

## 砂固结内锚头预应力锚杆试验研究及应用

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摘要 为将砂固结内锚头预应力锚杆推广应用到锚固工程中, 在长江三峡工程砂石料场及湖南凤滩电站地下厂房开展应用试验研究。通过三峡工程砂石料场边坡12根φ32 mm高强度材质锚杆现场试验研究, 提出此类锚杆的设计方法和施工工艺, 对其锚固的长期稳定性进行预应力监测。根据凤滩电站工程实际情况进行技术创新, 研究出一种刚性封口的新型砂固结内锚头预应力锚杆, 获得国家专利局授权发明专利。

关键词 [桩基工程](#); [砂固结内锚头预应力锚杆](#); [刚性封口](#); [预应力监测](#)

分类号

## EXPERIMENTAL STUDY ON SAND CONSOLIDATED ANCHORAGE PRESTRESSED BOLT AND ITS APPLICATIONS

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### Abstract

Sand consolidated anchorage prestressed bolt is composed of bolt, sand cylinder, steel circular plate, wooden sealed, trap, etc.. In order to apply sand consolidated anchorage prestressed bolt to anchorage engineering, experimental study is conducted in the Three Gorges Project on Yangtze River and underground caverns in Fengtan Hydropower Station. 12 bolts with high-strength materials and diameter of 32 mm are arranged in a granite slope in the Three Gorges Project. The experiments show that the tension of the bolt is over 300 kN; and the ultimate strength is about 540 kN. Design methods and construction techniques for sand consolidated anchorage prestressed bolt are provided according to the experimental study; and the prestress monitoring is carried out to test the bolt's long-term stability. Ten bolts with common materials are arranged in quartz sandstone slope in underground caverns in Fengtan Hydropower Station. The holes are drilled by different types of construction machinery. According to the experimental study in Fengtan Hydropower Station, new technologies such as a new type sand consolidated anchorage prestressed bolt with rigid seal to block sand are innovated, which has been authorized invention patents by Chinese Patent Office.

**Key words** [pile foundations](#); [sand consolidated anchorage prestressed bolt](#); [rigid seal](#); [prestress monitoring](#)

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