

挪威海底隧道经验在厦门海底隧道建设中的应用

Arild Palmstrom, 黄子平

(挪威顾问集团, Sandvika 1338, 挪威 散维克 1338)

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摘要 挪威在世界上拥有最多的海底隧道, 最近30 a 共修建了40条海底隧道, 总长达240 km。尽管大部分隧道位于较好的地层条件, 但也遇到与断层相关的复杂地质条件。挪威海底隧道规划与施工中的一个主要特点是封闭可能的渗水, 多年的实践发展出一套系统的探测和封闭渗水的方法, 挪威所有的海底隧道都应用了这一方法。据此, 介绍该方法, 同时介绍处理更为复杂地质情况的隧道建设经验, 包括防止隧道的进一步坍塌以及所采取的冻结地层方法, 进而还讨论有关把挪威海底隧道经验应用到厦门海底隧道规划与建设中的问题。厦门海底隧道某些段所处地质条件较差, 极具挑战性。挪威顾问集团专家协助并正参与把挪威经验应用到厦门海底隧道的建设中去。

关键词 [海底隧道](#); [挪威海底隧道经验](#); [厦门海底隧道](#); [封闭可能的渗水](#); [预灌浆](#); [坍塌](#); [地层冻结](#)

分类号

APPLICATION OF NORWEGIAN SUBSEA TUNNEL EXPERIENCES TO CONSTRUCTION OF XIAMEN XIANGCAN SUBSEA TUNNEL

Arild Palmstrom, HUANG Ziping

(Norconsult AS, Sandvika 1338, Norway)

Abstract

Norway has the largest number of subsea tunnels in the world. During the last 30 years, more than 40 subsea tunnels have been constructed, totaling more than 240 km. Though most of these tunnels are located in fair to good ground conditions, some challenging ground conditions have been encountered in connection with faults. A main feature during planning and construction of the Norwegian subsea tunnels is sealing the potential inflowing water. A systematic method for detecting such water in time and to seal it has been developed and refined over the years, and has been used in all Norwegian subsea tunnels. This is presented together with few of the more problematic construction

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experiences to prevent a cave-in to further develop and that involving ground freezing. Further, the application and implementation of the Norwegian experiences are discussed in the planning and during construction of the Xiamen Xiang'an subsea tunnel, located in partly problematic and challenging ground conditions. The application of the Norwegian experiences is assisted through the consulting services provided by Norconsult experts during the tendering and the ongoing construction of the Xiang'an subsea tunnel.

Key words [subsea tunnel](#); [Norwegian subsea tunnel experiences](#); [Xiang'an subsea tunnel](#); [sealing of potential inflowing water](#); [pre-grouting](#); [cave-in](#); [ground freezing](#)

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