Specifications (continued)

LP200 SERIES

Dynamic Performance		Air Supply	
Velocity [4]	1 m/s	Recommended Operating Pressure	80 psi
Acceleration [4]	30 m/s²	Air Consumption	32.5 l/min
Peak Force	480 N	Air Quality	Clean (filtered to 1.0 µm or better) – ISO 8573-1 Class 1 Oil free – ISO 8573-1 Class 1 Dry (-15 °C dew point) – ISO 8573-1 Class 3
Nominal Force	120 N		
Nominal Force, no air	75 N		

[1] Load applied in the centre of the carriage
[2] Dependent on flatness of the mounting surface
[3] Accuracy is measured over a short time span, longer time scales will be affected by thermal drift
[4] Figures provided are with the bearing unloaded

Options

- Slideway supplied uncalibrated OR calibrated by Loxham
- Slideway supplied with either an analogue 1 Vpp controller OR a digital 0.1 µm TTL controller
- Slideway supplied with OR without a pneumatic braking system
- Slideway supplied with heavy duty bellows OR low drag Polyurethane bellows
- Slideway supplied with OR without air cooling

For sales enquiries

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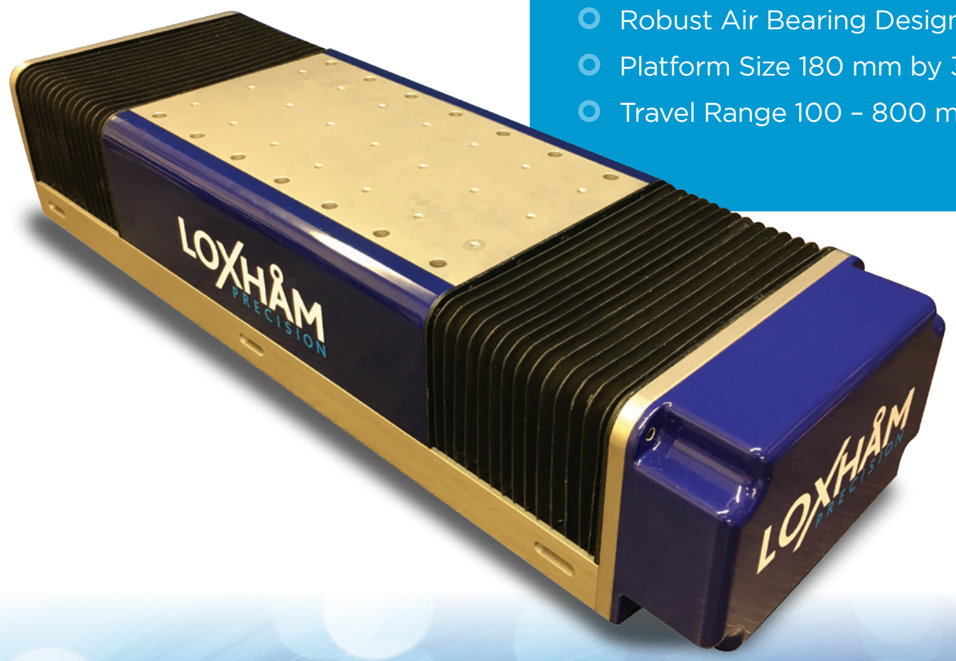
LOXHAM PRECISION

AEROLOX 200 Series

High load capacity nanopositioning **air bearing linear stages**

200 Series:

- High Load Capacity (>100 kg)
- Nanopositioning System
- Positioning Resolution of 1 nm
- Clean Room Compatible
- Robust Air Bearing Design
- Platform Size 180 mm by 350 mm
- Travel Range 100 – 800 mm



APPLYING **DETERMINISM**

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AEROLOX 200 Series

AEROLOX are high load capacity air bearing linear motion stages, employing a fully preloaded bearing design with integrated linear motors and encoders. Offering over 100kg payload capacity.

Design of the AEROLOX slideways provides highest level of load capacity and stiffness. Advanced coatings and novel air bearing design ensures a high level of robustness is achieved.

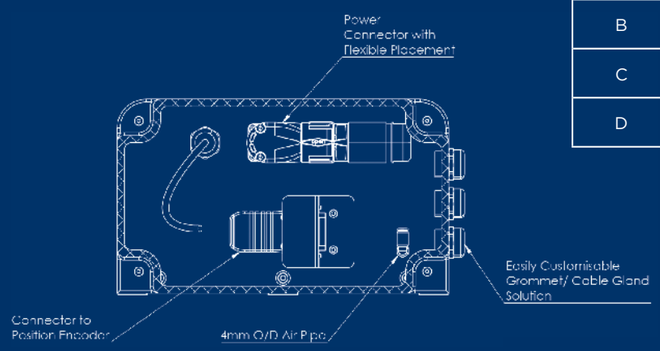
Integrated motors and encoders with no moving cables ensure these 1 nm resolution frictionless motion stages offer high levels of smoothness and motional accuracy with a class leading position hold stability (noise floor).

