XY Series All-in-One Motorized XY Stages, 50 or 120 mm Travel, Clear Aperture

Model XY Series · waveqvanta.com/products/xy-series-all-in-one-motorized-xy-stages

Integrated two-axis motorized stages with a central aperture for transmission or reflection scanning.



The XY series are integrated two-axis motorized alignment stages for precise, high-duty-cycle scanning of workpieces on production lines. Crossed-roller guides, ball screw drives and a one-piece design improve orthogonality and motion accuracy. A rectangular clear aperture in the center can be fitted with an optional glass or aluminum alloy cover plate for transmission or reflection scanning and positioning.

Key features

- Integrated XY construction for orthogonality error ≤ 15 µm (XY5050) or ≤ 60 µm (XY120120)
- Precision ball screws (φ6 × 1 or φ16 × 4) for precise, repeatable motion
- Crossed-roller bearing guides for motion accuracy
- Central clear aperture of 60 × 64 mm (XY5050) or 188 × 188 mm (XY120120)
- Optional glass or aluminum alloy aperture cover
- Two-phase stepping motors standard; five-phase stepping or servo motors optional

Specifications

Travel Range (X / Y)	50 / 50 mm (XY5050); 120 / 120 mm (XY120120)
Table Size	125 × 125 mm (XY5050); 280 × 280 mm (XY120120)
Central Aperture	60 × 64 mm (XY5050); 188 × 188 mm (XY120120)
Clear Aperture at Travel Limits	35 × 47 mm (XY5050); 128 × 128 mm (XY120120)
Drive	Precision ball screw, φ6 × 1 (XY5050) or φ16 × 4 (XY120120)
Guide	Crossed-roller bearing guides
Body	Black anodized aluminum alloy
Resolution (Full / Half Step)	5 / 2.5 µm (XY5050); 20 / 10 µm (XY120120)
Resolution (20 Microsteps)	0.25 µm (XY5050); 1 µm (XY120120)
Max Speed	10 mm/s (XY5050); 40 mm/s (XY120120)
Repeatability	≤ ±1.5 µm (XY5050); ≤ ±3 µm (XY120120)
Backlash	≤ 3 µm (XY5050); ≤ 5 µm (XY120120)
Static Parallelism	≤ 0.1 mm
Motion Straightness	≤ 10 µm/100 mm
Motion Parallelism	≤ 25 µm
Orthogonality Error	≤ 15 µm (XY5050); ≤ 60 µm (XY120120)
Motor	Two-phase stepping motor; five-phase stepping or servo motor optional
Motor Current / Holding Torque	1.3 A / 0.0785 N·m (XY5050); 1.7 A / 0.456 N·m (XY120120)
Sensors per Axis	2 limit + 1 origin (XY5050); 2 limit (XY120120), built-in
Sensor Supply	5–24 V DC ±10%
Sensor Output	NPN open collector, 5–24 V DC; ≤ 8 mA (XY5050), ≤ 50 mA (XY120120)

Connector / Cable	DB9 (pin); high-flex cable, 0.2 m
Shaft Coupling (OD / Bore 1 / Bore 2)	13 / 3 / 5 mm (XY5050); 20 / 5 / 10 mm (XY120120)
Max Load (Vertical Direction)	4 kg (XY5050); 20 kg (XY120120)
Weight	2.2 kg (XY5050); 7 kg (XY120120)

Model overview

Model	Travel X / Y (mm)	Table (mm)	Aperture (mm)	Ball Screw	Res. 20 Microsteps (µm)	Repeatability (µm)	Orthogonality (µm)	Max Load (kg)	Weight (kg)
XY5050	50 / 50	125 × 125	60 × 64	φ6 × 1	0.25	≤ ±1.5	≤ 15	4	2.2
XY120120	120 / 120	280 × 280	188 × 188	φ16 × 4	1	≤ ±3	≤ 60	20	7

Typical applications

- Workpiece scanning on industrial production lines
- Transmission and reflection scanning through the aperture
- Automated optical inspection
- Precision XY positioning and alignment