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三峡船闸综合控制爆破技术

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摘要 三峡永久船闸土石方开挖量占三峡工程土石方开挖总量的40%。为确保深槽直立墙和高边坡岩体稳定并在既定的工期内优质完成船闸开挖任务，通过现场试验对爆破器材、爆破方式、各种爆破参数的选择、岩石爆破震速、围岩的保护层厚度等进行探索。研究包括深孔爆破、缓冲爆破在内的各种爆破方法的综合运用。试验结果表明深孔梯段孔间微差爆破、两次缓冲爆破、两次光面爆破、最终形成直立边墙的施工技术及采用非电起爆网路等槽挖综合爆破技术，较之采用预裂爆破一次开挖到位或其他方式，更为稳定、可靠、安全；试验成果满足工程质量和进度的要求，较好解决“永久船闸直立墙高边坡开挖”这一世界级施工技术难题。

关键词 爆破工程；控制爆破；永久船闸；三峡工程

分类号

COMPREHENSIVE CONTROLLED BLASTING TECHNIQUE FOR TGP SHIPLOCK

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Abstract

The earth and rock excavation volumes of the permanent shiplock account for 40 percent of the total of the whole Three Gorges Project(TGP). The study of the excavation technique is quite systematic and comprehensive to guarantee the construction success. The study includes the blasting gears and materials，blasting mode，parameters of blasting，initiating connection，control index of the velocity of particle vibration of rock，thickness of lateral preserved protective layer during trench excavation，thickness of the protective layer of bed rock，control index of initiating charge for single interval，assortment of explosive，construction tools and equipment as well as construction technology. The excavation technique adopted for the vertical walls is more reliable and much safer compared with the excavation mode such as pre-split blasting to excavate at one time or other modes. This technology is able to satisfy the requirements of construction quality and construction progress，successfully facing the challenge of the excavation of the world-class high vertical slopes of the permanent navigation shiplock.

Key words blasting engineering；control blasting；permanent shiplock；Three Gorges Project

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