

# Monitoring of effects of constructional activities building diagnostics

Passportisation of buildings

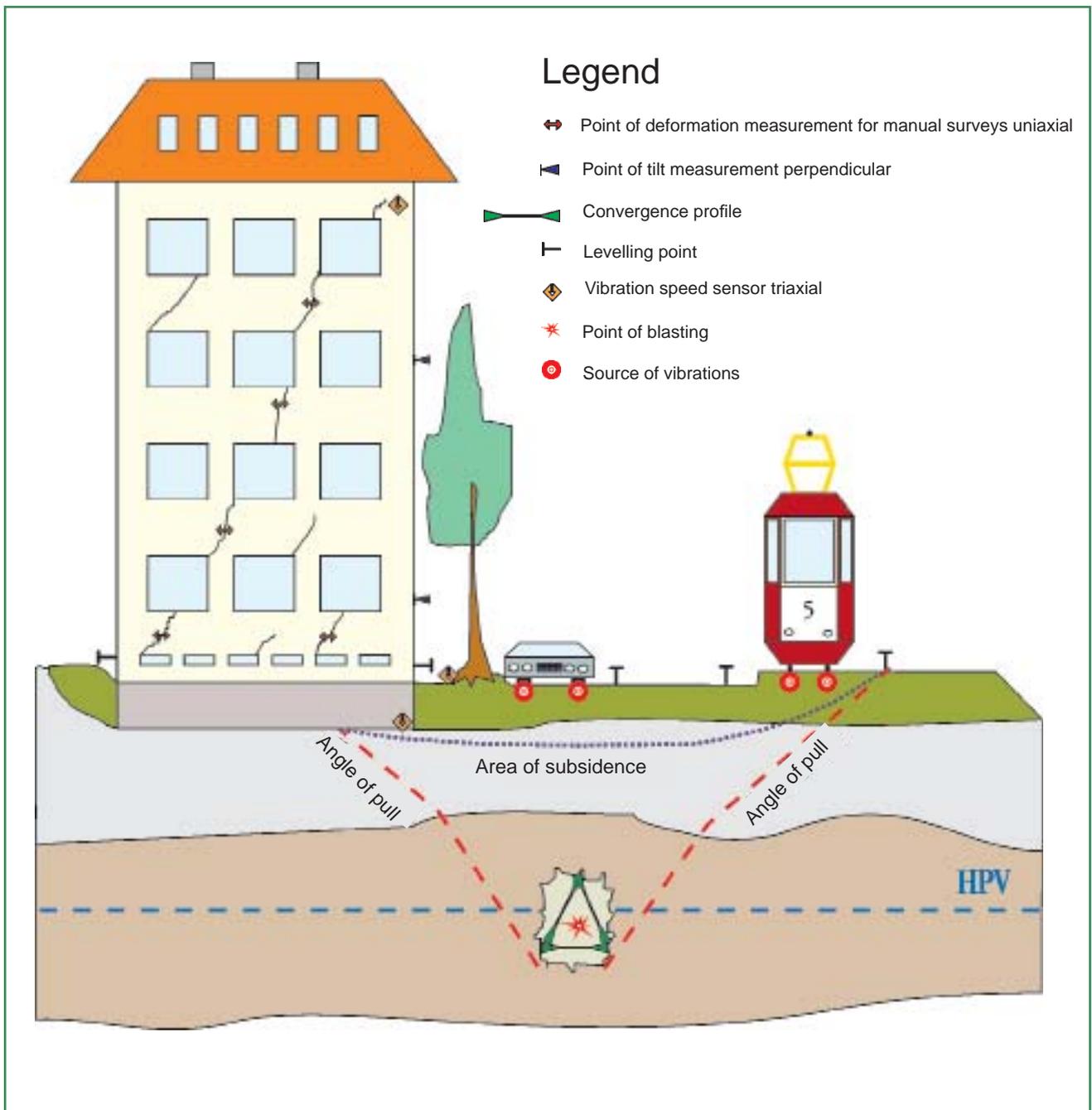
Deformation measurements

Tilt measurements

Geodetic surveys

Convergence measurements

Technical vibrations measurements





### Pasportisation of buildings

is used for recording of the condition (disturbance) of buildings using protocols, photo and video documentation. The output is a report of the inspection including the protocol and visual evidence. Passportisation is used e.g. for documentation of effects of construction on the selected building, expert opinions, monitoring projects when the results of passportisation are used to determine locations of probes and sensors for deformation and tilt measurements, etc.

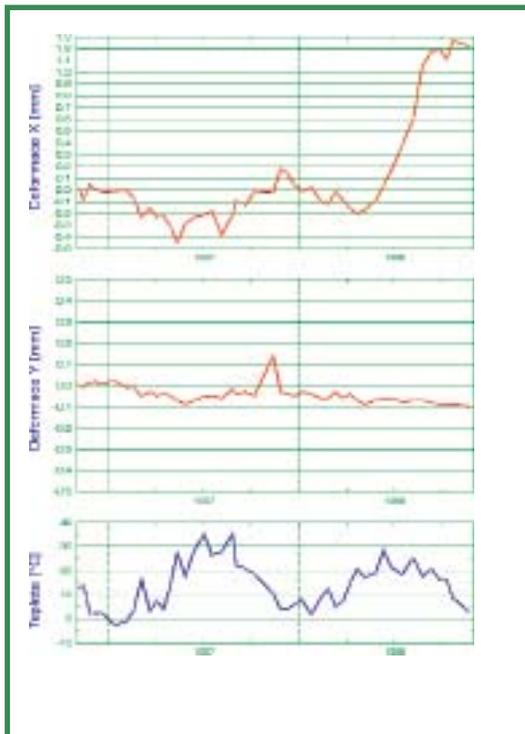
