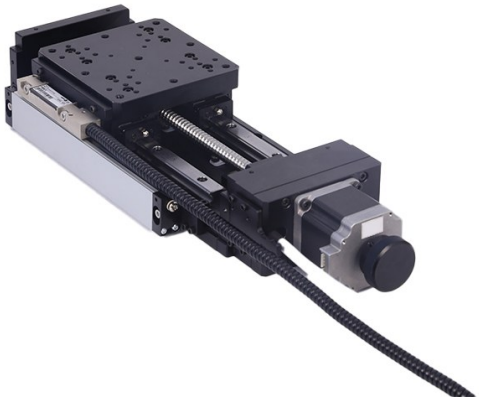
KA Series Closed-Loop Motorized Linear Stages, 50–1000 mm Travel, Ball Screw

Model KA Series · waveqvanta.com/products/ka-series-closed-loop-motorized-linear-stages

Closed-loop ball-screw linear stages with linear scale feedback for medium to long travel under heavy loads.



The KA series are closed-loop motorized linear stages for medium to long travel, from 50 mm to 1000 mm. An externally mounted linear scale (grating ruler) gives a closed-loop resolution of 1 µm on KA050–KA400 and 0.5 µm on KA600–KA1000 when the stage is run from an MC600 or TMC series controller. A rigid U-section aluminum base, precision ball screw, linear-slider guides and a high-performance shaft coupling make the stages suitable for heavy loads and multi-axis assemblies.

Key features

- Fagor MX/MKX series linear scale for closed-loop positioning: 1 µm (KA050–KA400) or 0.5 µm (KA600–KA1000) resolution
- U-section aluminum alloy base, precision machined and black anodized, for high rigidity under heavy load
- Precision ball screws (φ12 × 4, φ16 × 5 or φ25 × 5) with precision-grade linear-slider guides
- Horizontal load capacity of 30, 50 or 80 kg depending on model
- Two-phase 57 stepping motor as standard; AC servo motor (100–400 W) optional
- Optional stainless-steel dust cover protects the screw and guides from particles and dust
- Built-in limit and origin sensors; DB9 connectors for stage and linear scale

Specifications

Travel Range	50–1000 mm (9 models)
Table Size	120 × 120 / 150 × 150 / 200 × 200 mm (by model)
Drive	Precision ball screw, φ12 × 4, φ16 × 5 or φ25 × 5
Guide	Linear-slider guides
Body	Black anodized aluminum alloy, U-section base
Linear Scale	Fagor MX or MKX series, external
Closed-Loop Resolution	1 µm (KA050–KA400); 0.5 µm (KA600–KA1000)
Open-Loop Resolution (20 Microsteps)	1 µm (KA050–KA200); 1.25 µm (KA300–KA1000)
Max Speed	40 mm/s (KA050–KA200); 50 mm/s (KA300–KA1000)
Unidirectional Positioning Accuracy	≤ 30 µm (KA050–KA400); ≤ 70 µm (KA600–KA1000)
Unidirectional Repeatability	≤ ±3 µm (KA050–KA400); ≤ ±5 µm (KA600–KA1000)
Static Clearance	≤ 3 µm
Backlash	≤ 5 µm
Static Parallelism	≤ 0.1 mm (KA050–KA400); ≤ 0.12 mm (KA600–KA1000)
Motion Straightness	≤ 10 µm (KA050–KA200); ≤ 15 µm (KA300–KA400); ≤ 15 µm/100 mm (KA600–KA1000)

Motion Parallelism	≤ 15 µm (KA050–KA200); ≤ 20 µm (KA300–KA400); ≤ 15 µm/100 mm (KA600–KA1000)
Yaw / Pitch	≤ 30 / 35 arcsec (KA050–KA200); ≤ 40 / 55 arcsec (KA300–KA400)
Motor	Two-phase 57 stepping motor, 1.8°
Motor Current / Holding Torque	2.8 A / 1.44 N·m (KA050–KA400); 3.0 A / 1.57 N·m (KA600–KA1000)
Motor Options	AC servo motor, 100 W or 200 W (KA050–KA400), 400 W (KA600–KA1000)
Limit / Origin Sensors	2 limit + 1 origin, built-in
Sensor Supply / Output	5–24 V DC ±10%; NPN open collector
Connectors	DB9 (pin) for stage and linear scale
Cable	High-flex cable, 0.2 m
Shaft Coupling (OD / Bore 1 / Bore 2)	30 / 6.35 / 8 mm (KA050–KA400); 34 / 8 / 12 mm (KA600–KA1000)
Dust Cover	Optional stainless-steel cover

Model overview

Model	Travel (mm)	Table (mm)	Ball Screw	Closed-Loop Res. (µm)	Pos. Accuracy (µm)	Repeatability (µm)	Straightness (µm)	Load H / Inv. / V (kg)	Weight (kg)
KA050	50	120 × 120	φ12 × 4	1	≤ 30	≤ ±3	≤ 10	30 / 15 / 15	6.6
KA100	100	120 × 120	φ12 × 4	1	≤ 30	≤ ±3	≤ 10	30 / 15 / 15	6.8
KA150	150	120 × 120	φ12 × 4	1	≤ 30	≤ ±3	≤ 10	30 / 15 / 15	7.2
KA200	200	120 × 120	φ12 × 4	1	≤ 30	≤ ±3	≤ 10	30 / 15 / 15	7.6
KA300	300	150 × 150	φ16 × 5	1	≤ 30	≤ ±3	≤ 15	50 / 25 / 15	9.9
KA400	400	150 × 150	φ16 × 5	1	≤ 30	≤ ±3	≤ 15	50 / 25 / 15	10.9
KA600	600	200 × 200	φ25 × 5	0.5	≤ 70	≤ ±5	≤ 15 per 100 mm	80 / 40 / 30	22.3
KA800	800	200 × 200	φ25 × 5	0.5	≤ 70	≤ ±5	≤ 15 per 100 mm	80 / 40 / 30	26
KA1000	1000	200 × 200	φ25 × 5	0.5	≤ 70	≤ ±5	≤ 15 per 100 mm	80 / 40 / 30	29.5

Typical applications

- Long-travel positioning of samples, optics and fixtures
- Multi-axis XY and XYZ stage assemblies
- Heavy-load positioning in automation equipment
- Automated inspection and measurement systems