



**\*NEW\*** PI's N-331 Piezo Linear Motor Actuator combines high force and speed.

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## PI PRESS RELEASE

### “V8 Power” and Nanometer Precision Positioning in PI's New Piezo Linear Motor

*Ideal for industrial applications, high push/pull and holding forces qualify this non-magnetic drive as the fastest and strongest of its size class.*

May 2017, Auburn, MA – Motion control and piezo systems expert PI (Physik Instrumente) introduces a new robust OEM walking motor drive, the N-331, with its configuration rooted in existing patented piezo actuator technology and a patented piezo stepping motion principle design. Based on the application of historically successful technology, the new design it is ideal for use in high-end applications that require extreme precision and durability.

Unlike traditional electromagnetic motors, piezo motors do not create magnetic fields, nor are they influenced by magnetic or electric fields – a characteristics that is advantageous in applications from e-beam lithography to MRI technology. When large optics, detectors or camera set-ups in industrial applications need to be positioned with nanometer precision, it can be beneficial to cut the actuator power once the fine positioning process is complete. If a motor or actuator is dependent on a continuous current draw to hold a position, heat dissipation, electromagnetic fields and thermal effects may have negative influences on the performance of the system. PICMAWalk motors are self-clamping, i.e. at rest or in steady state mode, they automatically hold the position without any need for power.

PI's PICMAWalk piezo linear motor uses 8 PICMA<sup>®</sup> piezo actuators arranged in a V-shape similar to a classical V8 engine to achieve high push/pull and holding forces along with nanometer precision. The space-tested PICMA<sup>®</sup> actuators are highly reliable, providing 60N (13lbs) power-off holding force and 50N (11 lbs) push/pull force. The maximum velocity is specified at 15mm/sec (0.6 inch/sec) and loads up to 5kg (11lbs) can be positioned with nanometer precision.

## Open and Closed-Loop Designs

The units are available with 3 standard travel ranges from 25 to 100mm in both open and closed-loop configurations. The closed-loop models incorporate a high-precision incremental encoder with nanometer resolution. The calculated piezo-mechanical resolution is better than 1/10 nanometer.

For maximum precision and reliability, the piezo actuators are integrated in a solid-state flexure guiding system, free of stiction and friction. Flexure elements combine high stiffness and load capacity. They do not require maintenance or lubricants, are 100% vacuum compatible, function in a wide temperature range, and are intrinsically wear-free.

## Standard and Custom

In addition to the standard models, custom designs for OEMs are available, facilitated by the modular design.

## Applications

Optics, microscopy, automation technology, imaging technology, medical engineering

## Watch the V8 Power Piezo Linear Motor Video >

<https://www.youtube.com/embed/vcdJh-ELcRY?rel=0>

## Specifications, Datasheets, More Information >

[http://www.pi-usa.us/products/Piezo\\_Motors\\_Stages/Linear-Motor-Precision-Positioning.php#N331](http://www.pi-usa.us/products/Piezo_Motors_Stages/Linear-Motor-Precision-Positioning.php#N331)

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## About PI

PI is a leading manufacturer of air bearing stages, piezoelectric solutions, precision motion control equipment, and hexapod parallel-kinematics for semiconductor applications, photonics, bio-nano-technology and medical engineering. PI has been developing and manufacturing standard & custom precision products with piezoceramic and electromagnetic drives for 4 decades. The company has been ISO 9001 certified since 1994 and provides innovative, high-quality solutions for OEM and research. The PI group employs more than 1,000 people worldwide in 15 subsidiaries and R&D / engineering centers on 3 continents.

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