

RESIDUAL STRESS MEASUREMENTS ON THIN COATINGS

Totka Bakalova^{1*}, Petr Louda¹

¹ Faculty of Mechanical Engineering, Department of Material Science, Technical University of Liberec, Studentska 2, 461 17 Liberec, Czech Republic

Keywords: Nanocomposite Coatings, Surface, Residual stress

*e-mail: totka.bakalova@tul.cz

Abstract

Residual stress measurements were conducted on five test samples. Two of the test samples were uncoated and three of them had a coating with thickness ranging from 2 μm to 6 μm . Measurements were done to the basic material under the coating. Each measurement was done in at least two directions at the center of the samples, with the exception of the TiAlN/WC/C sample, where the measurement was done at a spot in the opposite side of the text in the sample. Basic material 1 ISO 683/11-70 and TiAlN/WC/C were measured in three directions and some additional calculations were done to these samples. Tribological coatings are mainly used to reduce adhesive wear, which often leads to the seizure or the formation of cold welds. The low coefficient of friction and good sliding properties make it ideal for applications with low lubrication or even dry running.

Acknowledgments:

The results of the project „Special transformation mechanisms in drives with electronic cams” registration number FV 20547 were obtained through the financial support of the Ministry of Industry and Trade in the program MPO TRIO.

Reference

- [1] ZINDULKA O.: TiC/C friction nanocomposite PVD coating in MM: 2016/5, 11.05.2016 in *the Trends/Machining section*, page 68.
- [2] PETKOV, N., BAKALOVA, T., BAHCHEDZHIEV, H., LOUDA, P., KEJZLAR P., CAPKOVA, P., KORMUNDA, M., RYSANEK, P.: Cathodic Arc Deposition of TiCN coatings - Influence of the C₂H₂/N₂ Ratio on the Structure and Coating Properties, *Journal of Nano Research 2018*, Vol. 51, pp. 78 – 91, ISSN: 1661-9897.