

Principle of Fiber Optic Grating Anchor Bolt Force Gauge

The application of FBG sensing technology in bolt anchoring quality monitoring mainly focuses on the strain transmission mechanism between the optical fiber and bolt body and the optical

The real-time monitoring revealed that the axial force of the bolt obviously changed before and after compression. The axial force distribution curve can be divided into the stable zone, growth

Based on the innovative principle of integrating 0.25 mm diameter optical fibers into screws, studs, and other threaded rods, this system relies on a

Geotechnical monitoring of anchors provides fundamental data for analysis and evaluation to ensure safe environment. The use of optic fiber

This study provides an important basis for improving the understanding of a bolt anchoring mechanism and the stability control of a

Fiber Bragg grating (FBG) optical sensors have emerged as a leading technology for distributed strain and temperature measurement. Their unique attributes--compactness, immunity to electromagnetic

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

Structural health monitoring (SHM) is essential for ensuring the safety and longevity of civil engineering structures, particularly as many aging infrastructures face increased stress and

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

In this short communication, we propose a smart anchor plate, a simple but effective device that uses fiber Bragg gratings (FBG) type optic sensor, to monitor the load level of the rock bolt.

To enable users to fabricate a force-measuring rock bolt by themselves, the microclamped FBG sensor is proposed to replace the encapsulated bare FBG sensor. A theoretical

In this paper, a mine-used fiber Bragg grating anchor sensor technology is proposed.

The traditional bolt force status monitoring (BFSM) method has poor anti-interference performance, is easily

Principle of Fiber Optic Grating Anchor Bolt Force Gauge

affected by harsh downhole

2 Principle and properties of phase-shifted fiber Bragg gratings A fiber Bragg grating is a periodic alteration of core refractive index which is formed by exposure of the optical fiber core to a spatially

Based on the Fiber Bragg Grating (FBG) sensor detection technology, this paper carries out the pulling out the test of the anchor with different tensile strengths.

This paper presents a fiber optic, liquid level sensor system based on a pair of fiber Bragg gratings (FBGs), embedded in a circular silicone (PDMS--polydimethylsiloxane) rubber diaphragm.

Web: <https://in-au.co.za>

