

Actuation using The Elliptec Motor



Introduction

If there is a need for an actuation



and it need to be...

- Fast, or
- Precise, or
- Without any gearbox, or
- Low current consumption, or
- A high holding force, or
- A direct linear, rotational or XY Movement, or
- Low cost

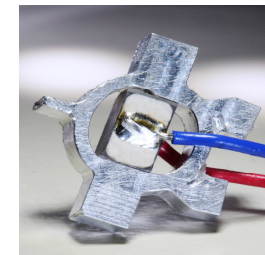
Then...

- The Elliptec Motor is likely to be a good candidate for generating the mechanical movement.

The Elliptec Motor



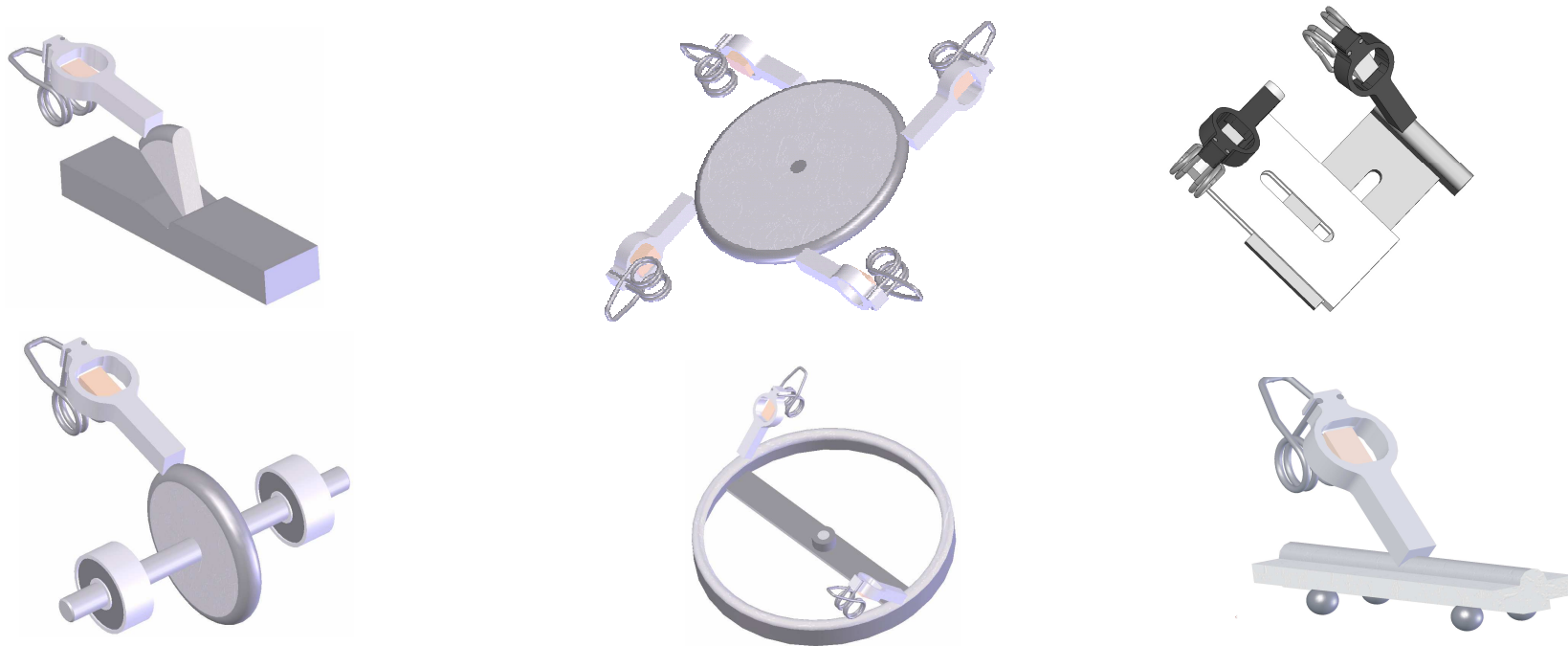
- Has all the benefits of a piezo motor but at low cost!
- Is built in hundred of thousand of units.
- Intrinsic attributes are:
 - High speed: 300mm/s typical for X15G
 - Micrometer size step resolution
 - High acceleration
- Needs a simple driver electronics
- For high positioning accuracy ($< 100\mu\text{m}$), different sensor feedback methods can be implemented with simple electronics and software accessibility



Linear, Rotational, XY Motion, ...



- The Elliptec Motor allows a very simple integration in a variety of mechanical designs.
 - Rotational drive: wheel or wheel segment of arbitrary diameter, can run on inside or outside periphery of a ring.
 - Adaptable system stroke due to unlimited, linear motor stroke.



Major Products



Elliptec motor X15G

for bidirectional movement without stroke limitation



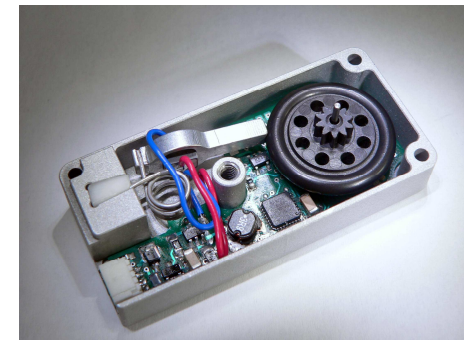
Elliptec actuator A10E

For simple micrometer displacements



Elliptec module R40N/R40S

An intelligent compact drive system for simplified system integration with standardized interfaces.



Summary



The Elliptecmotor has clear benefits for applications that require one or more of the following:

- Actuation movements
 - from less than 1 mm to a few centimeter
 - with direct drive (linear, rotational, XY,...)
 - without gearbox required

- Precision movements
 - for positioning accuracies from a few 100 μm to less than 10 μm
 - at low cost (depends on position sensor solution)

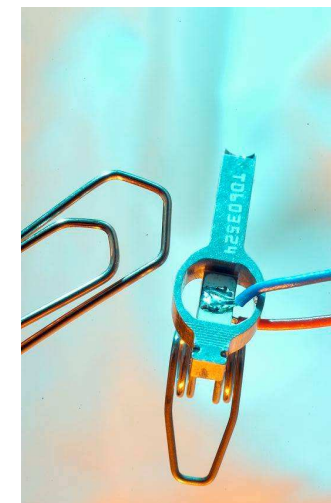
- Highly dynamical movements
 - using the intrinsic, high responsiveness of a Elliptec's piezomotor



Technical data X15G



- Blocking force ~1N, driving force up to 0,2 N
- Velocity 0 - 300mm/s, continuously adjustable, full force even at low velocities
- Linear and rotational motion with no limit in stroke
- Operating voltage: 6 - 8V, optional extendable between 2,4 V (battery operation) to 30V
- Current consumption 0 - 500mA, proportional to velocity
- Weight: 1,2g, length 25mm, width 3 (8) mm, height 3mm
- Smallest step size <math><10 \mu\text{m}</math>, operation similar to stepper motor
- Operating frequency 80 – 100 kHz, single piezo design for forward and backward



Contact



For questions and inquiries, please contact us at:

Elliptec Resonant Actuator AG
Meinhardstr. 3
44379 Dortmund, Germany

Tel: +49 (0) 231 292702-0
Fax: +49 (0) 231 292702-50
Mail: info@elliptec.com

Website: www.elliptec.com

Or for one of our sales representatives please see:
www.elliptec.com/company/contacts

