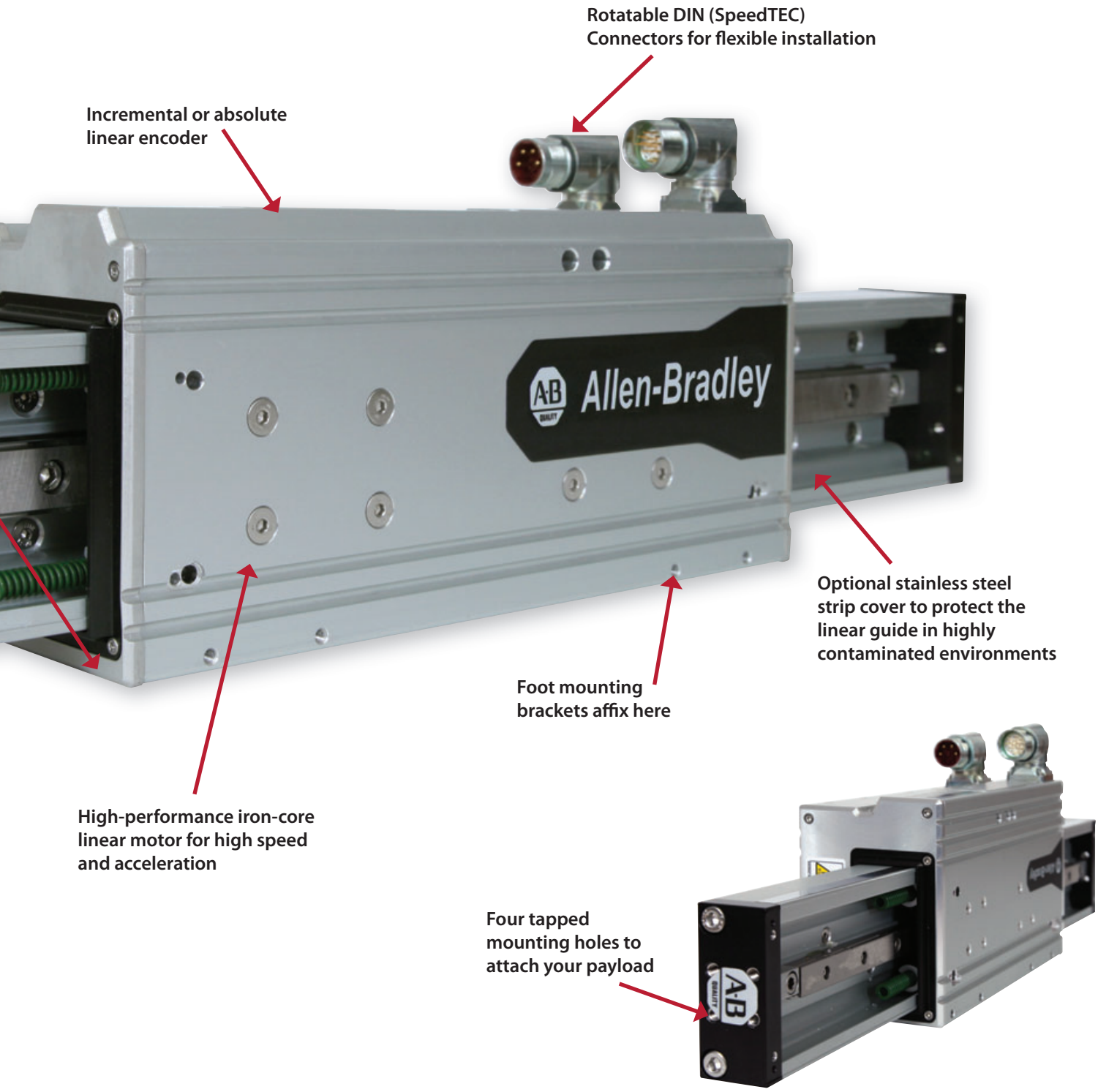




Simplification

Using an Integrated Linear Thruster instead of designing your own custom linear axis saves time to:

- Select all the components that go into a custom actuator
- Develop all the parts drawings
- Create the bill of materials
- Develop the assembly drawings and work instructions
- Assemble the custom actuator into the machine



Reliability

The Integrated Linear Thruster provides increased reliability and requires less maintenance as a result of:

- Using a single linear guide that eliminates induced loading due to misaligned multi-guide systems
- Having only one wear item versus several found in custom actuators
- Using caged ball linear bearings that require less maintenance

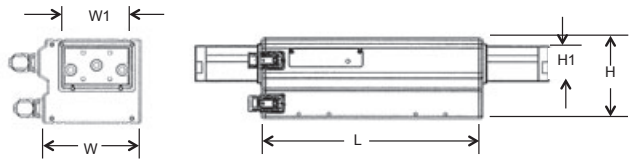
Energy Efficient

With the LDAT-Series Integrated Linear Thruster, machine builders can often find a more efficient solution that consumes less energy because the linear thruster:

- Has no loss of efficiency as a result of converting rotary motion into linear motion
- Is coupled directly to the item that needs to be moved, eliminating the structure often required in custom actuators and mass associated with it

Technical Specifications

Frame Size	Motor Length	Peak Force N (lbf)	Continuous Force N (lbf)	Stroke Lengths mm	Stator Length L mm	Stator Width W mm	Stator Height H mm	Slide Width W1 mm	Slide Height H1 mm
03	1	168 (38)	81 (18)	100, 200, 300, 400	233	132	90	35	81
	2	336 (75)	126 (28)		333				
	3	504 (113)	190 (43)		433				
05	1	279 (63)	119 (27)	100, 200, 300, 400, 500	233	147	120	53	92
	2	558 (125)	251 (56)		333				
	3	836 (188)	378 (85)		433				
	4	1115 (251)	509 (115)		533				
07	2	816 (183)	364 (82)	100, 200, 300, 400, 500, 600, 700	333	147	120	53	92
	3	1224 (275)	554 (125)		433				
	4	1632 (367)	730 (164)		533				
	6	2448 (550)	1122 (252)		733				
10	2	1030 (231)	456 (102)	100, 200, 300, 400, 500, 600, 700, 800, 900	333	197	140	63	135
	3	1544 (347)	702 (158)		433				
	4	2059 (463)	929 (209)		533				
	6	3089 (694)	1403 (316)		733				
15	2	1435 (323)	643 (144)	100, 200, 300, 400, 500, 600, 700, 800, 900	333	247	150	73	179
	3	2153 (484)	978 (220)		433				
	4	2882 (648)	1306 (294)		533				
	6	4305 (968)	1997 (449)		733				



With five frame sizes, the Linear Thruster offers a variety of peak and continuous force to meet your needs.

LDAT – S 03 1 005 D B S

a b c d e f g

Repeatability: +/- 0.03 mm 230 & 460 V AC

a

Version	
Code	Description
S	Base Version

b

Frame Size	
Code	Description
03	030 Motor
05	050 Motor
07	075 Motor
10	100 Motor
15	150 Motor

c

Motor Length	
Code	Description
1	100
2	200
3	300
4	400
6	600

d

Travel in cm	
Code	Description
020	200 mm
100 mm Increments – Standard (max. 900 mm)*	
50 mm Increments – Special	

* Longer travels possible upon factory review

e

Winding Option	
Code	Description
D	High Speed
E	Low Speed

f

Encoder Type	
Code	Description
B	Incremental
D	Absolute

g

Bearing Protection	
Code	Description
blank	No Cover
S	Strip Cover

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