1. Record Nr. UNICASCFI0381875

Autore	Gigante, Marcello <1923-2001>
Titolo	Altre ricerche filodemee / Marcello Gigante ; presentazione di Fulvio Tessitore
Pubbl/distr/stampa	Napoli, : G. Macchiaroli, 1998
ISBN	8885823238
Descrizione fisica	189 p. ; 20 cm
Collana	Biblioteca della Parola del passato ; 18
Disciplina	881.01
Soggetti	Filodemo
Lingua di pubblicazione	Italiano
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Già pubbl.

2. Record Nr. UNINA9911006692103321

Autore	Nicholas T (Theodore)
Titolo	High cycle fatigue : a mechanics of materials perspective / / Theodore Nicholas
Pubbl/distr/stampa	Oxford, : Elsevier, 2006
ISBN	1-280-64103-7 9786610641031 0-08-045887-4
Descrizione fisica	1 online resource (657 p.)
Disciplina	620.1126
Soggetti	Materials - Fatigue Materials - Dynamic testing
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front cover; Title page; Copyright page; Table of contents; Preface; Part One Introduction and Background; 1 Introduction; Historical background; What is High Cycle Fatigue?; HCF design considerations; HCF design requirements; Root causes of HCF; Field failures; Damage tolerance; Application to HCF; Current status; Field experience; 2 Characterizing Fatigue Limits; Constant life diagrams; Gigacycle fatigue; Characterizing fatigue cycles; Fatigue limit stresses; Equations for constant life diagrams; Haigh diagram at elevated temperature; Role of mean stress in constant life diagrams Jasper equationObservations on step tests at negative R; 3 Accelerated Test Techniques; Historical background; Coaxing; Early test methods; Step test procedures; Statistical considerations; Influence of number of steps; Validation of the step-test procedure; Observations from the last loading block; Comments on step testing; Staircase testing; Probability plots; Statistical analysis; Dixon and Mood method; Numerical simulations; Sample size considerations; Construction of an "artificial" staircase; Other methods; Random fatigue limit (RFL) model; Data analysis Summary comments on FLS statisticsConstant stress tests; Run-outs and maximum likelihood (ML) methods; Resonance testing techniques; Frequency effects; Part Two Effects of Damage on HCF Properties; 4

LCF-HCF Interactions; Small cracks and the Kitagawa diagram; Behavior of notched specimens; Effects of LCF loading on HCF limit stress; Studies of naturally initiated LCF cracks; Crack-propagation thresholds; Overloads and load-history effects; An overload model; Analysis using an overload model; Examples of LCF-HCF interactions; Design considerations; LCF-HCF nomenclature
Example of anomalous behaviorAnother example of anomalous behavior; Combined cycle fatigue case studies; 5 Notch Fatigue; Introduction; Stress concentration factor; What is kt?; Fatigue notch factor; kf versus kt relations; Equations for kf; Fracture mechanics approaches for sharp notches; Cracks versus notches; Mean stress considerations; Plasticity considerations; Negative mean stresses; Fatigue limit strength of notched components; Non-damaging notches; Size effects and stress gradients; Critical distance approaches; Analysis methods; Effects of defects on fatigue strength
Notch fatigue at elevated temperature6 Fretting Fatigue; Introduction; Observations of fretting fatigue; Representing total contact loads, Q and P; Load and stress distributions; Effects of local and bulk stresses on stress intensity; Mechanisms of fretting fatigue; Mechanics of fretting fatigue; Stress analysis of contact regions; Multiple crack considerations; Analytical solutions; Role of slip amplitude; Stress-at-a-point approaches; Fracture mechanics approaches; A combined stress and K approach; Comparison of fretting-fatigue fixtures; Role of coefficient of friction
Average versus local coefficient of friction

Sommario/riassunto

Dr Theodore Nicholas ran the High Cycle Fatigue Program for the US Air Force between 1995 and 2003 at Wright-Patterson Air Force Base, and is one of the world's leading authorities on the subject, having authored over 250 papers in leading archival journals and books. Bringing his plethora of expertise to this book, Dr Nicholas discusses the subject of high cycle fatigue (HCF) from an engineering viewpoint in response to a series of HCF failures in the USAF and the concurrent realization that HCF failures in general were taking place universally in both civilian and military engines. T