*Portable deformation gauge*



### Deformation measurements

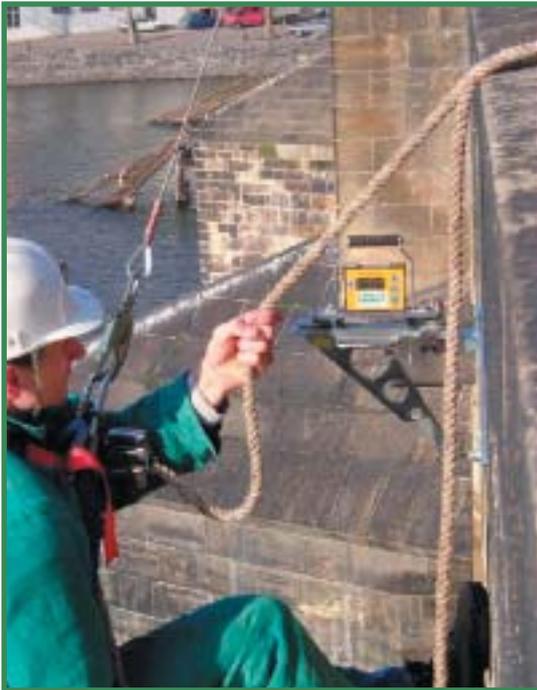
serve to determine development of existing clefts etc. Deformation measurement includes temperature measurement of the masonry at the point of the cleft. Results of deformation measurements are used for documentation of effects of construction on the selected building, expert opinions, etc.

*Deformation graph*



*Automatic measurement of cleft development*





Tilt measurements

## Tilt measurements

serve to establish changes in the tilt of bearing structures of the monitored object. The measurements are taken in two mutually perpendicular planes. Tilt measurement results are used for documentation of effects of construction on the selected building, expert opinions, etc.

