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DEVELOPMENT AND ANALYSIS OF STATIC STRENGTH OF THE PINAFORE FLAPS ON THE LOW-FLOOR TRAM ON THE AVENIO PLATFORM

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Abstract *– The aim of the master thesis is weight optimization of the existing construction of the pinafore flaps and production cost reduction as much as possible. This was done by designing a new construction solution and applying of new material, and thus a new way of producing pinafore flaps that are implemented in the construction of low-floor trams of the "Avenio" platform. The "Avenio" platform is a tram model developed by Siemens mobility and it is in use all over the world, so depending on the needs of the customer can be offered different designs. The pinafore flaps are covering the running and the motor bogies, and it is a part of the vehicle body. The existing construction is based on aluminum, while for a new one is used GFRP. The 3D design of the new construction was performed by using CREO Parametric software package. The static strength analyses via the finite element method (FEA) of the existing and new construction were analyzed by using the ANSYS software package. Based on the previous it can be concluded that the new design with a lower mass can withstand normal exploitation load without permanent deformation.*

Keywords – Trams, Pinafore flaps, Bogies, Static strength.

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