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Project 3

EE568

1)Introduction

2)

In this part, magnetic loading of the machine with the parameters given in Table 1 will be examined.

|  |  |
| --- | --- |
| **Parameters** | **Value** |
| Number of phases | 3 |
| Number of poles | 4 |
| Motor axial length (mm) | 100 |
| Air-gap clearance (mm) | 1 |
| Magnet to pole pitch ratio | 0.8 |
| Magnet type | NdFeB (N42) |
| Rotor diameter (mm) | 100 |
| Magnet thickness (mm) | 4 |
| Remanent flux of the magnet (Br) | 1.28 |
| Relevant coercivity of the magnet (µr) | 1.05 |

Table 1: Machine parameters

By using the equivalent magnetic circuit given in Figure 1 is used to find magnetic field in the air gap,

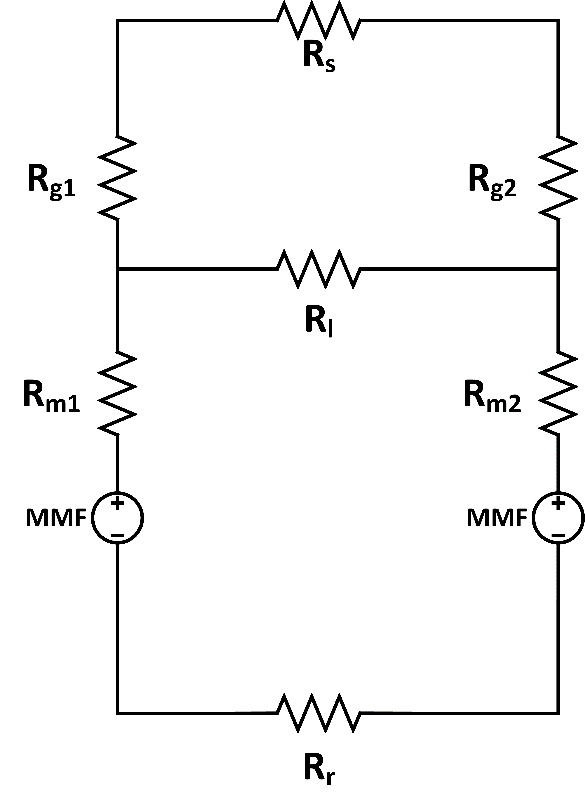


Figure 1: Equivalent magnetic circuit of the machine

Where Rs, Rr, Rl, Rg and Rm are reluctances of stator, rotor, leakage, air-gap and magnets, respectively.