岩石力学与工程学报 » 2012, Vol. 31 » Issue (5) :963-972 DOI:



# 大型地下洞室锚索系统支护工程实践

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# ENGINEERING PRACTICE OF ANCHOR CABLES SUPPORTING TO LARGE-SCALE UNDERGROUND CAVERNS

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摘要 锚索支护系统是地下洞室围岩支护的主要类型之一，对于确保围岩稳定有着十分重要的意义。基于锦屏一级水电站地下厂房锚索支护工程实例，介绍洞室群的锚索支护设计和锚索负荷超限现象及统计成果，分析锚索超限的成因和降载措施。同时，给出锚索锁定吨位优化和变形控制复核的计算公式，推导出多锚头无黏结压力分散型锚索的应力计算公式。利用该计算方法，复核地下厂房锚索设计方案，并对超限锚索的安全性进行评价。

关键词： 地下工程 地下洞室 锚索支护 锚索承载力 安全评价

Abstract： Anchor cables supporting is one of the most leading measures for underground caverns，and it is fundamental to ensure the stability of surrounding rock mass. According to the practice of rock anchor cable to support side walls of underground powerhouse at Jinping I hydropower station，the design of anchor cables supporting and the statistical results on overloading of anchor cables are introduced，and the factors to cause this phenomenon as well as the measures to reduce the load are studied. The formulas to verify design proposal are also given，and the formula to compute stress of unbounded prestressed anchor cables of pressure dispersion style with more anchor heads is derived. These formulas and measures are used to verify design proposal，and evaluate safety of overloading cables.

Keywords： underground engineering underground cavern anchor cables supporting bearing capacity safety evaluation

Received 2011-11-29;



引用本文:

侯东奇，冯 梅，廖成刚，幸享林，臧海燕.大型地下洞室锚索系统支护工程实践[J] 岩石力学与工程学报, 2012,V31(5): 963-972

HOU Dongqi，FENG Mei，LIAO Chenggang，XING Xianglin，ZANG Haiyan.ENGINEERING PRACTICE OF ANCHOR CABLES SUPPORTING TO LARGE-SCALE UNDERGROUND CAVERNS[J] ，2012,V31(5): 963-972