Dear Editor,

Comments on the review are written in red.

Regards,

Reviewer.

Author response to report 1:

Author's Notes

Thank you very much for your comments - I highly appreciate the effort you put in it!

- Values on the axis on Fig. 7. It nice to see the character, but also the values.

will be added

Fine.

- Where did you obtain experimental results and following which international standard?

experiments were conducted at the laboratory of Dickow Pumpen and they were made according DIN 9906 - class 1 - added in the paper

Fine.

- Frames around figures should be erased.

will be changed

Fine. Only in Fig. 7 is left and should be also erased.

- In page 15 you mentioned: "Interestingly the pump efficiency and the location of the best efficiency point is clearly influenced by the blade tipping angle. A lower tipping angle yields a higher the efficiency at lower flowrates. This may be useful when trying to shift the location of the BEP." What are those values of beta2 when you expect this to happen? And in addition, what do you expect to happen for forward curve blades?

informations added - tipping angle > 0° corresponds to a forward curved blade

This is ok, but could you give at least an approximate value of beta2 when you expect this to happen?
You also have written in page 15: "It is shown in Figure 20 that for a certain configuration pump head stays almost constant for significantly varying blade tipping angles. This leads to the assumption that the theory of angular momentum is not entirely applicable for side channel pumps". Do you suggest any modification of the Euler equation for turbomachinery, so it could be applied for the side channel pumps?

Actually we are trying to adapt the existing design guidelines for side channel pumps to include influences like that. But this will take some more research and investigations and can therefore not be added in this paper.

**Ok, but could you specify this in the text?**

- In the statement in the page 16 "Especially pump head in this region is predicted almost perfectly", word "perfectly" should be omitted.

perfectly will be replaced by well/good

**Ok.**

- Colors in legend on the figure 23 should correspond those in diagram.

will be changed

**Ok.**

- Could you discuss flow phenomena which occur inside the pump?

I understand your interest, but as this paper has already 19 pages, this would require at least 1-2 more pages to present a "deeper" look inside

**Ok.**

- General comment: It would be nice to see numbers in all diagrams.

I understand your desire and it will be changed where possible (actually values were removed due to classification reasons)

**Ok.**

- In Nomenclature: Meridional velocity should be noted with "m" in index. Similar for "u" in cu and "q" in nq.

will be changed

**It should be also in the text, like in page 7.**

- References should be translated in English.

I do not see this necessary as it is easier to find them when referenced in original as some of them are even not available in english language
This depends on the journal publication politics, but usually two titles are provided – original language and English version.

- More references should be discussed in the introduction. will be taken into account

This is not done in the latest paper version, but if you consider it as enough, fine with me.