

GENEBIKE

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1 Introduction

1.1 Magnetic circuit conception

Firstly, the magnetic circuit have to be designed. In order to select a geometry for this circuit, a magnetic simulation software was used which is named ANSYS Maxwell. These criteria was used to select or not a magnetic circuit:

- Enough important magnetic flow per turn per inductor to reach a 6V no-load voltage with a reasonable number of turn per inductor (less than 80).
- Low detent torque.

To begin, an axial flow geometry was studied but the results of the simulation have showed that the flow criteria can not be reach with this geometry.

Thus a first radial flow geometry was studied but the detent torque was too important and the second criterion was not validated.

Finally a second axial flow geometry using supports in alloy for inductor in order to reduce the detent torque was designed and it was showed that the criteria was validated by simulation.

2 Description

3 Error Analysis & Discussion

4 Conclusion

5 Data Tables