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海底隧道工程设计施工若干关键技术的商榷

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摘要 介绍国内外跨海隧道工程建设现况及其设计施工和研究特色, 论述海床基岩工程地质、水文地质特征与综合地质勘察, 对影响海底隧道最小覆盖层厚度——隧道最小埋置深度进行讨论, 并就施工探水与治水、隧洞围岩防塌险情预报与预警——围岩稳定性评价, 以及施工期对隧道衬护原设计参数的调整与修正等问题作分析与探讨。同时, 对海底隧道衬砌结构选材, 耐腐蚀高性能海工混凝土, 以及公路与城市道路长、大海底隧道的防灾与救援等专门性问题阐述一点认识。最后, 对超大型盾构机长距离掘进与深水急流海底沉管隧道的设计、施工等列出其中的若干技术关键问题。所论述的各个方面的问题, 可供国内当前在建和待建的几座海底隧道设计与施工技术人员参考。

关键词 [海底隧道](#) [地质勘察](#) [施工探水与治水](#) [围岩稳定性](#) [施工变形险情预报](#) [衬护设计参数](#) [耐腐蚀混凝土](#) [防灾与救援](#)

分类号

DISCUSSION ON SOME KEY TECHNICAL ISSUES FOR DESIGN AND CONSTRUCTION OF UNDERSEA TUNNELS

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Abstract

Firstly, a brief information of domestic and abroad undersea tunnels as well as their designing, construction and special features of research work is presented. The comprehensive exploration techniques of engineering and hydrogeology of the seabed rock and the determination factors on minimum buried depth of the undersea tunnels are discussed. The problems are analyzed and addressed, which include exploration and treatment of the ground-water under tunneling, prediction and warning alarm against the collapse danger of the surrounding rock of undersea tunnels, and its stability evaluation, adjustment and correction on preliminary design parameters of tunnel lining during construction etc.. Secondly, some opinions on the technical problems of material selection for undersea tunnel lining(marine engineering concrete) with high quality and durable anti-corrosive property, disaster prevention and emergency aid for long and large undersea tunnels in highway and city expressway are presented. Some key issues related with excavation by a super-large shield machine and the design and construction of immersed tunnel in deep seawater and torrent conditions are also listed. Issues mentioned above may have a consulting value to design and construction of several undersea tunnels which are just under or awaiting for construction in China.

Key words [undersea tunnel](#) [geological investigation](#) [exploration and treatment of the ground-water in construction](#) [surrounding rock stability](#) [prediction and warning alarm of tunnel deformation during construction](#) [lining design parameters](#) [anti-corrosive concrete](#) [disaster prevention and emergency aid](#)

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