New CMI standard for metrological tests of material measures of length.

Material measures of length have found a widespread use in many industrial applications – they are used to measure the output of production lines in terms of products with one prevailing dimension (cables, wires, tapes, sheets of cloth etc.). In metrological systems of developed countries they have usually a character of legally controlled measuring instruments, in Europe they subject to regulation by way of EU Directive MID 2004/22/ES, Annex MI-008, Chapter I. To carry out various metrological operations (calibrations, verifications, conformity assessments) which have to be made on site an accurate standard is needed - until recently, CMI has not had a suitable device. Moreover, such standard has to be able to measure accurately in real conditions of manufacture (movements and vibrations of the running material). After an analysis of the available equipment on the market CMI has in mid 2014 purchased a non-contact measuring system of lengths and velocities Laser Speed LS 9000-306 MID design of which is based on dual beam interferometer technology with solid state lasers operating at frequencies of 760 and 800 nm. A calibration tape has been purchased as well for CMI to be able to carry out recalibrations in its laboratories – The CMI Laboratory of acoustics and kinematics is working on our own procedure of its recalibrations. Prior to a full-scale deployment of this measuring system an extensive range of tests have been made in industrial companies across the CR – it has been proved in practice that the system is able to measure a wide spectrum of materials starting with wires up to wide strips of cloth, starting with higher diameters also during vibrations of the running material. At the same time, our own development of a number of accessories to precisely define and adjust the position of the measuring head has to be made for some demanding applications.

Basic metrological parameters:

* a range of measurable lengths: 0.4 – 999 m
* a range of measurable velocities: 0 – 2 000 m/min.
* accuracy: 0.05% of the measured value, classes I, II, III

The device is to be used mainly for operations of conformity assessment when material measures of length are put on the market and into use (module F) and for their subsequent verifications across the whole country, it can be also used in the non-regulated area for a fine adjustment of industrial material measures of length - working instruments.

Main advantages of this measuring instrument in its practical applications are: the consumption of material compared with the previous primitive methods goes to zero, a much shorter period of time to complete the tests, an assistance to manufacturers with fine tuning of their technology of production and of their own measurement system which considerably reduce the costs.

In case of interest, please, will you contact Mr. Josef Petřík, CMI Regional Inspectorate Kroměříž, [jpetrik@cmi.cz](mailto:jpetrik@cmi.cz), tel. 573333683.

Detailed pictures of the standard for metrological tests on material measures of length in industrial environment



