

## Precision Linear Stage

HIGH DYNAMICS DUE TO THE MAGNETIC DIRECT DRIVE, HIGH STABILITY



### LMS-270

- + Travel ranges to 1016 mm (40")
- + Velocity to 800 mm/ s
- + Incremental encoder with 15 nm resolution
- + 480 N peak force

#### Reference- class linear stage

High travel accuracy with recirculating ball bearings. Inductive limit switches. High position resolution due to incremental encoder with analog signal transmission (sin/ cos,  $1 V_{pp}$ ).

Multi- axis combinations with the directly driven rotation stages of the UPR series.

Versions with DC servo motors or stepper motors are available with the same footprint.

#### Magnetic direct drive

Ironless magnetic direct drive for high velocity and acceleration. High position resolution.

#### Fields of application

Industry and research. Metrology, precision scanning in semiconductor or flat panel display manufacturing.

## Specifications

	LMS-270KSHO	LMS-270KMED	LMS-270KLON	LMS-270KMAX	Unit	Tolerance
<b>Motion and Positioning</b>						
Active axes	X	X	X	X		
Travel range	305	508	815	1016	mm	
Integrated sensor	Incremental encoder	Incremental encoder	Incremental encoder	Incremental encoder		
Sensor resolution*	15	15	15	15	nm	
Minimum incremental motion	0.05	0.05	0.05	0.05	µm	typ.
Unidirectional repeatability	0.075	0.075	0.075	0.075	µm	typ.
Bidirectional repeatability	±0.15	±0.15	±0.15	±0.15	µm	typ.
Pitch	±40	±80	±100	±120	µrad	typ.
Yaw	±20	±30	±40	±50	µrad	typ.
Straightness	±3	±4	±7	±10	µm	typ.
Flatness	±3	±4	±7	±10	µm	typ.
Velocity	800	800	800	800	mm/s	max.
<b>Mechanical Properties</b>						
Load capacity in z	500	500	500	500	N	max.
Load capacity in y	500	500	500	500	N	max.
Moved mass	1.3	1.3	1.3	1.3	kg	
Overall mass	35	40	51	61	kg	
Linear guiding	Recirculating ball bearings	Recirculating ball bearings	Recirculating ball bearings	Recirculating ball bearings		
<b>Drive Properties</b>						
Drive type	Linear motor, ironless	Linear motor, ironless	Linear motor, ironless	Linear motor, ironless		
Intermediate circuit voltage	48	48	48	48	VDC	max.
Peak force	480	480	480	480	N	typ.
Nominal force	100	100	100	100	N	typ.
Peak current, effective	17.5	17.5	17.5	17.5	A	typ.
Nominal current, effective	3.7	3.7	3.7	3.7	A	typ.
Force constant, effective	27.5	27.5	27.5	27.5	N/A	typ.
Resistance per phase	1.28	1.28	1.28	1.28		typ.
Inductivity per phase	1	1	1	1	mH	typ.
Back EMF phase-phase	22.5	22.5	22.5	22.5	Vs/m	max.
<b>Miscellaneous</b>						
Operating temperature range	10 to 50				°C	
Humidity	20 – 90% rel., not condensing	20 – 90% rel., not condensing	20 – 90% rel., not condensing	20 – 90% rel., not condensing		
Material	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized		
Recommended controller	SMC Hydra, ACS SPii +EC and other industrial solutions	SMC Hydra, ACS SPii +EC and other industrial solutions	SMC Hydra, ACS SPii +EC and other industrial solutions	SMC Hydra, ACS SPii +EC and other industrial solutions		

\* With SMC Hydra controller.

## Order Information

### LMS-270KSHO

Motorized Linear Stage, Ironless Linear Motor, 305 mm (12") Travel Range, Linear Encoder with Sin/ Cos Signal Transmission

### LMS-270KMED

Motorized Linear Stage, Ironless Linear Motor, 508 mm (20") Travel Range, Linear Encoder with Sin/ Cos Signal Transmission

### LMS-270KLON

Motorized Linear Stage, Ironless Linear Motor, 815 mm (32") Travel Range, Linear Encoder with Sin/ Cos Signal Transmission

### LMS-270KMAX

Motorized Linear Stage, Ironless Linear Motor, 1016 mm (40") Travel Range, Linear Encoder with Sin/ Cos Signal Transmission

Ask about custom designs!

## Controllers / Drivers / Amplifiers

[SMC Hydra Motion Controller](#)

## Related Products

[LMS-180 Precision Linear Stage](#)

[V-551 PIMag® Precision Linear Stage](#)

[UPR-100 Ultraprecision Rotation Stage](#)

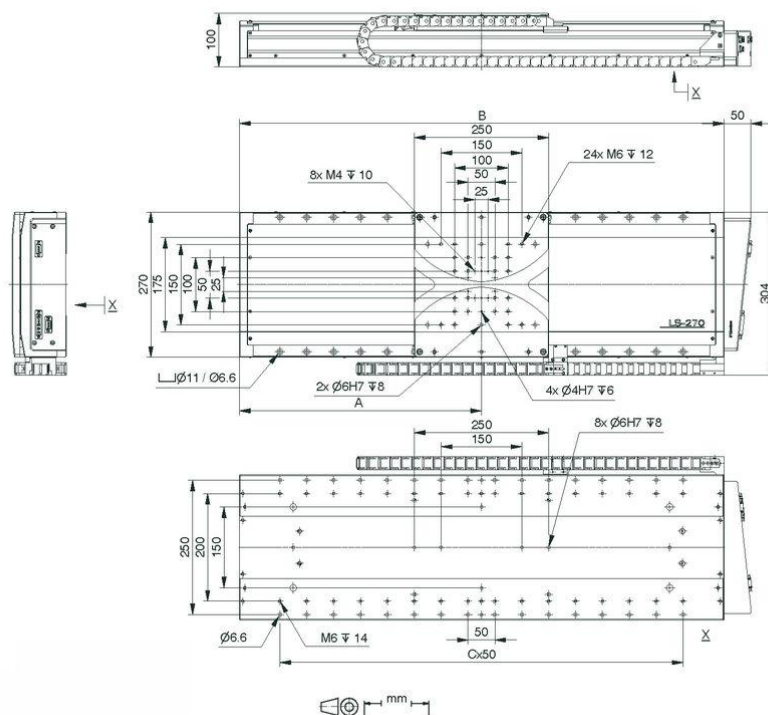
[UPR-120 Ultraprecision Rotation Stage](#)

[LS-270 Linear Stage](#)

## Technology

[PIMag® Magnetic Direct Drives | In particular in terms of wear and dynamics, voice-coil actuators and magnetic linear drives offer advantages compared to common spindle-based technologies. \[Learn more ...\]\(#\)](#)

## Drawings / Images



1 LMS-270, dimensions in mm

Travel range	A/mm	B/mm	C
508 mm	450	900	15
813 mm	600	1200	21
1016 mm	700	1400	25

Dimensions in mm