



Agilent 10768A Diagonal Measurement Kit

Data Sheet

10768A Diagonal Measurement Kit is designed for use with the Agilent 5530 Laser Calibration System. It allows linear measurements to be made on the four body diagonals of a machine tool's working volume. These measurements document the machine's capability and quickly perform a complete check of volumetric positioning performance. In addition, long-term drift tests can be performed over hours or days, showing possible effects of temperature on geometry.

Measurement Range

- Up to 40 m (130 ft) with linear optics
- Up to 80 m (260 ft) with long range option

Diagonal Measurement Accuracy

Temperature Range, °C [°F]	E1738A Air Sensor	In Vacuum †
0 – 40° [32° – 104°]	±0.4 ppm	±0.1 (±0.02) ppm

† Vacuum accuracy is ±0.02 ppm if the laser head is calibrated to MIL-STD-45662A.

Diagonal Measurement Performance

Optics	Resolution
Linear optics (10766A)	1 nm (0.04 μin)
Plane mirror optics (10706A/B) *	0.5 nm (0.02 μin)
High resolution plane mirror optics (10716A) *‡	0.25 nm (0.01 μin)

* Requires the 10724A Plane Mirror Reflector. Since alignment of these optics is much more sensitive than for linear optics, linear optics are recommended for general use.

‡ Aperture distance of 10716A is 12.7 mm, whereas 5519A is 11 mm.



Components included in the 10768A Diagonal Measurement Kit

Description	Quantity
Post (medium ~50 mm)	2
Post (long ~100 mm)	1
Post (stub ~25 mm)	1
Hex key (5 mm)	1
Hex key (4 mm)	1
Hex key (2.5 mm)	1
Right-angle clamp	2
Beam-steering assembly	1
Adapter plate	2
Base (large)	1
Flexible ball-joint assembly	1
Alignment target	1
Lens tissue	1 pkg
Adjustable triangle	1
Setscrew (brass tip, M10 x 1.5 mm)	1
Setscrew (brass tip, M5 x 0.8 mm)	1
Cap screw (socket-head, M3 x 0.5 25 mm long)	4
Setscrew (M10 x 1.5 x 20 mm)	1
Flathead screw (M3 x 0.5 x 16 mm long)	4

Related Literature

Publication Title	Publication Number
Agilent 5530 Laser Calibration System Brochure	5989-9354EN
Agilent 5530 Laser Calibration System Data Sheet	5989-9712EN
Agilent 5530 Laser Calibration System Flyer	5989-9707EN
Optics and Laser Heads for Laser-Interferometer Positioning Systems	5964-6190E
Agilent E1738A Air Temperature/Pressure/Humidity Sensor Data Sheet	5989-8456EN
Agilent 5530 Laser Calibration System Measurement Reference Guide	10747-90077



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Revised: January 6, 2012

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Published in USA, July 4, 2012
5990-8695EN



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