

COMETa 2012

1st INTERNATIONAL SCIENTIFIC CONFERENCE

28th - 30th November 2012.

Jahorina, B&H, Republic of Srpska



University of East Sarajevo

Faculty of Mechanical Engineering

Conference on Mechanical Engineering Technologies and Applications

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28th . 30th November 2012.

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PREFACE

Production in developed countries is based on the modernization and optimization of the production processes with the application of new technologies that are the result of scientific research. The application of new technology enables company's efficient production and competitiveness in the world market.

Faculty of Mechanical Engineering, University of East Sarajevo, organizes the First international conference "COMETa2012 - Conference on Mechanical Engineering Technologies and Application", which has tasks: to increase economic competitiveness in the region and the create a unique European Research Area.

Globally, the worldwide we are witnessing a rapid development and a host of new technological solutions, which occur primarily in the multidisciplinary development (mechatronics) but also in development of completely new technologies, such as nanotechnology, new energy sources, intelligent machines and processes, micro-technique, etc. All of this puts researchers and engineers in the new challenges and creates opportunities for products and technologies that provide a precondition for economic recovery and creation of new jobs.

COMETa2012 conference program structure is consisted of the following thematic areas: Production technologies and advanced materials, Applied mechanics and mechatronics, Development of products and mechanical systems, Energetics and thermo - technique, Renewable energy and environmental protection, Quality, management and organization, Maintenance and technical diagnostics.

Participation in international conference COMETa2012 was achieved by: 182 authors from 9 countries, with a total of 90 papers, including 4 plenary and 3 of introductory, 4 leading commercial companies and many small and medium enterprises. Bruel & Kjaer Workshop: "Measurement of noise and vibration", was also organized at the conference, as well as a round table discussion: "The importance of quality infrastructure of B&H within the European integration".

The presence of a large number of participants from Bosnia and Herzegovina and abroad as well as the problems which are processed at the conference, coincide with the themes promoted by the European Union in its development programs.

On the basis of previous exposure, a gathering of scientists and researchers at the international conference COMETa should be understood not only as an exchange of knowledge and achievements of the narrower set of scientists and researchers, but also as a constant and serious attempt to focus social consciousness and social life on activities that ensures progress and prosperity of any society, and that is productive work, creating new knowledge and economic development.

On behalf of the Organizing Committee of the Conference COMETa2012, thank all authors, reviewers, as well as institutions, companies and individuals who contributed to realization of the Conference.

East Sarajevo, October 28th, 2012.

President of the Organizing Committee

Prof. dr Ranko Antunović





UTICAJ KOREKCIJE PROFILA CIKLOZUPČANIK NA BROJ OSTVARENIH KONTAKATA ELEMENATA CIKLOREDUKTORA

Nenad Kostić¹, Mirko Blagojević², Vesna Marjanović³,
Zorica Đorđević⁴, Nenad Marjanović⁵

Rezime: U ovom radu razmatran je problem određivanja stvarnog broja kontakata između ciklozupčanika i valjaka nepokretnog centralnog zupčanika cikloreduktora, što je ključno za definisanje raspodele opterećenja na elementima prenosioca. Razvijen je analitički model za određivanje stvarnog položaja ciklozupčanika u odnosu na valjke centralnog zupčanika kao i za proračun rastojanja između ovih elemenata. Na osnovu izračunatih rastojanja, određuje se broj ostvarenih kontakata. Predstavljen je i način određivanja broja kontakata zubaca ciklozupčanika sa valjcima centralnog zupčanika u slučaju korigovanog profila ciklozupčanika. Na osnovu razvijenog softvera, ugrađen je i niz konkretnih primera. Na kraju rada su izneta zaključna razmatranja i smernice za dalji rad.

Ključne riječi: cikloreduktor, ciklozupčanik, kontakt, korekcija profila ciklozupčanika

INFLUENCE OF CYCLOIDAL GEAR PROFILE CORRECTION TO THE NUMBER OF CONTACTS BETWEEN THE ELEMENTS OF A CYCLOIDAL SPEED REDUCER

Abstract: This paper presents the problem of determining the actual number of contacts between the cycloidal gear and the rollers of the stationary central gear of a cycloidal speed reducer, which is essential for the distribution of the load on the gear train elements. An analytical model for determining the actual position of cycloidal gear in relation to the rollers of the central gear, as well as for the calculation of distance between these elements, was developed. Based on the calculated distances, the number of contacts is determined. A method for determination of the number of contacts of the cycloidal gear teeth with the central gear rollers in the case of corrected profile of a cycloidal gear is presented. Based on the developed software, a series of concrete examples was made. The end of the paper gives concluding observations and directions for future work.

Keywords: cycloidal gear reducer, cycloidal gear, contact, cycloidal gear profile correction

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