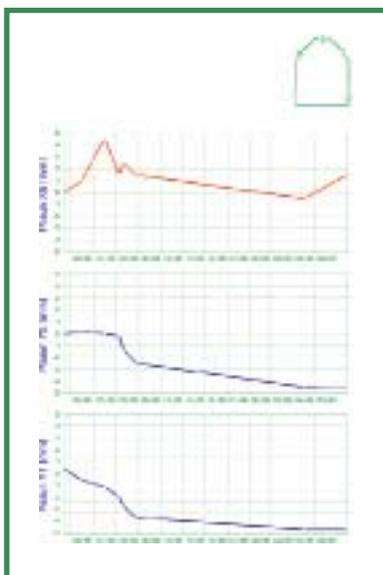
Tilt graf



## Geodetic measurements

serve to determine elevations, differences in elevation, vertical and horizontal shifts of monitored points stabilised in the terrain or on buildings. We deliver an array of geodetic measurements utilised in civil engineering, including surveys of underground areas and convergence measurements, in accordance with the requirement. Results of geodetic measurements are used for documentation of effects of construction on the selected building, expert opinions, etc.

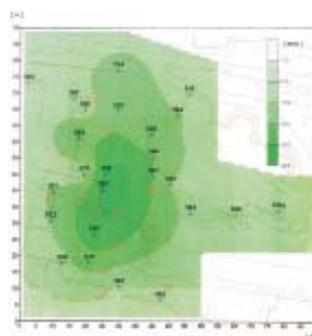
Geodetic measurement graph



Levelling measurement



KOLEKTOR

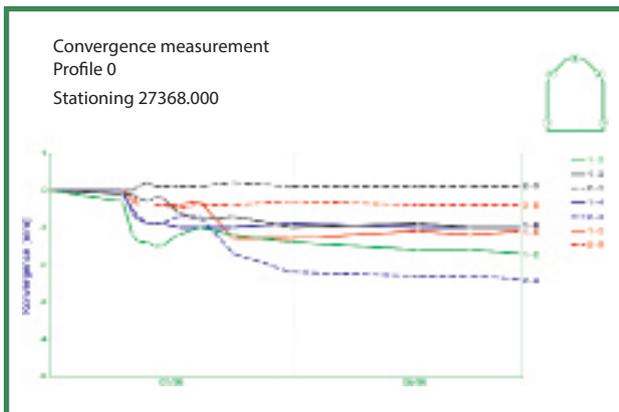


Map of a normal fault hollow during tunnelling and excavating

## Convergence measurements

are used to determine the alterations in the shape of the surveyed profile. Convergence measurements are used during construction or reconstruction of underground works, e.g. tunnels, sewers, collectors or similar utility drifts, channels or pits. It can also be utilised for reconstructions of underground structures such as manufacture halls or churches. Convergence measurements are used for the documentation of effects of construction on the selected building, expert opinions, operational work management, etc.

Convergence graph



Convergence measurement



## Technical vibration measurements

are used to assess the effects of mechanical oscillation of various sources (blasting, traffic, constructional machinery, other machinery etc.) on the surrounding buildings. The assessment compares the values obtained through measurements with standardised values or values given in expert opinions for the particular building. Combination with dynamic deformation measurement can yield decisive evidence of damage to an object caused by vibrations.

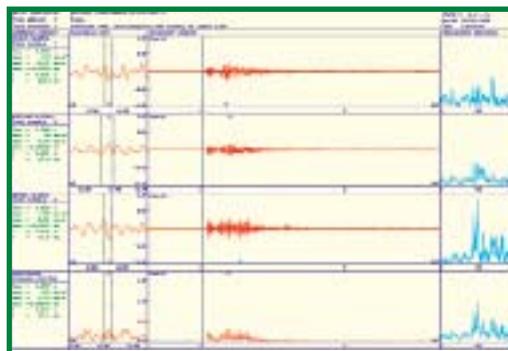


Vibration sensor on the wall



Vibration sensor in the wall

Seismic record



ENERGOTUNEL

