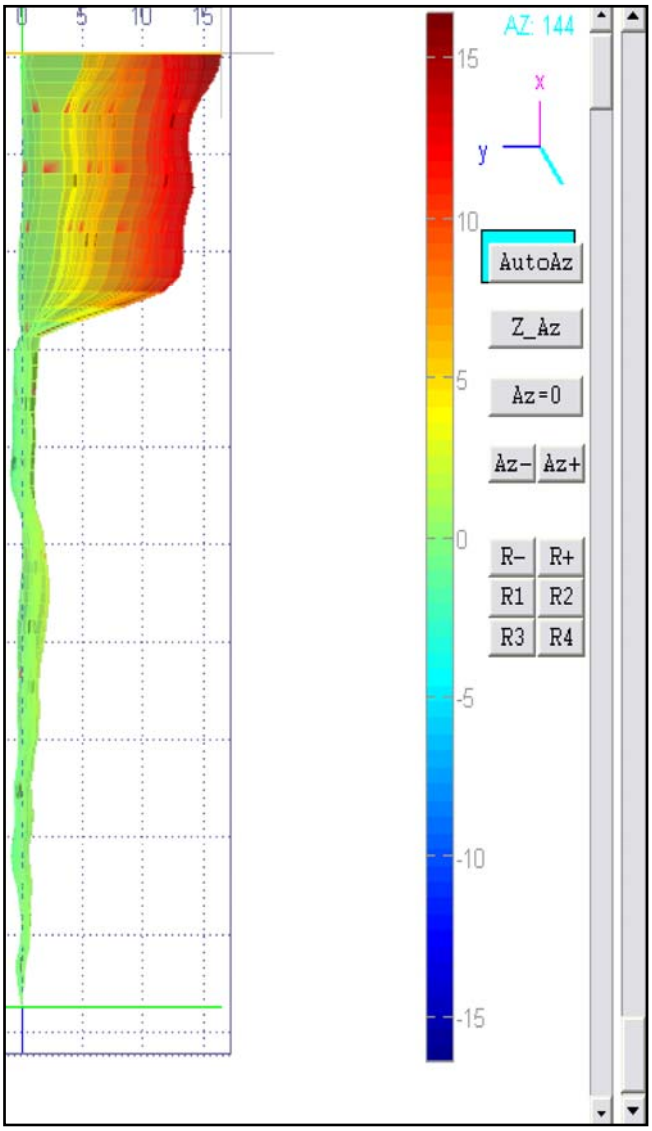
SHAPE ACCEL ARRAY™

The latest development in monitoring soil deformation.

- **Vertical or horizontal.**
- **One reading every 0,305m.**
- **Full 3D visualisation.**
- **Unmatched accuracy and long term stability.**
- **Based on the latest MEMS-chip technology.**

SAAF

The **ShapeAccelArray/Field** (**SAAF**) consists of an articulated chain of sensor elements (segments) each 0,305m or 0,500m long. The segments are joined together in such a manner that they can move in relation to each other in all directions except for twisting. Each segment contains a multi-axial MEMS-chip accelerometer. This makes the segment act as an extremely accurate inclinometer that determines the angle of inclination in both X- and Y-direction. Due to its articulated construction the SAAF is capable of following the deformation of the soil very precisely.



The diameter of the SAAF is only 25mm. Therefore it can be installed in a flexible PVC-pipe with an outside diameter of only 32mm.

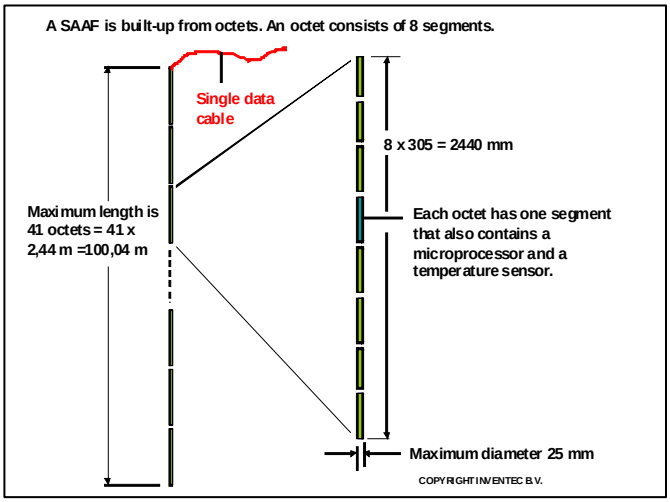
The SAAF operates in any desired position, so vertical or horizontal or at any angle in between. As not only the X- and Y-coordinates but also the Z-coordinates are determined, the SAAF provides the complete three-dimensional picture of the deformation. The SAAF is delivered with free-of-charge visualisation software packages for real-time monitoring and measurement at time intervals. The data can be readily exported to common software as MS-Excel and MS-Access.

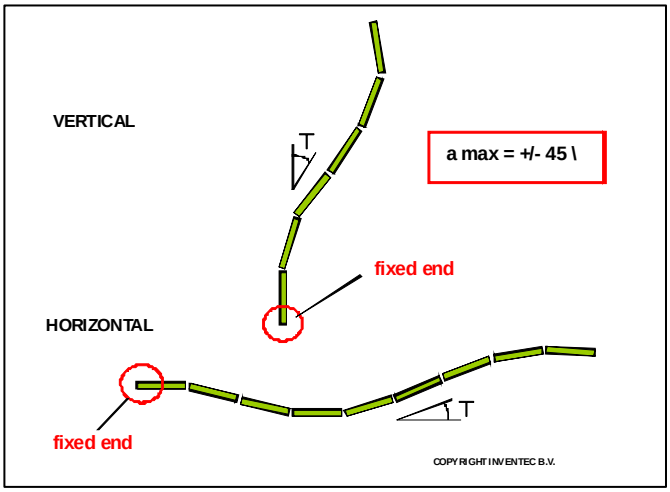
Via the flexible PVC casing the SAAF is in direct contact with the surrounding soil. Additional inclinometer casings are not required. As the complete SAAF is enclosed in a watertight housing, it can be installed in groundwater or even completely under water without any further protective measures.
However long the SAAF, there is only one single data cable. Due to its flexible construction the SAAF can be transported very conveniently on a drum. Its weight is only 0,5kg/m.

TECHNICAL SPECIFICATON

- Can be installed both vertically and horizontally.
- Length up to 100m.
- Measuring range per segment: +/- 45 degrees.
- Accuracy within 20 degrees inclination:
  +/- 1,5mm over 32 meters.
- Resolution: 0,001 degrees.
- No drift.
- Operating temperature: -40 to +85 degrees C.
- Waterproof to 100mwc.
- Diameter: 25mm.
- One reading every 0,305m or 0,500m.
- Flexible casing provides optimal contact with the surrounding soil.

Installation of a SAAF





APPLICATIONS

The SAAF is ideally suited for all cases where traditional in-place inclinometers are used or where the deformation is measured with a manual inclinometer (and even in cases where the use of traditional inclinometers would be impossible). In the first case the capital investment is far less, in the latter case the operational expenses are reduced to virtually zero.
Examples of applications are:

- Vertical soil settlement.
- Horizontal soil deformation.
- Deformation of quay walls and sheet piling structures.
- Slope stability.
- Stability of embankments, dikes.
- Determination of the 3D-shape of drillings and hollow grout injection anchors.

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