Leica Absolute Tracker AT401
ASME B89.4.19-2006 Specifications

Leica Geosystems

HEXAGON METROLOGY

According to the ASME B89.4.19-2006 Standard, the Leica Absolute Tracker is the most accurate laser tracker ever made!

Maximum Permissible Error or "MPE" is defined in the ISO-VIM (International Vocabulary of basic and general terms in Metrology) as "the extreme values of an error permitted by specification, regulations […] for a given measuring instrument". It can be looked at as the value that all measurements are guaranteed to be below. According to the B89.4.19-2006 American National Standard, published by the ASME in November of 2006, the Leica Absolute Tracker has the lowest guaranteed, or "MPE" values of any laser tracker on the market.

Some laser tracker producers do not publish their MPE values as specifications. Instead they use their typical accuracy which is stated as half of their MPE values. To be able to compare specifications side by side the Leica Absolute Tracker specifications have been converted to reflect both MPE and typical (or half MPE) values.

In-Line Distance Measurement

Range (m)	ADM (mm) MPE values	ADM (mm) Typical values
2 to 5	0.014	0.007
2 to 10	0.014	0.007
2 to 20	0.014	0.007
2 to 30	0.014	0.007
2 to 35	0.014	0.007
2 to 40	0.014	0.007

Horizontal Scale Bar Measurement

Range (m)	ADM (mm) MPE values	ADM (mm) Typical values
2	0.036	0.018
5	0.063	0.032
10	0.106	0.053
20	0.191	0.096
30	0.276	0.138
35	0.318	0.159
40	0.361	0.180

Performance

	MPE values	Typical values
Angle Performance Angular accuracy	± 15 µm + 6 µm/m	± 7.5 µm + 3 µm/m
Distance Performance ADM Accuracy	± 10 µm	± 5 µm

All specifications are calculated per the ASME B89.4.19 standard. Information is from the most recent Leica Absolute Tracker specifications released in April of 2010. To allow for comparison, variation in air temperature is not included.

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