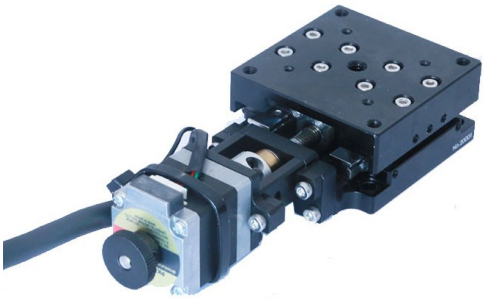
LAK20-60 Submicron Motorized Linear Stage, 20 mm Travel, 0.1 µm Microstep

Model LAK Series · waveqvanta.com/products/lak20-60-submicron-motorized-linear-stage

Compact five-phase stepper linear stage with a 1 mm lead ball screw for submicron positioning steps.



The LAK series are compact, high-precision motorized linear stages for small installation spaces and high-cycle operation. The LAK20-60 combines a C3-grade φ6 × 1 ball screw, linear-slider guides and a five-phase 28 stepping motor on a rigid, wear-resistant black-anodized aluminum body, giving 0.1 µm resolution at 20 microsteps and a minimum incremental motion of ≤ 1 µm.

Key features

- Low-backlash C3-grade ball screw (φ6 × 1) for smooth, durable motion; backlash ≤ 1 µm
- 1 mm screw lead: 2 / 1 µm full / half step, 0.1 µm at 20 microsteps
- Minimum incremental motion ≤ 1 µm; repeatability ≤ ±1 µm
- Five-phase 28 stepping motor (0.72°) in a compact package
- Linear-slider guides for rigidity, load capacity (8 kg horizontal) and durability
- Built-in limit and origin sensors; 10-pin connector with high-flex cable

Specifications

Travel Range	20 mm
Table Size	60 × 60 mm
Drive	C3-grade ball screw, φ6 × 1
Guide	Linear-slider guides
Body	Black anodized aluminum alloy
Weight	0.58 kg
Shaft Coupling (OD / Bore 1 / Bore 2)	16 / 3 / 5 mm
Resolution (Full / Half Step)	2 / 1 µm
Resolution (20 Microsteps)	0.1 µm
Max Speed	20 mm/s (zero load, motor at 600 rpm)
Unidirectional Positioning Accuracy	≤ 20 µm
Repeatability	≤ ±1 µm
Backlash	≤ 1 µm
Static Parallelism	≤ 0.05 mm
Motion Straightness	≤ 10 µm
Motion Parallelism	≤ 10 µm
Yaw / Pitch	≤ 25 arcsec / ≤ 30 arcsec
Minimum Incremental Motion	≤ 1 µm
Allowable Moment (Up-Down / Left-Right / Axial)	9.31 / 9.8 / 9.31 N·m
Moment Rigidity (Up-Down / Left-Right)	≤ 6 µm per 90 N·cm

Motor	Five-phase 28 stepping motor, 0.72° (Oriental Motor PKP523N12B-L)
Motor Current	1.2 A
Stepping Driver (Optional)	Oriental Motor CVD512BR-K
Connector / Cable	10-pin connector; high-flex cable, 0.2 m
Limit / Origin Sensors	2 limit + 1 origin, built-in (Omron EE-SX4320)
Sensor Supply	5–24 V DC ±10%
Sensor Output	NPN open collector, 5–24 V DC, ≤ 8 mA; residual voltage ≤ 0.3 V at 2 mA
Output Logic	OFF when sensor is blocked
Load Capacity (Horizontal / Vertical / Inverted)	8 / 3 / 4 kg

Typical applications

- Submicron positioning in compact instruments
- Fiber and optical component alignment
- High-cycle automation with limited space
- Probe and sample positioning