



Greetings!

Unless you have years of specialized experience miniaturizing and integrating motors, drive electronics, bearing systems, load couplings... you can waste a ton of precious time trying to design the micro motion part of your new system - and still not get something that works. Or you can call in the experts.

Custom micro motion systems

Start with a feasibility study for fast validation of the concept. Get a plan you can act on.

You reviewed or tested our standard motion modules and they do not meet your requirements. What's the next step?

Answer:

Purchase a Feasibility Study and work with our team of experts to get to quickly get answers that help you make the best decisions for your new product development project.



Here are a few of the recent feasibility studies we've completed.

Redundant precision linear actuator with a volume less than four cubic centimeters

A global aerospace and security company required a new and highly miniaturized M3 smart motion module. We used **custom SQUIGGLE motors** with higher force to create a linear positioning module that moves a precise distance (hundreds of micrometers).

A unique challenge was providing fail-safe redundancy of the "OFF" position by integrating two motors that work together in a unique spring and slide mechanism, operated by duplicate drive and control electronics.

New linear actuator for real-time engine tuning

A first-tier automotive component supplier needed a highly miniaturized linear actuator with very high holding force (hundreds of Newtons) when not powered, and also a range of several millimeters.

New Scale's experience with the **SQUIGGLE piezoelectric lead screw motors** was the starting point for inventing a new piezo motor design that increases both dynamic and static force while also:

- Achieving a simple and manufacturable design.
- Minimizing operating power.
- Operating reliably in the extreme environment of a car engine.

Tiny motorized focus module for advanced imaging

A leading medical equipment company required micrometer-scale lens movements in

a highly restricted space of less than one cubic centimeter.

New Scale's experience with the **M3-F and M3-FS Focus Modules** and also the tiny **UTAF motor** was the starting point for creating this unique mechanism. Dual UTAF motors and flexure guides work together to generate precise linear movement with minimal tilt and de-centering.

Miniature high-force linear actuators in multi-axis systems

An emerging computer device company needed tiny actuator systems with several Newtons of force to provide real-time movements over many millimeters.

The **M3-LS-1.8-6 Linear Smart Stage** was the starting point for this custom development project. A new, higher-force SQUIGGLE motor was created and integrated in a highly miniaturized X-Y stage less than 20 X 20 X 10 mm.

Actuator for microliter-precision drug pump

For an advanced technology medical device company, we created a higher-force version of M3-L Smart Linear Actuator using a custom SQUIGGLE motor. The starting point was **previously published work**. The crucial challenges included:

- Increasing force with bi-directional output.
- Integration with an optical encoder and the pump mechanism.
- Meeting the operating power constraints.

Next steps

You like the results of the study and want to purchase this custom product. What are your options?

Answer:

New Scale is a design and manufacturing company and is ready to be your OEM supplier. At the end of every study (that is feasible), we deliver a proposal to:

- Complete a detailed motion module design for customer review and approval.
- Manufacture and deliver prototypes for customer testing and approval.
- Deliver production units at your required schedule.

[Learn more about New Scale's custom engineering and Feasibility Studies.](#)




About Us

New Scale Technologies develops and manufactures the smallest and most precise closed-loop positioning solutions available. Our "all-in-one" M3 Smart Modules with built-in controllers are easy to integrate with handheld and portable instruments. We enable smaller, smarter imaging systems, scientific instruments, medical devices, aerospace and defense systems and more. Our customers achieve the fastest time to market with the lowest total cost. **[Contact us.](#)**



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