

DEVELOPMENT OF IRONLESS CORELESS AXIAL
FLUX PERMANENT MAGNET GENERATOR

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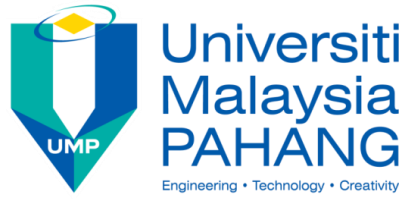
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DEVELOPMENT OF IRONLESS CORELESS AXIAL FLUX PERMANENT
MAGNET GENERATOR

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Thesis submitted in fulfilment of the requirements
for the award of the
degree of Master of Engineering

Faculty of Mechanical Engineering
UNIVERSITI MALAYSIA PAHANG

APRIL 2016

TABLE OF CONTENTS

	Page
DECLARATION	
TITLE PAGE	i
ACKNOWLEDGEMENTS	ii
ABSTRACT	iii
ABSTRAK	iv
TABLE OF CONTENTS	v
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF SYMBOLS	xiii
LIST OF ABBREVIATIONS	xv
CHAPTER 1 INTRODUCTION	
1.1 Research Background	1
1.2 Problem Statement	3
1.3 Research Objectives	4
1.4 Research Scopes	5
1.5 Thesis Outline	5
CHAPTER 2 LITERATURE REVIEW	
2.1 Electricity Generation and Its Technology	6
2.1.1 Concept Regarding to Magnetic Field	6
2.1.2 Concept Regarding to Magnetic Field Cutting	10
2.1.3 Concept Regarding to Connection Used	11
2.2 Ironcore Electricity Generator	13
2.2.1 Element and Working Principle	13
2.2.2 Application of An Ironcore Generator	15
2.3 Losses In An Ironcore Generator	17

2.4	Ironless/coreless Generator Design and Principle	18
2.5	Coreless Generator	21
	2.5.1 Application of Coreless Generator	21
	2.5.2 Arrangement/Configuration of Coreless Generator	24
2.6	Design Consideration of An Ironless Coreless Generator	31
	2.6.1 Magnet Used on the Ironless Coreless Generator	31
	2.6.2 Coil Design for the Ironless Coreless Generator	32
	2.6.3 Gap Distance between the Magnets	34
	2.6.4 Number of Poles and Coils for the Ironless Coreless Generator	36
2.7	Finite Element Tool For Electromagnetism Analysis	36
2.8	Summary	38

CHAPTER 3 PRELIMINARY STUDIES: FINITE ELEMENT ANALYSIS

3.1	Introduction	39
3.2	Procedure	40
3.3	Results for The Finite Element Analysis	43
	3.3.1 Number of Coil Turns per Phase	43
	3.3.2 Gap Distance between the Magnet Pairs	49
	3.3.3 Magnet Grade Used on Magnet Pairs	55
	3.3.4 Discussion on The Simulation Results	61
3.4	Optimum Parameter for The Ironless Coreless Electricity Generator	62
3.5	Summary of Preliminary Findings	69

CHAPTER 4 DEVELOPMENT WORKS FOR IRONLESS CORELESS ELECTRICITY GENERATOR

4.1	Introduction	70
4.2	Structural Analysis on Ironless Coreless Electricity Generator	71
4.3	Fabrication for The Ironless Coreless Electricity Generator	74
4.4	Test Bed Assembly	83
4.5	Summary	85

CHAPTER 5 OPEN CIRCUIT TEST ON IRONLESS CORELESS ELECTRICITY GENERATOR

5.1	Introduction	86
5.2	Material and Equipment	87
5.3	Experimental Setup and Procedures	88
5.4	Result of The Open Circuit Test	89
5.5	Discussions	95
5.6	Summary of the Chapter	96

CHAPTER 6 CLOSED CIRCUIT TEST ON IRONLESS CORELESS ELECTRICITY GENERATOR

6.1	Introduction	97
6.2	Material and Equipment	98
6.3	Experiment Setup and Procedure	99
6.4	Results for The Closed Circuit Test	102
	6.4.1 Various Rotational Speed Constant Load Test	103
	6.4.2 Maximum Power Point Tracking Test	110
6.5	Discussion	117
6.6	Summary of the chapter	120

CHAPTER 7 CONCLUSION AND RECOMMENDATION

7.1	Conclusion	121
7.2	Recommendation	123

REFERENCES	124
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APPENDIX	131
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LIST OF TABLES

