AEROTECH

High-Dynamic Laser Scan Heads
AGV-XPO

Excellent Dynamics and Superior Accuracy

AGV-XPO, our premier two-axis laser scan head, helps to minimize the tradeoff between speed and precision. Its low-inertia, high-efficiency motors enable rapid acceleration profiles, while ultra-high resolution position feedback and optimized structural dynamics provide excellent part-profile tracking with minimal following error. Pair AGV-XPO with an Aerotech controller to enhance your process through advanced motion capabilities and coordination with other axes of motion.

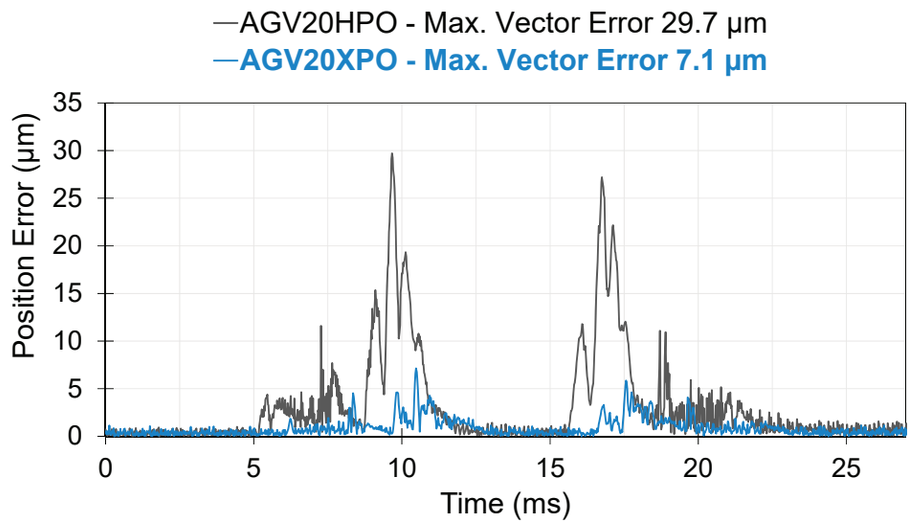
Key Applications

AGV-XPO is ideal for high-throughput applications that require superior dynamic precision, minimal following error and rapid move-and-settle performance, including:

- Display processing
- High-speed drilling & cutting
- Electronics manufacturing
- Large-field & long focal length scanning
- Femtosecond laser processing

Key Features:

- **INCREASES PROCESS THROUGHPUT** with innovative, dynamically optimized design
- Provides superior dynamic accuracy & **IMPROVES PROCESS YIELD** with high-resolution feedback
- **ENHANCES THERMAL STABILITY** with optional air & water cooling
- **OFFERS SYSTEM DESIGN FLEXIBILITY** with a multitude of optical configurations
- Synchronizes easily with other motion axes, offering **SEAMLESS INTEGRATION & EASE OF USE**



Optimized for superior dynamics

The AGV-XPO provides the highest possible throughput and part quality of any laser scan head, achieving extremely rapid accelerations and processing speeds while maintaining excellent trajectory accuracy. The blue trace on the above vector position-error plot demonstrates AGV-XPO's performance advantage at high speeds. Comparison data is based on a semi-rectangular trajectory with a processing speed of 5 m/s and an effective focal length of 250 mm.

User-friendly precision motion control

Our Automation1 motion controller platform is both highly capable and easy to use. Fiber-optic communication enables precise, coordinated control of up to 32 motion axes, and tools like our Machine Setup wizard can reduce setup time from days to minutes. Ask us about our advanced features and capabilities for laser processing, including:

- Position-Synchronized Output (PSO): Coordinate part position with process control
- Infinite Field of View (IFOV): Synchronize servo axes with laser scan heads
- Enhanced Tracking Control (ETC): Improve move-and-settle times and reduce following errors

AGV-XPO SERIES SPECIFICATIONS

Specifications	AGV10XPO	AGV14XPO	AGV20XPO
Beam Aperture	10 mm	14 mm	20 mm
Feedback Resolution	0.012 µrad (25 bit) (-E1) / 0.00016 µrad (32 bit) (-E2)		
Dither (Min. Incremental Motion)[2]	0.4 µrad RMS (-E1) / 0.02 µrad RMS (-E2)		
Accuracy	50 µrad pk-pk		
Repeatability[3]	0.4 µrad RMS		
Peak Acceleration[4][5]	355,000 m/s² (-E1) 300,000 m/s² (-E2)	262,000 m/s² (-E1) 231,000 m/s² (-E2)	95,000 m/s² (-E1) 88,000 m/s² (-E2)
Positioning Speed[4]	84 m/s (-E1) 48 m/s (-E2)	81 m/s (-E1) 48 m/s (-E2)	55 m/s (-E1) 48 m/s (-E2)
Jump & Settle Time, 1 mm Move[4][7]	210 µs (-E1) 250 µs (-E2)	225 µs (-E1) 260 µs (-E2)	280 µs (-E1) 340 µs (-E2)

Reference our AGV-XPO data sheet for full specifications and note details by using the QR code or visiting us at:

DE.AEROTECH.COM