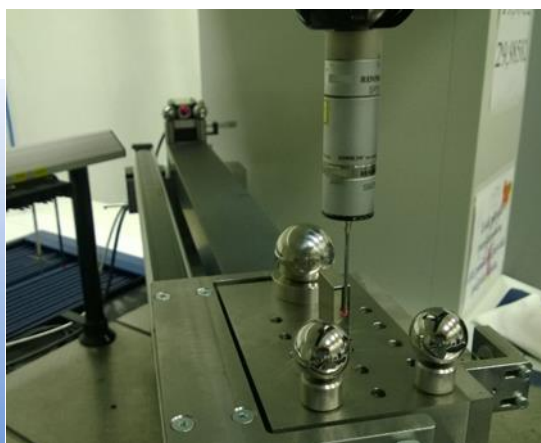
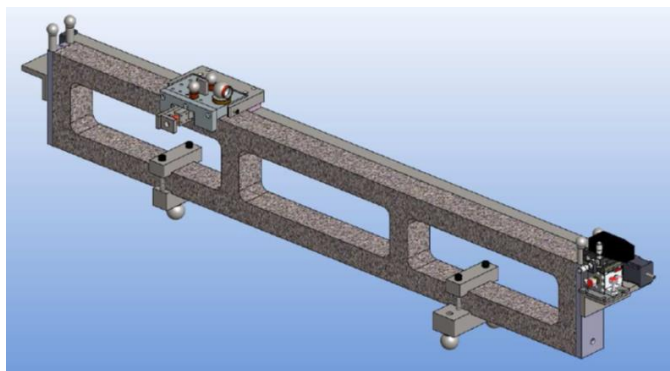


PORTABLE SHAFT MEASUREMENT STANDARD (MIKES, FINLAND)

The default diameter for a shaft is the two-point diameter (ISO 14405). Traceable measurement of diameter for a shaft using a CMM and the substitution method (ISO 15530) requires a traceable length standard. The Interferometric Step Gauge (ISG) can be used as a traceable length standard in the range 0 mm - 1200 mm with smallest step size of a few microns. The ISG can also be used for CMM verification. Compared to gauge blocks and step gauges the number of possible lengths is unlimited.

The principle is to have a moving carriage with surfaces for tactile probing with interferometric reference. The main surface to probe is a gauge block, but spheres to be probed are also mounted on the carriage. In addition, the retroreflector is of sphere type. The co-ordinate system of the CMM is aligned along the laser beam. The carriage is driven by a DC-servo motor through a translation screw. The movements are controlled from a PC. The reference fibre optic laser (encoder) is a Renishaw RLE. The temperature of air is measured by two sensors and atmospheric pressure and humidity is measured.



Specification of the standard	
Range	0 mm - 1200 mm
Weight (without transport box)	45 kg
Uncertainty for a 1000 mm length	0.4 μm ($k=2$)

For further information, please contact

D.Sc. (Tech.) Björn Hemming
Senior Scientist
MIKES Metrology, VTT Technical Research Centre of Finland Ltd
Tekniikantie 1, FI-02150 ESPOO, Finland Phone: +358 40 7735 744
E-mail: bjorn.hemming@vtt.fi

VTT TECHNICAL RESEARCH CENTRE OF FINLAND LTD

Centre for Metrology MIKES
Tekniikantie 1, Espoo
P.O. Box 1000, FI-02044 VTT, FINLAND

Tel. +358 20 722 111
Fax +358 20 722 7001

name.surname@vtt.fi
www.vtt.fi
Business ID 2647375-4