

EE568 Project 3: PM Motor Comparison Analysis

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1 Q1- Magnetic Loading

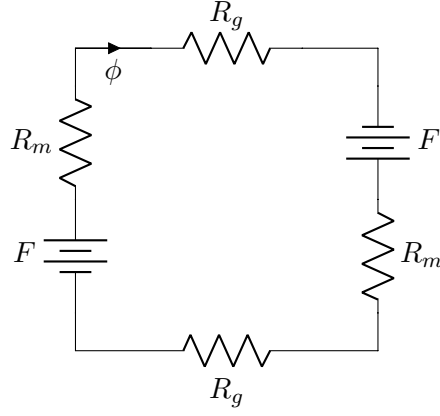


Figure 1: magnetic equivalent circuit for one pole-pair

number of phases	m	3
number of poles	p	4
motor axial length [mm]	l	100
air-gap clearance [mm]	δ_g	1
magnet to pole pitch ratio		0.8
magnet type		NdFeB N42 grade ($\mu_r=1.05$), radial shaped
rotor diameter [mm]	D_r	100
magnet radial thickness [mm]	t_m	4

1.1 a

1.2 b

1.3 c

2 Q2- Electrical Loading & Machine Sizing

2.1 a

2.2 b

2.3 c

2.4 d

2.5 e

2.6 f

3 Q3- Comparison & Optimization

3.1 a

3.2 b

3.3 c