

Mount, Wire and Run

There are times when engineering an actuator in-house, at first glance, seems the most cost-efficient, “smart” route to a solution.

Yet when you consider the time spent away from other critical projects, relying on the technical knowledge of one non-specialist versus the collective and specialized expertise of Industrial Devices' engineering and technical support groups, and the costs both planned and unexpected, the do-it-yourself approach becomes less attractive.

Steps in designing your own Linear Motion System

1. Calculate load requirements.
2. Calculate accuracy/repeatability requirements.
3. Calculate speed and acceleration requirements.
4. Make preliminary selection of lead screw and drive nut.
5. Determine if you are within critical speed and column load limits of lead screw.
6. Design bearing system.
7. Design and fabricate mechanics to attach load to ball nut.
8. Calculate required motor performance
9. Select motor.
10. Select drive compatible with motor.
11. Determine position sensing techniques and fabricate mountings.
12. If necessary, select encoder compatible with controller and motor mounting.
13. Select controller compatible with drive and desired operator interface.
14. Design or select operator interface.
15. Design a power transmission system which matches motor characteristics to the leadscrew.
16. Design and fabricate transmission mountings/ enclosure.
17. Determine if covers, wipers, shields, or seals are necessary. If so, design and fabricate.
18. Procure all component assemblies.
19. Machine lead screw ends.
20. Assemble system.
21. Test system.
22. Correct mistakes.



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Typical Cost of Designing a Simple System

Labor

Concept 8 hours @ \$60/hour	\$480
Design 24 hours @ \$60/hour	\$1,440
Procurement 8 hours @ \$40/hour	\$320
Assembly 4 hours @ \$40/hour	\$160
Test 2 hours @ \$40/hour	\$80
Labor Cost 46 hours	\$2,480

Materials

Motor	\$200-\$300
Lead Screw	\$100-\$200
Drive Nut	\$50-\$75
Hardware, etc.	\$50-\$100
Basic Control	\$100
Materials Total	\$500-\$775

Total Cost (approximate) \$3,000

This scenario is based on the simplest of applications, with no environmental or safety concerns and low positioning accuracy (using a very rudimentary control). Most applications would have more demanding requirements and higher development cost. Some may cost less, some would cost significantly more, depending on load, stroke and duty cycle, etc. And, this estimate **does not include testing**. The typical cost to purchase an equivalent prepackaged, pretested system from Industrial Devices would be in the vicinity of \$1,300.

Simply contact us with your application requirements – load, speed, stroke, duty cycle and linear positioning accuracy. We'll recommend the best system for your application, and let you concentrate on what's most important to your business.

The IDC Solution

- Pre-engineered.
- Field proven in real applications.
- Pre-configured, pre-tested system.
- Delivered in one week.
- Covered by warranty.
- Competent application support.
- Receive a complete system – ready to mount, wire and run!

