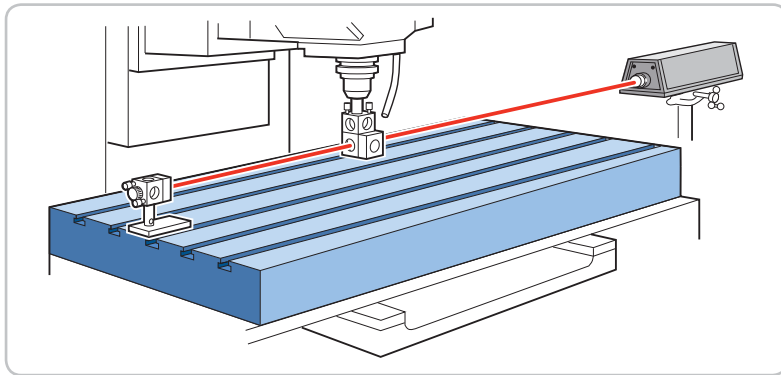


Agilent 55280B Linear Measurement Kit

Data Sheet

Basic Equipment

Agilent 5530 Laser Calibration System
Agilent 55280B Linear Optics Kit



Optical setup for linear measurements

Linear measurements are made at multiple points along a machine's travel path to measure linear displacement and velocity.

The purpose of the measurement is to document capability and, when possible, improve positioning accuracy along an axis for any machine that requires positioning accuracy and velocity control through a compensation table.

Additional capabilities include long-term thermal drift test which can be performed over hours or days, showing possible effects of temperature on geometry.

The following specifications assume Agilent 5530 Laser Calibration System is in used, and the temperature of all optical components is stabilized in the range 15 °C to 25 °C.

Measurement Range

Up to 40 m (130 ft) with linear optics

Up to 80 m (260 ft) with long range option

Measurement Accuracy

Temperature range	E1738A air sensor	In vacuum †
0 – 40 °C (32 ° – 104 °F)	±0.4 ppm	±0.1 (±0.02) ppm

† Vacuum accuracy is ±0.02 ppm if the 5519A/B laser head is calibrated to MIL-STD 45662A.

Measurement Resolution

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 55280B Linear Measurement Kit

Description	Quantity
10766A Linear interferometer	1
10767A Linear retroreflector	2
10784A Base	2
10785A Height adjuster	3
Post (~ 100 mm)	3

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



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