

**Assessment of the possibility of applications of laser triangulation heads in measurement of roundness**

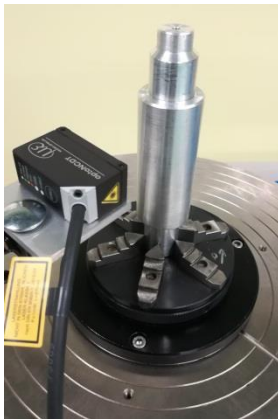
Michał JAKUBOWICZ\*, Natalia SWOJAK, Karol GROCHALSKI

\* *Michał Jakubowicz: Poznan University of Technology, Piotrowo 3, 60-965 Poznań  
michal.jakubowicz@put.poznan.pl*

**Keywords:** non-contact measurement, roundness, dimensional measurement, dynamic measurement, laser triangulation heads

In the paper, the experimental results of the study on the roundness deviation of the laser triangulation heads are presented. The sensors enable non-contact and high-speed measurements of virtually any surface. Operation of these devices is based on the principle of triangulation. They determine the position of a target by measuring the light reflected from its surface.

The results of measurements of roundness deviation using laser triangulation heads are presented. Two cylinders of different type and value of roundness deviation were used in the measurements. Comparative analysis of measurements was conducted taking into account the value of roundness deviation as well as the changes in the amplitude of profile harmonics. The results of conducted research were compared with those obtained by a contact method using Hommel-Etamic roundscan 535 (Fig.1).



**Fig. 1.**  
Roundness measurement of a laser triangulation heads

- [1] M. Dumberger: The evolution of laser triangulation. *Product Design & Development* 2002 Vol. 57 (10). S.18 (1). ISSN: 1084- 7278
- [2] S. Mekid, K. Vacharanukul: In-process out-of-roundness measurement probe for turned workpieces. *Measurement* 2011 Vol.44(4). S.762-766. ISSN: 0263-2241