

Model-Based Energy Recuperation of Multi-Axis Machines

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This paper describes a new approach to sizing an electric drivetrain, including its power supply. The advantages of a real battery testing system are combined with the advantages of a Modelica model of a product. A testing system analyzes battery performance under specific constraints such as differing temperatures, vibrations and humidity. Since these constraints are hard to replicate in a model, an experimental rig is an optimal solution for battery tests [1]. Virtual engineering of a real system is advantageous in terms of the speed of modifications, the measurement of all relevant data and the low cost of development. The coupled virtual model and experimental testing rig for batteries constitute the basis for this new concept and improve the development of the electric powertrain.

References

- [1] Benecke, I.; Schmucker, U.: “Simulation statt Prüfstand” in Quality Engineering Vol 04.13, 2013, ISSN 1436-2457, pp. 40-42. (in German)