

Precision Linear Stage

High Dynamics due to the Magnetic Direct Drive, High Stability



LMS-270

- Travel ranges to 1000 mm
- Velocity to 800 mm/s
- Incremental encoder with 15 nm resolution
- 480 N peak force

Reference-class linear stage

High travel accuracy. 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.

Application fields

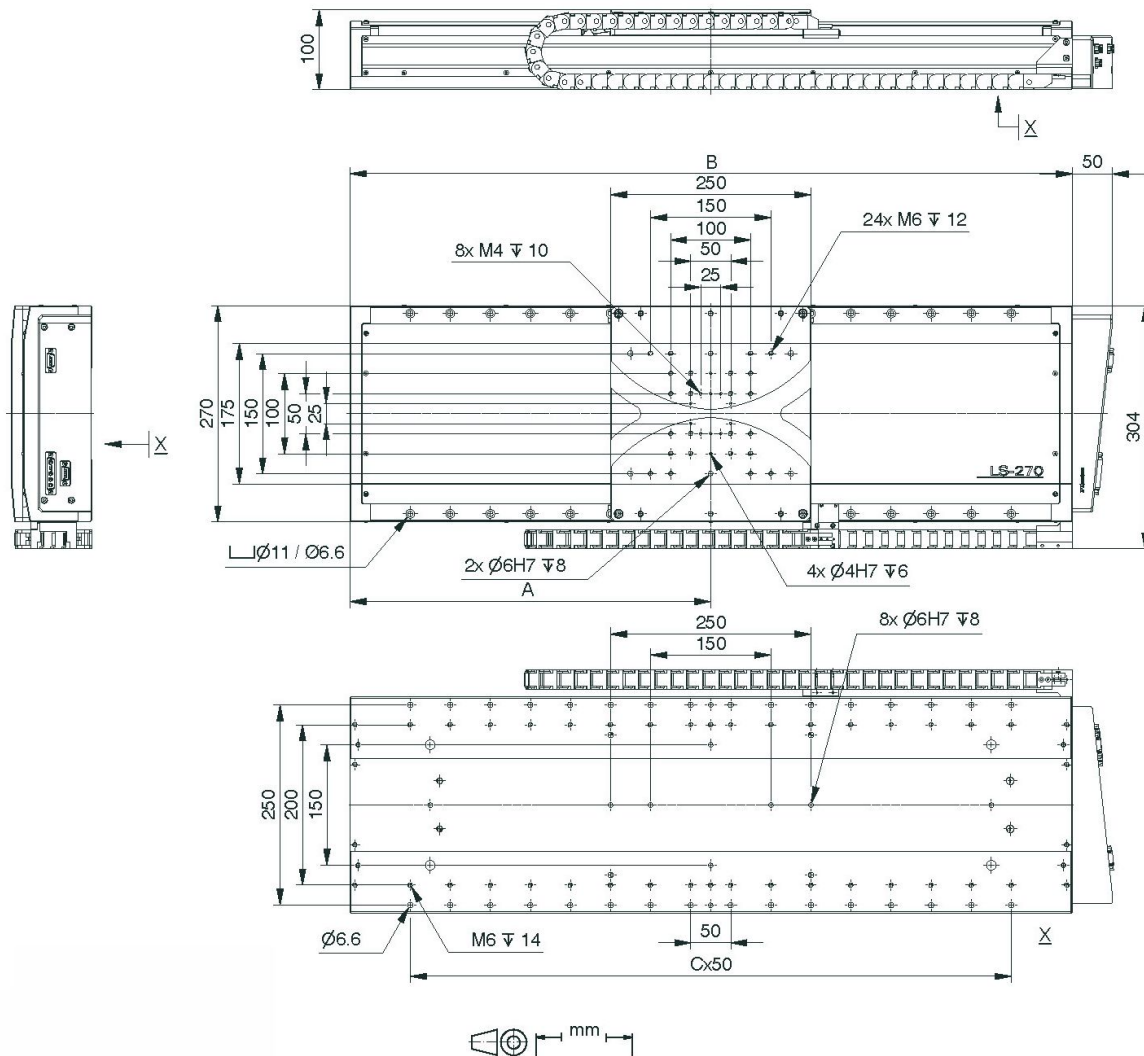
Industry and research. Metrology, precision scanning in semiconductor or electronics manufacturing.

Specifications

	LMS-270KSHO	LMS-270KMED	LMS-270KLON	LMS-270KMAX	Unit	Tolerance
Motion and positioning						
Active axes	X	X	X	X		
Travel range	300	500	800	1000	mm	
Integrated sensor	Incremental encoder	Incremental encoder	Incremental encoder	Incremental encoder		
Sensor resolution ⁽¹⁾	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.
Mechanical properties						
Load capacity in z	500	500	500	500	N	max.
Load capacity in y	500	500	500	500	N	max.
Moved mass	2.5	2.5	2.5	2.5	kg	
Overall mass	35	40	51	61	kg	
Linear guiding	Recirculating ball bearings	Recirculating ball bearings	Recirculating ball bearings	Recirculating ball bearings		
Drive properties						
Drive type	Linear motor, ironless	Linear motor, ironless	Linear motor, ironless	Linear motor, ironless		
Intermediate circuit voltage	48	48	48	48	V DC	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	Ω	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.
Miscellaneous						
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		

⁽¹⁾ With SMC Hydra controller.

Drawings and Images



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

LMS-270, dimensions in mm

Ordering Information

LMS-270KSHO

Motorized Linear Stage, Ironless Linear Motor, 300 mm Travel Range, Linear Encoder with Sin/Cos Signal Transmission

LMS-270KMED

Motorized Linear Stage, Ironless Linear Motor, 500 mm Travel Range, Linear Encoder with Sin/Cos Signal Transmission

LMS-270KLON

Motorized Linear Stage, Ironless Linear Motor, 800 mm Travel Range, Linear Encoder with Sin/Cos Signal Transmission

LMS-270KMAX

Motorized Linear Stage, Ironless Linear Motor, 1000 mm Travel Range, Linear Encoder with Sin/Cos Signal Transmission

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