Table No.	Title	Page
2.1	Efficiency result	23
2.2	Energy yield result	23
2.3	Result of power output in 3 different numbers of poles	27
2.4	Comparison of various generator design	31
3.1	Summary of the finite element analysis on the number of coil turns per phase	48
3.2	Summary of the finite element analysis on the gap distance between magnet pairs	54
3.3	Summary of the finite element analysis on magnet grade used on magnet pairs	60
5.1	Specification of the three-phase induction motor used in the experiment	87
5.2	The result for the experiment with different rotational speed	94
6.1	Result for power output for various rotational speed constant load test	106
6.2	The result for power input, power after inverter and power after motor for various rotational speed constant load test	106
6.3	Result of torque and efficiency for various rotational speed constant load test	107
6.4	Result for power output for maximum power point tracking test	112
6.5	Result for power input, power after inverter and power after motor for maximum power point tracking test	112
6.6	Result for torque and efficiency for maximum power point tracking test	113
6.7	Efficiency comparison between fabricated ironless coreless electricity generator with other generators	120
7.1	Summary of the Objectives and Achievements on Research for The Ironless Coreless Electricity Generator	122

LIST OF FIGURES

Figure No.	Title	Page
1.1	Iron core lamination	2
2.1	Figure shows the different line density in weaker and stronger magnetic field	7
2.2	Illustration shows the magnetic flux line in the vicinity of coil	9
2.3	Illustration shows the tightly wound circular coil and the toroid coil	9
2.4	Fleming's left-hand rule on magnetic field	10
2.5	Fleming's right-hand rule on magnetic field	11
2.6	Example of wye configuration connection	12
2.7	Example of Delta connection	13
2.8	Illustration shows the various position of armature as well as generator terminal voltage in various position of armature	15
2.9	Example of conventional generator	16
2.10	Example of alternator for the vehicles	17
2.11	Slotless single-stator double-rotor APFM configuration	20
2.12	Slotted double-stator single-rotor APFM configuration	20
2.13	Wind turbine generating system model using APFM generator	22
2.14	Illustration shows the structure of the stacked magnetic circuit	24
2.15	Illustration shows the arrangement of poles of 3 different numbers of poles	26
2.16	Illustration shows the averaged magnetic field with respect to the gap distance between the rotors of 3 different numbers of poles	26
2.17	Proposed machine structure of high-speed coreless surface mounted APFM generator	28
2.18	Illustration shows the proposed machine structure of Javadi S. and Mirsalim M.	29

2.19	Illustration shows the flux path of proposed machine structure of Javadi S. and Mirsalim M.	29
2.20	Illustration shows the machine structure of Javadi S. and Mirsalim M.'s research	30
2.21	Illustration shows the machine structure of Drazikowski Łukasz and Koczara Włodzimierz's research	31
2.22	Coil dimension for the axial-flux permanent magnet generator.	33
2.23	Approximated power of the generator via the different relative thickness of coil (c/τ)	34
2.24	Approximated power of the generator varies on air-gap distance	35
2.25	Magnetic flux density distribution for the three-phase small scale PMSG	37
3.1	Process flow for the design and analysis process on ironless coreless electricity generator	41
3.2	Magnetic Flux Density Contour Plot for 500 Coil Turns per Phase Analysis	44
3.3	Magnetic Flux of FEM Coil for 500 Coil Turns per Phase Analysis	44
3.4	Circuit Voltage for 500 Coil Turns per Phase Analysis	46
3.5	Torque for 500 Coil Turns per Phase Analysis	46
3.6	Magnetic Flux Density Contour Plot for 14mm Gap Distance Analysis	50
3.7	Magnetic Flux of FEM Coil for 14mm Gap Distance Analysis	51
3.8	Circuit Voltage for 14mm Gap Distance Analysis	51
3.9	Torque for 14mm Gap Distance Analysis	52
3.10	Magnetic Flux Density Contour Plot for N42 Neodymium Magnet Analysis	56
3.11	Magnetic Flux of FEM Coil for N42 Neodymium Magnet Analysis	57
3.12	Circuit Voltage for N42 Neodymium Magnet Analysis	57
3.13	Torque for N42 Neodymium Magnet Analysis	58

