9th ICEEE – 2018 International Conference on
"Climatic Change and Environmental (Bio) Engineering"
22nd - 24th of November, 2018
Budapest, Hungary

TYPES OF SERVO AXES SINCHRONIZATION FOR USE IN AUTOMOTIVE RECYCLING INDUSTRY

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To optimize the recycling process in automotive industry, it is necessary to constantly innovate the machines where recycling processes take place. In recycling processes, we have selection and cutting of various materials such as: metal, glass, plastic, wood, leather, etc. Various electric drives are used for all these processes. In the past the drives were only mechanically coupled. Mechanical couplings such as gears, couplings, sprockets and other mechanical power transmissions are reliable solutions but not flexible. Changing the gear ratio between the two axes of motion would require a change in the ratio of the mechanical gears or the use of a gearbox. With the development of electronics, the gearing of the axis was moved from domain of mechanics into the domain of electronics. Thanks to the fast regulation structures inside servo drives it is possible to couple two or more axes of movement without mechanical connections, only based on the reading from the position sensor. By introducing electronic coupling, the change in the gear ratio in the software itself is possible without any changes to the mechanics during the work. The paper provides an overview of the basic concepts and parameters for synchronization of two axes in motion. Also, the necessary parameters and settings are explained for synchronizing two axes. Finally, a comparative analysis of three synchronization types was performed: Reverse motion, Synchronizing and Symmetrical, with its advantages and disadvantages on Siemens S1500T platform.

***Key words**: recycling, drives, axes of movement, electronic gearing.*

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