

XD LASER

Precision Laser Measurement System



Fast, accurate compensation

The award-winning **XD Laser** is a multi-dimensional laser measurement system that simultaneously measures all 6 Degrees of Freedom (6DoF) including linear, angular, straightness and roll errors for rapid machine tool error assessment.

FEATURES & BENEFITS



Rapid Measurement

The XD Laser's fast, accurate measurement of machine positioning and axial capability makes complete machine assessment possible with up to 80% less downtime compared to conventional 1-D Lasers.



6DoF Measurement

XD Laser is the only assessment system that can measure all 6 error parameters simultaneously in a single set-up.



Measurement Flexibility

XD Laser evaluates velocity, acceleration, parallelism, squareness, and flatness error of a machine.



Compact Design

XD Laser system contains minimal parts and compact sensors for ease of setup and maximization of the machine measurement volume.



Software

Includes XD Laser software for control, data acquisition and reporting. Linear and volumetric error compensation options are also available.



Service and Support

The Automated Precision global team provides consistent support anywhere in the world.



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XD™ Standard Series (LS)

XD™ Precision Series (LP)

Features

		XD1 LS	XD3 LS	XD5 LS	XD6 LS	XD1 LP	XD5 LP	XD6 LP
Linear Measurement								
Measurement Range	0 - 45 m 80 m (optional)	✓	✓	✓	✓	✓	✓	✓
Accuracy	0.2 µm/m					✓	✓	✓
	0.5 µm/m	✓	✓	✓	✓			
Straightness Measurement								
Measurement Range	± 0.3 mm*						✓	✓
	± 0.5 mm*		✓	✓	✓			
Accuracy	± (0.5 µm + 0.1 µm/m) or 1% of max measured error						✓	✓
	± (1 µm + 0.2 µm/m) or 1% of max measured error			✓	✓			
	± (2 µm + 0.4 µm/m) or 2% of max measured error		✓					
Angular Measurement								
Measurement Range	± 800 arcsec			✓	✓			
	± 400 arcsec						✓	✓
Pitch & Yaw Accuracy	± (1.0 arcsec + 0.1 arcsec/m)			✓	✓			
	± (0.5 arcsec + 0.05 arcsec/m)						✓	✓
Roll Accuracy (Horizontal Axes Only)	± 0.5 arcsec or 1% of max measured error							✓
	± 1.0 arcsec or 1% of max measured error				✓			
Parallelism Measurement								
Accuracy	± (1.0 arcsec + 0.1 arcsec/m)						✓	✓
	± (1.0 arcsec + 0.2 arcsec/m)			✓	✓			
Squareness Measurement								
Accuracy	± (1.0 arcsec + 0.2 arcsec/m)			✓	✓		✓	✓
	± (1.0 arcsec + 0.4 arcsec/m)		✓					

Laser Specifications	
Wavelength Compensation	± 0.05 ppm
Operating Temperature	-5° C - 40° C
Operating Humidity	0 - 95% <i>non condensing</i>
Output Power	Class 2 Laser
Laser Head Weight	Body: 2.5 kg, Sensor: 290 kg
Laser Dimensions	Body: 230 x 108 x 102 mm Sensor: 70 x 94 x 45 mm

Environmental Compensation		
Air Temperature Accuracy	± 0.2° C	XD™ LS
	± 0.1° C	XD™ LP
Air Pressure Accuracy	± 1.0 mm Hg	XD™ LS
	± 0.4 mm Hg	XD™ LP
Relative Humidity Accuracy	± 5%	All Models
Material Temperature Accuracy	0.1° C	All Models

*After 25m, measurement range may decrease up to 50%