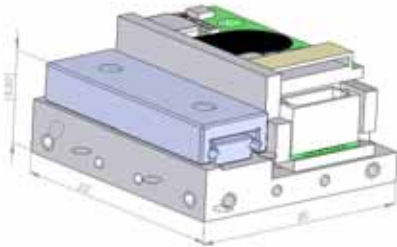# Linear Piezo Stage →preliminary data sheet

## LPS-20x

- PiezoMotor driven system
- Travel range 8
- Bidirectional repeatility down to 20nm
- Maximum operation speed 10mm/sec
- Imounted *zero drift encoder* with 10 nm resolution
- Force: 10N
- simple but and robust design
- High stiffness and fast response.
- Material: Stainless steel,
- Vacuum compatible,
- ost efficent

The LPS-20x is a low profile linear stage with a mounted customized PiezoMotor and linear encoder systems developed by NANOS Instruments. The stiff and robust design with baall roller bearings in steel guarantee a smooth and highly accurate movement in the range of sub nanometers. This stage is high precision and stong system. The magnetic sensor only generates 90mW (15mW as zerodrift) in the stage. This results in practically zero drift with aceptabe resolution from the first minute. This stage is available in several dimensions. It fit together with the other stagees like the LPS30

## Specifications

| LPS_20x with the dimension 20x Lx14mm | | | | | |
|---|---|---|---|---|---|
| Lenth L (mm) | 22 | 30 | | | |
| Travel range (mm) | 8 | 12 | | | |
| Force (N) | 10 | 10 | | | |
| Open loop stiffness (N/µm) | 3 | 3 | | | |
| Max operation speed (mm/s) | 10 | 10 | | | |
| fast movement** (mm/s) | 50 | 50 | | | |
| Hybrid encoder V2 (nm) with ABZ, 18mA @ 5V *** | 61 (10) | 61(10) | | | |
| Hybrid encoder V3 (nm) with ABZLL, 18mA @ 5V *** | 61 (10) | 61(10) | | | |
| Hybrid encoder V4 (nm) with ABZ, 3mA @ 5V **** | 10 | 10 | | | |
| | | | | | |
| Bidirectional Repeatability (Encodercounts) | 2 | 2 | | | |

** Fast movement is possible for a short time with the LEGS-Drive®-Ultra Controller
       note the maximum Encoder sendingfrequence at highest resolution

*** the MC101 and the LEGS-Drive®-Ultra Controller are able to oversample and filter the encoder sensor to higher the resolution. In this case short fast steps takes longer.
**** refer to the the datersheet Hybrid encoder V4

## Order code for this stage:

(please call for support, we will help you to find the right solution)
LPS-20-L-S-A

L =  Length 22/30

| S = Sensors | V2_61 | 61nm resolution(magnetic encoder) ABZ TTL |
|---|---|---|
| | V2_O | Oversample function (LEGS-Drive®-Ultra Controller or MC101; magnetic encoder) ABZ TTL |
| | V3_61; | 61nm resolution(magnetic encoder) ABZ, 2 limit, Error TTL |
| | V3_O | Oversample function (LEGS-Drive®-Ultra Controller or MC101; magnetic encoder) ABZ, 2 limit, Error TTL |
| | V4_10 | 10nm resolution (magnetic encoder) ABZErr TTL |

A = ambiente

N normal
V vacuum
HV High vacuum (please ask for force and life time)
UHV Ultra high vacuum (please ask for force and life time)

The order code could be for example:   **LPS-20-22- V2_O -N**
→ A stage with 22mm length, 8mm stroke, 10N force, one 10nm resolution encoder, for normal atmosphere.

## Dimensions: