

## Linear Piezo Stage LPS-30 system → preliminary data sheet



### LPS-30x

- PiezoMotor driven system
- Travel range 15 to 85mm
- Bidirectional repeatability 500pm
- Maximum operation speed 10mm/sec
- Integrated *zero drift encoder* with up to 5pm resolution and Zerodur®-like scale. (50pm with our controller)
- Force: 10N / 20N
- Ultra precise and robust design
- High stiffness and high dynamic.
- Material: Stainless steel, Titan or Invar-36 with ceramic bearing
- Vacuum compatible, non-magnetic

The LPS-30x is a low profile linear stage with an integrated customized PiezoMotor and linear encoder systems developed by NANOS Instruments. The stiff and robust design with cross roller bearings in steel or ceramic guarantee a smooth and highly accurate movement in the range of sub nanometers. This stage has a ultra high precision and is available in Stainless steel, Titan or Invar-36, together with a Zerodur®-like scale. The optical sensor only generates 20mW (15mW as option) in the stage and has a special cooling profile. This results in practically zero drift with highest resolution from the first minute. This stage is available in several dimensions, also as versions with an aperture or as a goniometer, and can be combined as building blocks for a multi-axis stage. It has a high force and is ultra precise.

### Specifications

LPS_30x with the dimension 30x Lx14mm					
Lenth L (mm)	30	50	60	80	100
Travel range (mm)	15	35	45 (15*)	65 (35*)	85 (55*)
Force (N)	10	10	10 (20)*	10 (20*)	10 (20*)
Open loop stiffness (N/μm)	3	3	3/6	3/6	3/6
Max operation speed (mm/s)	10	10	10	10	10
fast movement** (mm/s)	50	50	50	50	50
Hybrid encoder V2 (nm) with ABZ, 18mA @ 5V ***	61 nm 10nm MC101	61 nm 10nm MC101	61 nm 10nm MC101	61 nm 10nm MC101	61 nm 10nm MC101
Hybrid encoder V3 (nm) with ABZLL, 18mA @ 5V ***	61 nm 10nm MC101	61 nm 10nm MC101	61 nm 10nm MC101	61 nm 10nm MC101	61 nm 10nm MC101
Hybrid encoder V4 (nm) with ABZ, 3mA @ 5V* <sup>4</sup>	10 nm 1 nm Tango	10 nm 1 nm Tango	10 nm 1 nm Tango	10 nm 1 nm Tango	10 nm 1 nm Tango
Optical Encoder with ABZ ; 4mA @5V (nm) * <sup>5</sup> glass/robax scale Casting Stainless/ Titan/ Invar	0,5 nm 50pm Tango	0,5 nm 50pm Tango	0,5 nm 50pm Tango	0,5 nm 50pm Tango	0,5 nm 50pm Tango
Bidirectional Repeatability (Encodercounts) * <sup>6</sup>	2	2	2	2	2