

Diplomat:

Jayaprakash Lakshmanasamy

Name of the thesis:

Optimization of the support frame for clay model cars.

Assessment of content and formal pages of thesis

This diploma thesis deals with the analysis and subsequent optimization of the 1:1 clay design support frame made by SVOTT a.s. The target of the diploma thesis is optimization and it is focused on weight, stiffness and price. This thesis deals with the possible change of the frame material and the construction of a new frame too. It have to be correspond to various model cars and solved the shortcomings and deficiencies of the existing frame of firm SVOTT.

Assessment of the theoretical part

At the beginning of the theoretical part, the author deals with the importance of clay models in the car design process. Here are some examples of functional car frames which can be similarity with our static frame of the dummy. It describes the methods of stiffness and tension calculation and presents several sources where is topic of stiffness and selection of materials of functional frames. Search of the topic of support frames for clay models is very difficult due it is on the high level of automotive secrecy. There is no literature or examples of other manufacturers. In spite of this known handicap, the theoretical part is well done and I have no comments.

Assessment of the practical part

At the beginning of this section the author analyzed the parameters reported for the existing frame SVOTT. Subsequently there was created three variants of new geometry models, which were again analyzed in terms of stress, strain, weight, price and other parameters. At the finally it was selected suitable optimized frame.

This part is also well-developed and reveals the shortcomings of the current solution and shows the potential for improvement of all the monitored parameters including the resulting price. This is very clearly elaborated in Chapter 10 in graphs with clear data.

It could be interesting if you analysis of the use of other lighter material described in Chapter 8. However (as the author states in Chapter 12) this may be a topic of further development. The calculation of the deformation is not entirely clear when specifying the boundary conditions of the frame attachment. It is also necessary to take into account the situation when the entire clay model is set to four pins (mandrels) at the time of milling and finishing.

Overall evaluation of the diploma thesis

The diploma thesis is created carefully, only occasionally there are grammatical, formal errors in gaps, and the like. An example may be page 44, where the author writes prices in pounds, but it is the euro, as evidenced by the total sum and the previous tables. Serious mistakes are not here and the results of the work will be useful in designing additional support frames in SVOTT.

- Thesis meets the requirements of the assignment
- Thesis meets the requirements for an appropriate academic title
- I recommend the thesis for the defense

I would like to thank Jayaprakash Lakshmanasamy for a good and well done job and I have no further comments.

Additional questions

Explain the main differences, disadvantages and benefits of applying one of the materials (named in Chapter 8) to this particular frame.

What is the role for the overall deformation in the fact that, in addition to the load of 4 pins (which the frame is fixed during work), the frame is fitted to wide hubs and wheels on the side plates when it is manipulation?

In Mladá Boleslav 30.5.2018


Ing. Pavel Matoušek

suggestion for assessment of diploma / bachelor thesis

Topic of diploma thesis **Optimization of the support frame for clay model cars.**

which presented by Mr. **Jayaprakash Lakshmanasamy**

I value the mark **very good**.

V Mladé Boleslavi 30.5.2018



Ing. Pavel Matoušek