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## Non-Contact Radius Measurement Method of Spherical Standards

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The diameter measurement of sphere is very important in dimensional metrology. The measurement of diameter is generally carried out by a comparison method or direct method using 1D linear measuring system. The probes touch both sides of the workpiece and the diameter is determined from displacement of the probes. The contact force is generally operated at 1N which yield deformation due to force of approximately  $1 \mu\text{m}$  with uncertainty of  $\pm 0.1 \mu\text{m}$ . This system provides good performance but has a limitation when workpiece is made from soft matter or sensitive to scratch.

National Institute of Metrology (Thailand) developed a laser interferometer system which is equipped with reference spherical lens in order to non-contact radius measurement of spherical objects possible. Radius of completed sphere and partial sphere with radius range from 1 mm up to 50 mm can be measured with accuracy of  $\pm 2 \mu\text{m}$ .

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