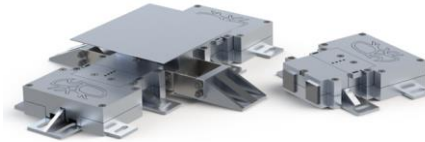




TECHNOLOGY DESCRIPTION

The Reluctance Tuning Actuator combines hard magnets and reluctance tuning modules to create a contactless force based on magnetic flux. This innovative design generates movement by pulling ferromagnetic components toward low magnetic resistance regions. Unlike conventional actuators, Fluxthor's solution eliminates heat dissipation by removing coils, enabling energy-efficient, high-precision positioning. Applications range from short-stroke positioning (1–3 mm displacement) to large-scale systems, with future potential for integration in tip/tilt systems, long-stroke actuators, and magnetic field control devices. Fluxthor's technology simplifies control systems, reduces thermal deformation, and increases throughput in high-tech machines, advancing performance in vacuum chambers, semiconductor manufacturing, and beyond.



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INNOVATIVE ASPECTS

- Near-zero heat dissipation reduces cooling needs, preventing thermal deformation and increasing machine precision
- Operates without continuous current, significantly reducing power consumption
- Capable of operating at several kHz, enabling precise and responsive movements
- Stable magnetic fields enhance sub-nanometre positioning accuracy
- Eliminates the need for expensive cooling systems, oversized equipment and downtime caused by duty cycles
- Reluctance tuning modules can be offered as standalone products for magnetic field control in diverse applications



TECHNOLOGY READINESS

TRL 5 (2025)

COUNTRY OF ORIGIN

Netherlands

LATEST UPDATE

1/2025

CONTACT



TAGS	#ReluctanceTuning Actuator	#Precision Engineering	#Heatless Positioning	#Precision Engineering	#EnergyEfficient Actuator	#HighTech Manufacturing
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APPLICATION AREAS	Energy	Semiconductor Manufacturing	Microscopy & Life Sciences	Structures	Mechanisms & Materials	Robotics & Automation
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