

DIPLOMA THESIS EVALUATION

Student's name and surname: Surendaran Kathiresan

Name of the diploma thesis: PIV Investigation of the Bluff Body in Water

Supervisor of the thesis: *Ing. Petra Dančová, Ph.D.*

1. Diploma thesis evaluation

Evaluation	excellent	excellent minus	very good	very good minus	good	failed
Meeting the goal and fulfilling task of the thesis					x	
Quality of conducted survey					x	
Methodology of solutions					x	
Expert level of the thesis						x
Merit of the thesis and its potential applicability of results						x
Formal and graphic level of the thesis				x		
Student's personal approach				x		

Mark x in the corresponding box.

Supervisor's final evaluation is based on his/her overall subjective evaluation.

Grading is stated literally in the article no. 5, neither by a number, nor by a letter.

2. Comments and remarks on diploma thesis:

Meeting the goal and fulfilling task of the thesis: First goal defined in the master thesis assignment form was fulfilled. Second goal was fulfilled. Third goal was not fulfilled, the experiments were performed, but in poor quality. Fourth goal was not fulfilled; there is no comparison of the author's results with the literature.

Quality of conducted survey: The state of the art (flow around the bluff body) was not deeply performed; there are only the citations of the articles but without any deeply analysis of the results.

Methodology of solutions: The choice of the PIV method is right. Measurement settings and data analysis are wrong.

Author does not respect the difference between Re of the fluid flow and Re of the flow around the cylinder which was important for this work.

There is no analysis of the measurement uncertainties.

Expert level of the thesis: There is no expert level of this thesis. The PIV system at the KEZ dept. is new, and it may not be easy for everyone to work with this system, but I did not see any effort to understand it by the author. I have provided many consultations on how to work with this system. Work with PIV is also included into the courses held by KEZ dept. which author participated. Experiments shown in this thesis are completely wrong (I also repeated many times that the Strouhal number is necessary to know, that the synchronization of the system and the vortexes separation would be great, that the experiments preparation is very important, that bubbles caused measurement affection, etc.).

There is also no comparison of the results with the other authors, but there is nothing to compare.



Merit of the thesis and its potential applicability of results: As the previous point, it is very difficult to comment this. It is no merit of the thesis and no potential applicability of the results. There are no results. Many times I repeated, there are lot of bubbles in the channel which affected the measurement, prepare better your experiments. Without any improving this experiment. So the results show what happens behind the big air bubble which was attached on the upper part of the channel and no wake behind the cylinder is visible.

Formal and graphic level of the thesis: Pictures taken from the literature are well cited; sometimes text in these pictures is not readable. It is funny to see pictures taken from Dantec (Fig. 30-32, 37) while the system used for the experiments described in this thesis is from LaVision. Scales and units in pictures and graphs showing author's experimental results are not readable, so it is not clear what they actually express.

Student's personal approach: Author designed the channel and both cylinders himself. On the other hand for his work in the laboratory (measuring and obtained data analysis) he needed help from a KEZ doctoral students. He did not think about the experimental parameters (volume flow in a channel, Δt between two laser pulses, etc.), he did not think about measured data (if they are right or not).

3. Questions about diploma thesis:

How the slot in a cylinder will change the wake behind this cylinder compared to a full cylinder?

4. Supervisor's statement on results of the inspection carried out by the anti-plagiarism program in the STAG system:

The system STAG at TUL evaluated the match of 0%.

5. Supervisor's grading of the diploma thesis:

I recommend this work for the defense and grade it as **good**.

Date: 24.5.2019, in Liberec



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Supervisor's signature

