EIT Opto-Routing

Fiber bending fatigue

Overview

In order to identify the influence of high-dynamic stress on the lifetime of running fiber ropes, conventional low-dynamic bending tests were performed.

Fiber bending fatigue

(PDF) Fatigue Damage Modelling of Fibre-reinforced

Abstract This article presents a review of the major fatigue models and life time prediction methodologies for fibre-reinforced polymer composites,

Static fatigue lifetime of optical fibers in bending

An experimental program aimed at defining the effects of applied stress, temperature, humidity, and buffer coating on the static fatigue behavior of optical fibers in bending configurations is

Study on the Bending Fatigue Behavior of Single Aramid Fibers by a

Abstract In this paper, we report a bending fatigue testing apparatus which can test the bending fatigue resistance of single Kevlar 49 fiber by setting the pretension and bending angle.

Fatigue behavior and failure mechanism of 3D-printed continuous

Abstract This study investigates the fatigue behavior and failure mechanisms of 3D-printed polylactic acid (PLA) composites reinforced with continuous glass fibers under rotating bending

Statistical analysis of fiber failures under bending-stress fatigue

We have analyzed the failure data of a standard telecommunication optical fiber under static bending stress. Experimental data have been collected on a 468 day period, observing more than 7000 turns,

Bending fatigue of carbon-fiber-reinforced epoxy composite strands

Thebendingfatiguebehaviorofunidirectional,continuous-carbon-fiber/epoxycomposite strands has been characterized. The composite strands had a fiber volume fraction of 0.43 and a

Design Modifications to Increase Fatigue Life of Fiber Ropes

Abstract-Thispaperdescribesatwo-phaseprogramoncyclicbend-over-sheave(CBOS) fatigue testing of 40 mm diameter fiber ropes. A test method that simulates heavy marine CBOS applications

Bending fatigue and rope lifetime , verope

Bending fatigue tests are taken normally until the break of the rope or a strand. The exact point of discard can be determined by evaluating the single rope sections.

Predictive Damage Parameter for Fiber Ropes in CBOS Fatigue

Predicting the service life of high-strength fiber ropes in CBOS (cyclic bend-over-sheave) fatigue has been the subject of many recent studies. Accurate lifetime prediction is critical to reduce risk of

Experimental Study on Rotating Bending Fatigue Behavior of Carbon Fiber

As a result, this research aims to evaluate the fatigue behavior of hollow cylindrical specimens con-sisting of carbon fiber reinforced with an epoxy matrix for two alternative fiber lay-up configurations

On the effect of the load ratio on the bending fatigue of flax-fiber

This paper aims to contribute to the understanding of the fatigue behavior of unidirectional flax fiber-reinforced epoxy composites through systematic experimental investigations.

Bending Fatigue Strength and Lifetime of Fiber Ropes

Due to the fact that the lifetime of ropes is directly proportional to the number of bending cycles, the number of bending cycles should be as small as possible for each specific rope section.

Bending Behavior and Deflection Prediction of High

The experiments of high-strength steel-fiber-reinforced concrete (SFRC) beams subjected to fatigue bend loading were conducted in this work. A total o

Improving Bend-over-Sheave Fatigue in Fiber Ropes

This report details the results of bend-over-sheave fatigue testing on 18 mm diameter fiber ropes conducted at Cortland Cable Company. Cycles-to-failure data is presented for the fiber materials,

Cyclic fatigue of high strength optical fibers in bending

In this paper we describe results for the cyclic fatigue behavior of high strength fused silica optical fibers as a function of stress amplitude and frequency in the range of zero to 100 Hz.

Fatigue strength of synthetic rope: experimental methodology

In this context, CETIM and its industrial partners have launched, within a working group, a research program to evaluate the fatigue performance of synthetic ropes subjected to periodic

Experimental and Computational Analysis of Bending Fatigue Failure

This paper aims to explore the bending fatigue behavior of carbon fiber SMC composites by utilizing both experimental and numerical methods. First, four-point bending fatigue tests are performed with

Improving bend-over-sheave fatigue in fiber ropes , Request PDF

Abstract One of the limitations of synthetic fiber ropes in industrial uses has been the premature wear of these materials when subjected to continuous bend-over-sheave fatigue.

Influence of pulse duration on the fatigue behavior of a

In this work, several fatigue experiments, temperature analyses, and digital light optical microscopy were carried out to evaluate the influence of pulse

Influence of pulse duration on the fatigue behavior of a

In this work, several fatigue experiments, temperature analyses, and digital light optical microscopy were carried out to evaluate the influence of pulse duration on

Evaluation of fatigue properties of high-performance fibers based on

The main aim of this article is to introduce a bending fatigue testing apparatus and a new fatigue testing method, which can be used to characterize the bending fatigue behavior of flexible

Bending fatigue in high-strength fibre ropes

Bending fatigue tests on parallel lay (Parafil) ropes of the aramid fibre Kevlar 49, and helically laid ropes of Kevlar 29 and high-modulus polyethylene (HMPE) are reported.

Predictive Damage Parameter for Fiber Ropes in CBOS Fatigue

Predicting the service life of high-strength fiber ropes in CBOS (cyclic bend-over-sheave) fatigue has been the subject of many recent studies. Accurate lifetim.

Sheave-bending and tensile fatigue of aramid-fiber strength members

The bending-fatigue lifetimes of aramid fibers have been investigated often, both in rope constructions and in single fibers. The primary mechanisms identified as causes of strength

Fatigue strength of tubular carbon fibre composites under bending

Tsai-Hill based polynomial fatigue criterion predicts reasonably fatigue lives. Carbon fibre reinforced polymer composites have been increasingly used on structures frequently subjected to

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