

OPPONENT'S ASSESSMENT ON DIPLOMA THESIS

Student's name and surname: Ram Kumar Ramesh

Name of the diploma thesis: Innovation of motion axes for laser machine

Supervisor of the thesis: Ing. Petr Zelený, Ph.D.

Opponent: prof. Ing. Jan Skalla, CSc.

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:

17⁵ – „The screw (ball-screw, roller screw, or lead screw designs) drives the screw shaft in a straight line by spinning the nut;” More common is inverse design – rotating screw drives the nut in linear movement.

18 – Example of hydraulic actuator (Fig. 5) is inappropriate for drive purposes

23³ – “When the pinion is rotated, the rack is operated in a linear fashion.” Again: More common is inverse design (rack is fixed to the frame and rotating pinion is attached to the movable part.

29 – The table 2 needs more detailed parameters of drive considered (e.g. maximum force of hydraulic drive is in general significantly larger than 4500 N).

38 – Fig. 19: Correct name of company is Salvagnini

47⁶ – Withstanding small loads concerns of pneumatic drive only.

68¹³ – Maximum acceleration corresponds to motor only. Acceleration decreases when movable parts are connected.

3. Questions about diploma thesis:

What is the approximate ratio of prices between drive with linear motor and ball screw drive?

In diploma excessive vibrations on current drive are mentioned. What is probably reason of it?

4. Opponent's statement whether the diploma thesis meets the academic title requirements and whether it is recommended for defense:

As the graduate fulfils requirements for the Diploma project, I recommend it to be defended in front of the State Committee.

5. Opponent's grading: excellent minus

Date 20. 6. 2021, in Liberec

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Opponent's signature