Integrated high power density linear motors offer rapid acceleration and stable positioning. Air cooling options are available for high duty rate applications.

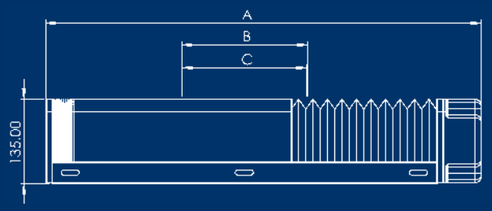
By virtue of the non-contacting bearing and motor drive design with no moving cables the system is ideal for clean room applications.

Fully constrained air bearing design enables AEROLOX series to be built as combined motion units e.g. X-Y stages. Vertical orientations are also possible through weight compensation and brake options.

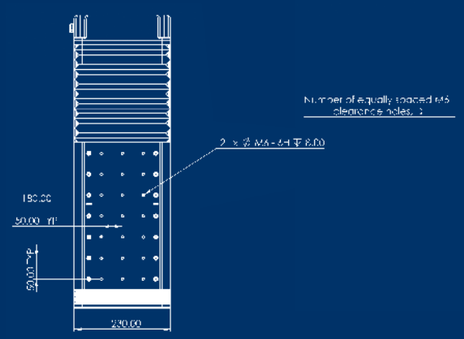
Model	LP200-100	LP200-200	LP200-400	LP200-800
A	600	700	900	1300
B	102.4	202.4	402.4	802.4
C	100	200	400	800
D	6	8	10	14



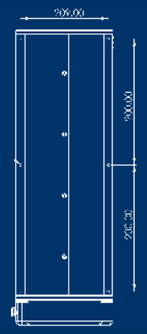
Connectors view



Side view



Top view



Bottom view

Applications

The AEROLOX 200 series motion systems have been designed to provide friction-free motion and nanopositioning where the payload mass is higher than typically seen in the microelectronics sector.

AEROLOX is ideally suited to:

- High precision machinery that require high accuracy and zero friction motion with larger masses
- Automation systems where high accuracy of end effectors are needed through combination motions with articulated robotics or parallel kinematic motion devices.
- Advanced imaging systems that employ larger scale optical and instrumentation.
- Larger scale metrology systems where positioning accuracy and precision motion control is demanded for large workpieces / devices.
- Semiconductor and clean room based applications that require no dust particle generation and nanometre levels of position hold stability (noise floor)..

Specifications

SERIES #	LP200-100	LP200-200	LP200-400	LP200-800
Travel range	100 mm	200 mm	400 mm	800 mm
Mechanical Performance				
Load capacity in Z [1]	1500 N	1500 N	1500 N	1500 N
Stiffness in Z	300 N/µm	300 N/µm	300 N/µm	300 N/µm
Load capacity in Y [1]	850 N	850 N	850 N	850 N
Stiffness in Y	100 N/µm	100 N/µm	100 N/µm	100 N/µm
Permissible torque θX	75 Nm	75 Nm	75 Nm	75 Nm
Permissible torque θY	100 Nm	100 Nm	100 Nm	100 Nm
Moving mass	11 kg	11 kg	11 kg	11 kg
Total mass	31 kg	34 kg	40 kg	52 kg
Precision Performance				
Pitch over full travel [2]	1 arcsec	2 arcsec	4 arcsec	8 arcsec
Pitch over any 25mm [2]	0.2 arcsec	0.2 arcsec	0.2 arcsec	0.2 arcsec
Yaw over full travel [2]	0.5 arcsec	1 arcsec	2 arcsec	4 arcsec
Yaw over any 25mm [2]	0.4 arcsec	0.4 arcsec	0.4 arcsec	0.4 arcsec
Straightness over full travel [2]	1 µm	1 µm	2 µm	3 µm
Straightness over any 25mm [2]	0.15 µm	0.15 µm	0.15 µm	0.15 µm
Uncalibrated positioning accuracy	± 1 µm	± 2 µm	± 3 µm	± 5 µm
Calibrated positioning accuracy [3]	± 0.4 µm	± 0.8 µm	± 1.6 µm	± 3.2 µm
Position Hold Stability	10 nm	10 nm	10 nm	10 nm
Bi-Directional Repeatability (ISO 230-2:2014)	0.3 µm	0.3 µm	0.4 µm	0.5 µm
Resolution	1 nm	1 nm	1 nm	1 nm