LIST OF TABLES

Table	Title of the Table	Page No.
No.		
CHAPTER 2 THEORY AND REVIEW OF EXPERIMENTAL WORK		
2.1	Different nitriding processes at a glance	40
CHAPTER 3 EXPERIMENTAL WORK		
3.1	Material specifications of the test specimens	60
3.2	Chemical composition of the steel used as per grade En-24	60
3.3	Heat treatment parameters at a glance	62
3.4	Mechanical properties of the base material after heat treatment	63
3.5	Specifications of rotary bending fatigue testing machine used	70
3.6	Design of Experiments as per statistical guidelines	72
3.7	Geometry configurations considered for analysis	78
3.8	Properties assigned to the base material & phases in compound layer	78
CHAPTER 4 RESULTS AND DISCUSSION		
4.1	Data on coating thickness / case depth for specimens of different surface treatments	82
4.2	Data on surface roughness (R _a value) for specimens of different surface treatments	85
4.3	Surface hardness for specimens of different surface treatments	85
4.4	Data on microhardness for plasma nitrided specimens	85
4.5	S-N data for base material / untreated specimens	95
4.6	S-N data for hard chrome plated specimens	95
4.7	S-N data for thermally sprayed (with alumina) specimens	96
4.8	S-N data for plasma nitrided specimens with white layer of thickness <10 micron	96
4.9	S-N data for plasma nitrided specimens with white layer of thickness >10 micron	96
4.10	S-N data for plasma nitrided specimens without any white layer	96
4.11	Data on Basquin pre-exponents and post-exponents for untreated and	97
4.12	various surface treated specimens Data used for composite beam analysis	129
4.13	Results of composite beam analysis	129
4.14	Max. normal stresses developed in single layer of Fe ₄ N	132
4.15	Max. normal stresses developed in single layer of Fe ₂₋₃ N layer	132
4.16	Max normal stresses developed in single layer of Fe_4N and composite white layer of $Fe_4N + Fe_{2-3}N$	133