

Optimising Kalvebod Brygge cloudburst pumping station

Physical scale model tests help in validation
of safety and performance

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**Improved
hydraulic performance**



**Validated the safety and efficiency
of the basic design of the pumping
station**



**Helped the client meet all
international guidelines**

Challenge

The new Kalvebod cloudburst tunnel will be established under the central part of Copenhagen, Denmark, in order to handle extreme cloudburst rain fall events and prevent flooding in the city. A key element in the new tunnel system is the Kalvebod pumping station that will be constructed at the Copenhagen harbourfront at Kalvebod Brygge.

Our client Grundfos A/S will deliver the six pumps for which they have also designed the bell mouth inlet and will deliver the column pipes. Furthermore, they have also validated and optimised the electrical design of the pumping station.

Solution

As part of this deliverable for the Kalvebod pumping station, Grundfos A/S has the responsibility to validate and optimise the hydraulic performance of the pumping station. For this, Grundfos A/S contacted DHI for assistance on the hydraulic assessment and physical scale model tests.

To ensure safe and efficient hydraulic function and performance under all operating conditions, the pumping station physical scale model was put through an intensive and comprehensive test campaign at the model test facilities at DHI's headquarters in Hørsholm, Denmark.

The model tests were carried out in close collaboration with our client who contributed greatly to the project development and successful execution. In addition, both HOFOR and HOFOR's consulting team consisting of NIRAS A/S and Jacobs followed the project closely.

GRUNDFOS 

'The DHI team responded to our request for physical scale model tests with a technical high-quality proposal. They managed to carry out a complex model build and instrumentation of the pumping station model and provided detailed and continuous feedback on performance during fabrication, instrumentation and testing.'

Jens Bjerritsgaard, Head of Project Department
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