

Title (en)
DESIGN METHOD AND SYSTEM FOR ACTIVE CONTROL TYPE WATERPROOF AND DRAINAGE SYSTEM OF SUBSEA TUNNEL

Title (de)
ENTWURFSVERFAHREN UND -SYSTEM FÜR EIN ABDICHTUNGS- UND ENTWÄSSERUNGSSYSTEM MIT AKTIVER STEUERUNG EINES UNTERWASSERTUNNELS

Title (fr)
PROCÉDÉ ET SYSTÈME DE CONCEPTION D'UN SYSTÈME D'ÉTANCHÉITÉ ET DE DRAINAGE DE TYPE À COMMANDE ACTIVE D'UN TUNNEL SOUS-MARIN

Publication
EP 3599343 A1 20200129 (EN)

Application
EP 19188578 A 20190726

Priority
CN 201810845980 A 20180727

Abstract (en)
The present invention discloses a design method and system for an active control type waterproof and drainage system of a subsea tunnel. The method includes: acquiring an engineering parameter of the subsea tunnel and an allowable drainage capacity of the subsea tunnel (101); determining an original seepage capacity of a tunnel surrounding rock according to the engineering parameter of the subsea tunnel (102); determining whether the original seepage capacity of the tunnel surrounding rock is greater than the allowable drainage capacity of the subsea tunnel (103), and if yes, acquiring structural seepage capacities of the tunnel corresponding to a plurality of different waterproof and drainage measures, and calculating water loads borne by the plurality of different waterproof and drainage measures (104); and, determining the active control type waterproof and drainage system according to the structural seepage capacities of the tunnel and the water loads (105). The design method and system provided by the present invention can reduce the subjectivity of the waterproof and drainage design of the subsea tunnel and improve the scientificity thereof, and at the same time, avoid waste, and eliminate safety hazards in tunnel construction due to unreasonable design.

IPC 8 full level
E21D 11/38 (2006.01); **E21F 16/02** (2006.01)

CPC (source: CN EP)
E21D 11/38 (2013.01 - CN EP); **E21F 16/02** (2013.01 - CN EP)

Citation (search report)

- [X] CN 107806350 A 20180316 - UNIV CENTRAL SOUTH
- [X] CN 102628372 B 20140730 - UNIV CENTRAL SOUTH, et al
- [X] CN 207093138 U 20180313 - CN RAILWAY SIYUAN SURVEY & DES
- [A] LI PENGFEI ET AL: "Investigation of steady water inflow into a subsea grouted tunnel", TUNNELLING AND UNDERGROUND SPACE TECHNOLOGY, ELSEVIER SCIENCE PUBLISHING, NEW YORK,NY, US, vol. 80, 19 June 2018 (2018-06-19), pages 92 - 102, XP085439291, ISSN: 0886-7798, DOI: 10.1016/J.TUST.2018.06.003
- [A] ZHANG WEI ET AL: "On the non-Darcian seepage flow field around a deeply buried tunnel after excavation", BULLETIN OF ENGINEERING GEOLOGY AND THE ENVIRONMENT, SPRINGER BERLIN HEIDELBERG, BERLIN/HEIDELBERG, vol. 78, no. 1, 20 April 2017 (2017-04-20), pages 311 - 323, XP036696294, ISSN: 1435-9529, [retrieved on 20170420], DOI: 10.1007/S10064-017-1041-4

Cited by
CN112883529A; CN114065362A; CN117421815A; CN117171863A; CN114969902A

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
EP 3599343 A1 20200129; CN 109026144 A 20181218; CN 109026144 B 20190705

DOCDB simple family (application)
EP 19188578 A 20190726; CN 201810845980 A 20180727