Fiber Optic Grating Force Measuring Anchor Rod

Overview

The fiber grating force-measuring anchor rod device comprises an optical fiber, a rod beam and a hollow anchor rod, wherein at least one grating is arranged on the optical fiber, gratings are adhered onto the rod beam, the rod beam penetrates through the hollow anchor. The fiber grating force-measuring anchor rod device comprises an optical fiber, a rod beam and a hollow anchor rod, wherein at least one grating is arranged on the optical fiber, gratings are adhered onto the rod beam, the rod beam penetrates through the hollow anchor. The invention relates to a fiber grating force-measuring anchor rod device. A special FBG strain sensor with enhanced sensitivity has been designed and embedded in the centre line of an elastic structural body, which forms the main body of the. Abstract:This paper presents a novel anchor rod force sensor based on fiber Bragg grating (FBG) for accurate anchoring force measurement.

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Article Content

FIBER OPTIC CONSTRUCTION STANDARDS

Plate Anchor The Cross-Plate anchor is made for installation in holes drilled by power diggers. Because the size of the hole does not affect holding capacity, the same auger that is used to dig the pole

Bolt axial force monitoring based on fiber grating technology

Abstract Optical fiber sensors are widely used in long-term monitoring in complex environments due to their advantages of anti-electromagnetic interference, high temperature resistance and corrosion

CN202471318U

The fiber bragg grating force-measuring anchor rod apparatus utilizes the fiber bragg grating to collect deformation data of the anchor rod apparatus; and because the optical fiber itself has the advantages

Experimental study of anchor bolt stress evaluation with hybrid optical ...

Liang, Fang, Chen, Ma, and Li established the mechanical analysis model of fiber grating shear strain transmission, and derived the FBG force measurement anchor optical force

A Fiber Bragg Grating Anchor Rod Force Sensor for Accurate

A novel anchor rod force sensor based on fiber Bragg grating (FBG) for accurate anchoring force measurement and better applicability in the health monitoring of large civil engineering structures is

Optical fiber grating sensor for force measurement of anchor cable

The optical fiber grating sensor for force measure- ment of anchor cable (OFBFMAC) just developed was in our laboratory on hebasis of optical fiber grating technology and aiming the stress of anchor at

A New Self-Sensing Fiber Optic Anchor to Monitor Bolt

The above research creates a new application of optical fiber to the monitoring of anchor axial force, which has a positive effect on the analysis of the stress on

A Fiber Bragg Grating Anchor Rod Force Sensor for

PDF | This paper presents a novel anchor rod force sensor based on fiber Bragg grating (FBG) for accurate anchoring force measurement.

A Fiber Bragg Grating Anchor Rod Force Sensor for Accurate ...

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Mentioning: 3 - This paper presents a novel anchor rod force sensor based on fiber Bragg grating (FBG) for accurate anchoring force measurement. A special FBG strain sensor with enhanced sensitivity

Bolt axial force monitoring based on fiber grating technology

A novel fiber Bragg grating (FBG) sensor technology is proposed for use in mines, specifically designed to enhance the monitoring of anchor rods.

Bolt axial force monitoring based on fiber grating technology

The Bragg grating chain is connected and embedded into the anchor rod, which solves the problems that the surface-mounted grating anchor rod cannot be reused and is easily affected by the

Application of fiber Bragg grating sensors in anchor rods

Based on the optical fiber Bragg grating (FBG) sensor, with the experiment of the FBG sensor and the common sensor stuck on the anchor sod compared, the results show that the FBG

FBG (Fiber Bragg Grating) force measuring anchor rod and using

TL;DR: In this article, the fiber bragg grating is used to measure the lateral force of an anchor-rod lateral force and a measurement anchor rod formed by an anchor rod, a base plate, an optical cable and a

Design and Application of a Fiber Bragg Grating

This paper reports a novel extrinsic Fabry-Perot interferometer (EFPI)-based fiber optic sensor for force measurement. The prototype force

Load Transfer Law of Anti-Floating Anchor With GFRP

Abstract The glass fiber-reinforced polymer (GFRP) anchor, a new type of composite material anchor, has been widely used in foundation

A New Self-Sensing Fiber Optic Anchor to Monitor Bolt Axial Force

This paper presents a new self-sensing anchor with embedded optical fibers (made using an improved stirrer) and proposes an intelligent tunnel rock monitoring system.

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The fiber grating force-measuring anchor rod device comprises an optical fiber, a rod beam and a hollow anchor rod, wherein at least one grating is arranged on the optical fiber,...

Anchor rod for measuring optical fibre and grating

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The utility model provides an optical fiber grating measurement anchor rod which comprises an anchor rod, a gyrator, an optical fiber, a protection box and a double core engineering optical cable.

Optical fiber grating sensor for force measurement of anchor cable ...

The development of the sensor suitable for measuring large load stress to the anchor cable becomes an important task in bridge construction and maintenance. Therefore, a new type of

A load measuring anchor plate for rock bolt using fiber optic sensor ...

The use of an additional component and its costs may limit its usage, however. In this work, a smart anchor plate was proposed to measure the loading level of the rock bolt. The proposed

Bond behavior between concrete frame beam and large-diameter

Download Citation | Bond behavior between concrete frame beam and large-diameter glass fiber reinforced polymer (GFRP) anchor rod with built-in fiber Bragg grating sensor | Fiber reinforced ...

Design and Application of a Fiber Bragg Grating Tension Sensor for ...

A fiber Bragg grating (FBG) tension sensor for anchor rope has been proposed and implemented in the full-scale impact test of rockfall protection barriers in this paper. According to the measurement

A Fiber Bragg Grating Anchor Rod Force Sensor for Accurate ...

The mechanical structure design and measuring principle of the proposed anchor rod force sensor have been presented detailedly. Then a sensor prototype has been manufactured and fully tested.

Measurement of Cable Force through a Fiber Bragg

The key to evaluating the health status of cable-stayed bridges lies in the accuracy of cable force measurement. When measuring the cable force

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