3.14	Magnetic Flux Density Contour Plot for Optimum Parameter Design Analysis	64
3.15	Magnetic Flux of FEM Coil for Optimum Parameter Design Analysis	64
3.16	Circuit Voltage for Optimum Parameter Design Analysis	65
3.17	Rotor Torque for Optimum Parameter Design Analysis	65
3.18	Current for Optimum Parameter Design Analysis	66
3.19	Electric Power for Optimum Parameter Design Analysis	66
3.20	Joule Loss for Optimum Parameter Design Analysis	67
4.1	Result of von Mises stress test on the ironless coreless electricity generator	72
4.2	Result of displacement test on the ironless coreless electricity generator	73
4.3	Result for strain test on the ironless coreless electricity generator	73
4.4	Process flow for the ironless coreless electricity generator fabrication process	74
4.5	Fabricated rotor	76
4.6	Fabricated stator	77
4.7	Fabricated support plate	77
4.8	Jig used to do the coiling	78
4.9	Top view for the coil with core	79
4.10	Side view for the completed coil with core	79
4.11	Coil is assembled on the stator	80
4.12	Jig used to disassemble magnet from bulk	81
4.13	North pole is assemble into rotor	82
4.14	Assembled ironless coreless electricity generator	83
4.15	Test bed used to test the ironless coreless electricity generator	84
5.1	Block diagram for the connection of open circuit test	88

5.2	Phase voltages and characteristics for rotational speed of a) 113.4 RPM, b) 171.8 RPM. c) 233.5 RPM, d) 293.6 RPM and e) 352.8 RPM	90
5.3	Voltage output versus rotational speed of the rotor for ironless coreless electricity generator	94
6.1	Connection of ironless coreless generator, DC electronic load unit and oscilloscope	99
6.2	Block diagram for the connection of closed circuit test	100
6.3	Process flow for the closed circuit test and setup	101
6.4	The voltage output before and after conversion by the rectifier	102
6.5	Power generated by ironless coreless electricity generator versus rotational speed graph	108
6.6	Current generated by the ironless coreless electricity generator versus rotational speed graph	108
6.7	Voltage produced by the ironless coreless electricity generator versus rotational speed graph	109
6.8	Torque of the ironless coreless electricity generator versus rotational speed graph	109
6.9	Efficiency of the ironless coreless electricity generator versus rotational speed graph	110
6.10	Power generated by the ironless coreless electricity generator versus rotational speed graph for maximum power point tracking test	114
6.11	Current versus rotational speed graph for maximum power point tracking test	115
6.12	Voltage produced by the ironless coreless electricity generator versus rotational speed graph for maximum power point tracking test	115
6.13	Resistive load versus rotational speed graph for maximum power point tracking test	116
6.14	Torque versus rotational speed graph for maximum power point tracking test	116
6.15	Efficiency versus rotational speed graph for maximum power point tracking test	117

LIST OF SYMBOLS

η	Efficiency
P_{out}	Power output
P_{in}	Power input
P_{loss}	Power losses
W_h	Hysteresis loss
K_h	Hysteresis constant
f	Frequency
B_m	Magnetic flux density
W_e	Eddy current loss
K_e	Eddy current constant
v	Velocity of the wire
ω	Rotating speed of rotor in rad/s
R	Turning radius
e	Generated voltage/Counter electromotive force
B	Magnetic flux
u	Velocity of moving charge
f	Force magnitude
ϕ	Magnetic flux
τ	Pole pitch
r	Radius
g	Thickness of magnet
μ_0	Air permeability
B_r	Remanence
H_c	Coercivity of magnet

δ	Air gap length
H_c	External magnetic field strength
m	Magnetic moment
t_1	Desired end time
t_0	Start time
I	Current
V	Voltage
R	Resistance
P	Power
V_L	Line voltage
V_ϕ	Phase voltage
I_L	Line current
I_ϕ	Phase current
p	Number of poles
N	Rotational speed of rotors in RPM
τ	Torque

LIST OF ABBREVIATIONS

AC	Alternating Current
AFPM	Axial-flux permanent-magnet
CAD	Computer Aided Design
CEMF	Counter Electromotive Force
CNC	Computer Numerical Control
DC	Direct Current
DDPMG	Direct-drive permanent magnet generator
DDSG	Direct-drive synchronous generator with electrical excitation
DFIG	Double fed induction generator
DFIG3G	Double-fed induction generator with three-stage gearbox
EESG	Electrically Excited Synchronous Generator
emf	Electromotive Force
ESTRN	Equivalent strain
FE	Finite Element
FEM	Finite Element Method
IG	Induction generator
NdFeB	Neodymium Iron Boron
RFPM	Radial-flux permanent-magnet
RMS	Root Mean Square
URES	Displacement resultant
VFD	Variable frequency drive