

# ROCK GROUTING – Theories and applications

Håkan Stille

This book provides a comprehensive presentation and explanation of the fundamentals of rock grouting. It offers an internationally applicable guide for engineers and geologists in grouting design, including interpretation of flow courses based on the theories of grout flow in rock fractures. The book represents a substantial contribution to the art of cement-based grouting and the content is relevant to both tunnelling and dam construction.

The book deals with how grout is used in rock fractures for sealing purposes. The properties of cement-based grout, including the rheology, penetrability and separation, are described and issues such as groundwater flow and hydrogeological investigations are briefly discussed. The theoretical background to specific phenomena, including hydraulic jacking, surface leakage and internal erosion, is also presented. There is a comprehensive description of a stepwise design strategy using the Real Time Grouting Control (RTGC) method based on the theories of grout spread. To consolidate our understanding of the fundamentals, four case studies of large-scale international tunnel and dam projects are presented and analysed.



**DR HÅKAN STILLE**, Professor Emeritus of Soil and Rock Mechanics at the Royal Institute of Technology (KTH) in Stockholm, has worked extensively in industry and academia. He has supervised more than 30 PhD students, of whom ten have studied rock grouting from different perspectives. He has also been involved in geotechnical engineering work throughout the world for more than 40 years.

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Photo: Mikael Ullén

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