

Anchor load monitoring for the New Bözberg Railway Tunnel



Webcam-picture of retaining wall

The new Bözberg railway tunnel will serve as a 4-meter corridor that will be added to the Gotthard route in order to promote transalpine freight transport from road to rail. The largest sub-project within this plan is the replacement of the existing Bözberg tunnel in Switzerland with a new twin-track tunnel. Sisgeo has supplied since begin 2016 anchor load cells to the main contractor Implenia, one of Switzerland's leading construction and construction services company, to monitor ground anchors of the retaining wall at the Bözberg tunnel entrance. These electric load cells are electrical resistance anchor load cell. They consist of a ring-shaped stainless steel body that incorporates from 8 to 16 electrical resistance strain gauges in full bridge configuration (see [technical description](#)).

Typical applications include performance testing of anchor systems in tunneling or deep excavations. The cell design minimizes the sensitivity to the eccentric load. They have been

supplied to this project in a variety of ranges and diameters. The very stiff distribution plate largely ensures that the load is applied equally over the annular loading surface of the cell.

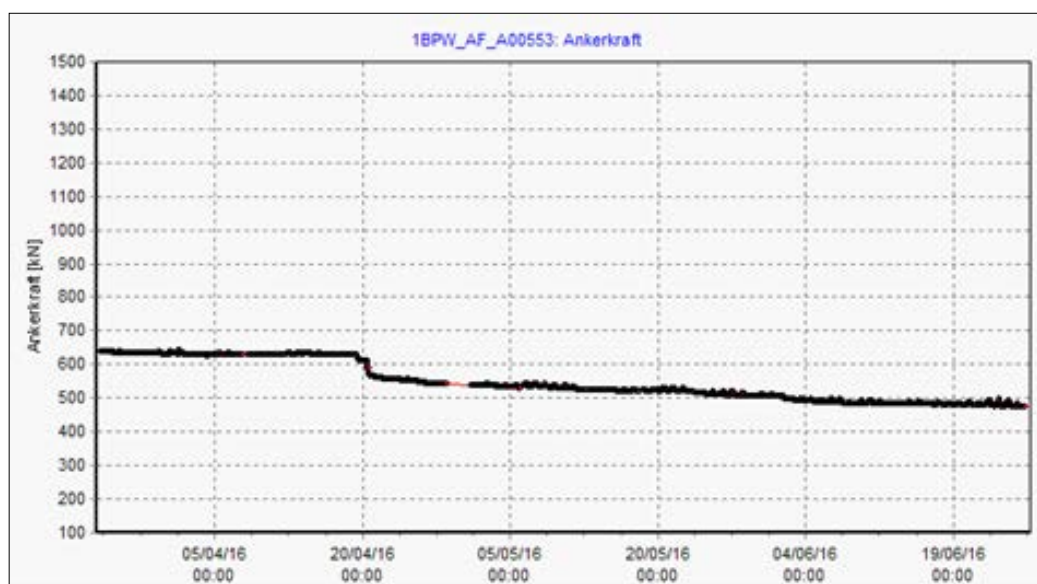
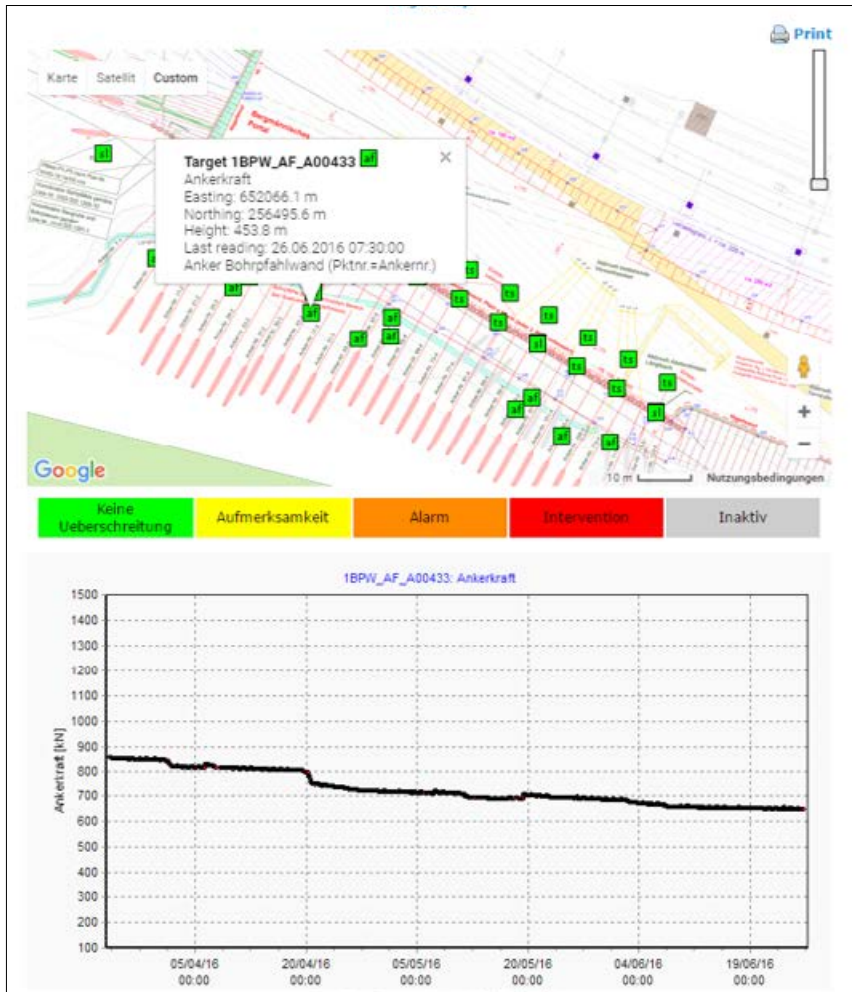
The load cells are measured manually during anchor tensioning using the CRD-400 readout unit. Then the load cells, together with other systems and sensors are automatically monitored.

For this specific project more than 30 load cells have been installed so far and have been handed out to the supplier of the anchors Stahlton AG. In the course of anchor tensioning, the load cells have been installed and first readings where taken. Readings show that only minor relaxation of the anchor forces and clear reaction of the anchor forces when anchors at lower levels are tensioned.



Sisgeo's electric load cell with load distribution plate

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On-line data management showing results of anchor load monitoring

LINKS:
SIGGEO
ANCHOR LOAD CELLS