List of Figures



	List of HBares	Page
Figure	Description	No.
No.	to the line time entergeries	4
1.1	Major drive type categories	8
2.1	Equivalent circuit of an Induction motor T-S Curves for various voltages for high slip Induction motor	20
3.1	Variation of ratio of maximum copper loss to rated copper loss	23
3.2	with rated slip for Induction motor with fan load	20
2.2	Thyristor voltage controller	24
3.3	Wave form of Voltage and Current with Thyristor control	24
3.4	Approximate Equivalent Circuit of an Induction motor	26
3.5 3.6	Torque speed curves for standard and high slip Induction Motor	27
3.7	Torque speed curves for changes in hold off angel	29
3.8	Variation of torque and voltage with speed for V/F control method	31
3.9	Torque speed curves for constant V/F control	32
3.10	Block diagram for variable frequency control	33
3.10	Three phase bridge Inverter	36
3.12	Voltage waveforms of an inverter shown in fig. 3.11	37
3.13	Voltage waveforms of an inverter shown in fig. 3.11 for star	38
5.15	connected load	
3.14	VSI controlled IM drives	40
3.15	Single phase bridge Inverter and its output voltage waveforms	41
3.16	Multi pulse modulation scheme	42
3.17	Sinusoidal pulse width modulated inverter	43
3.18	Three phase to single phase cycloconverter.	44
3.19	Output voltage waveforms of cycloconverter.	45
3.20	Three phase to three phase cycloconverter.	46
4.1	Impact of number of cable's equivalent networks on investigated	60
	characteristic at the motor terminals, Cable length = 50 m, V_{dc} is dc	
	bus voltage.	
4.2	Details of line to line voltage wave form at motor terminals.	61
	$f_c = 2$ Khz, $f_{out} = 60$ Hz	
4.3	Lightning and step-fronted surges.	63
4.4	Typical Motor cable system.	66
4.5	Flux distribution in the slot obtained with eddy current analysis.	72
4.6	Variation of self-inductance of individual turns with distance along	73
	the width of the slot.	
4.7	Variation of turn-to-ground capacitance of individual turns with	74
	distance along the width of the slot.	
4.8	Partially distributed equivalent circuit of the line-end coil.	75
4.9	Simulated inverter output voltage and motor terminal voltage with	76
	100 foot long cable.	
4.10	Experimental results of a PWM Induction motor drive with 100	77
	foot long cable between the inverter and the motor.	
4.11	Simulated inverter output voltage and motor terminal voltage with	78
	50 foot long cable.	
4.12	Simulated inverter output voltage and motor terminal voltage with	n 78

	10 foot long cable.	हि स्वयंशीय सन्दरम्
4.13	Experimental results of a PWM Induction motor drive with 10 foot	79
	long cable between the inverter and the motor.	University
4.14	Line-end coil voltage with 10 foot cable.	80
4.15	Line-end coil voltage with 100 foot cable and 0.2 μ s rise-time.	80
5.1	Equivalent circuit of an Induction motor	87
5.2	Harmonic equivalent circuit of an Induction motor	92
5.3	Blocked rotor simplified Induction motor equivalent circuit	95
5.4	No load simplified Induction motor equivalent circuit	96
W.3	Three phase 24-slots, 2-pole winding.	104
W.4	Three phase 24-slots, 4-pole winding.	105
6.1	Measurement of voltage waveforms.	106
6.2	Experimental setup for loading the motor	109
6.3	Experimental setup for loading the motor	110
6.4	Measuring Instruments	111
6.5	Dynamometer for loading the motor.	112
6.6	Dynamometer for loading the motor.	113
6.7	Waveform recording at ERDA.	121
6.8	Waveform recording at ERDA.	122
7.1	Critical cable length vs rise time	163

•

MEH

.