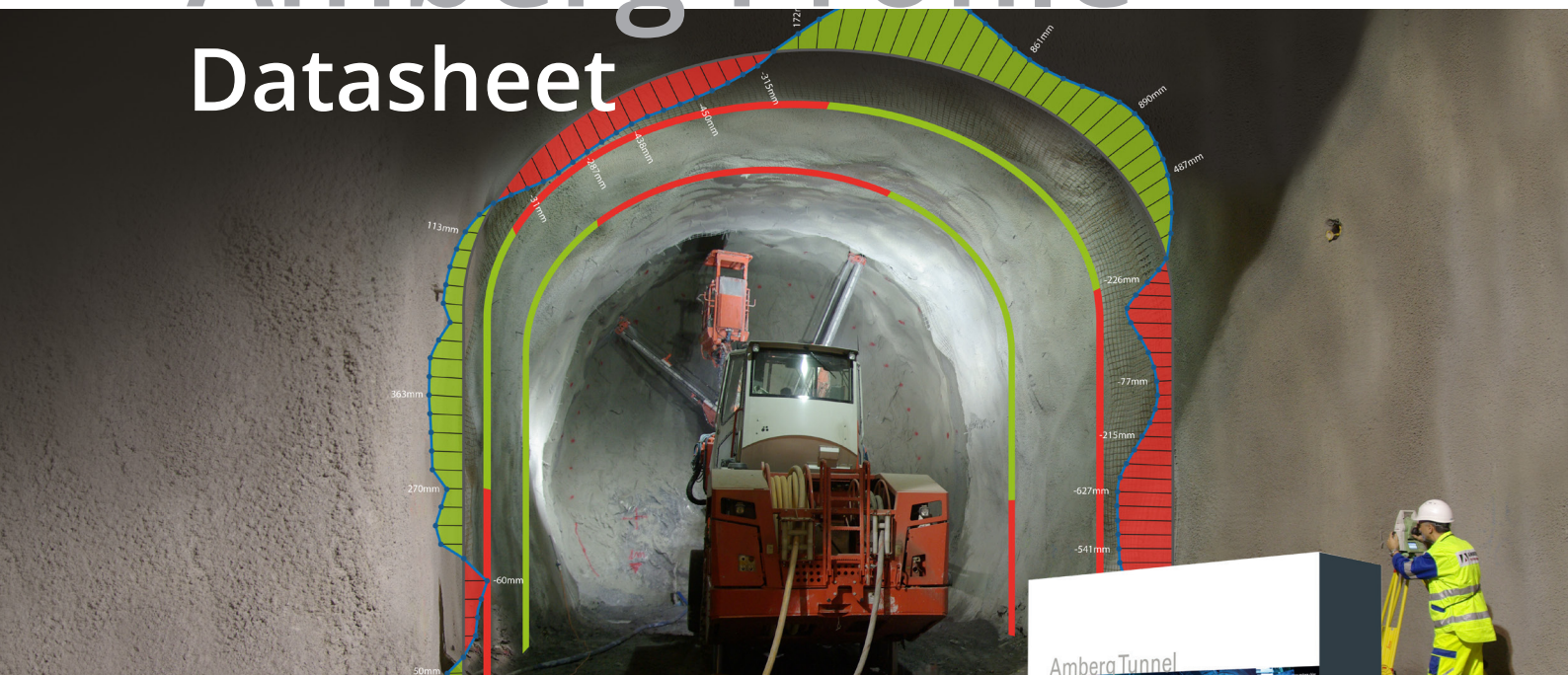


# Amberg Profile Datasheet

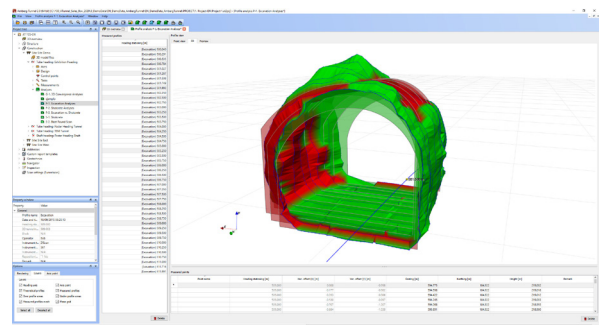
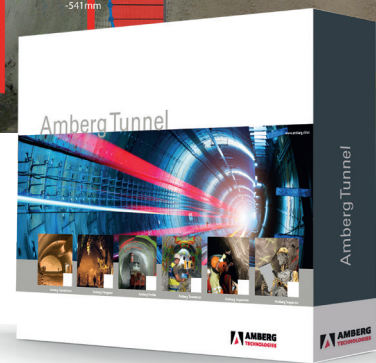


## Analysis has never been so easy!

Amberg Tunnel's Profile Module instantly converts measurements into results. All reports are easy to understand and tailored to tunnelling needs. Using Amberg Navigator or Amberg Applications for measurements guarantees a seamless workflow. This ensures trouble-free data transfer of measurements from the tunnel into the office and vice versa (e.g. for layer thickness analysis).

### Features

- Transforms profile measurements into relevant reports quickly and easily
- Fully integrated workflow with Amberg Navigator and Amberg Applications
- Flexible data import from all common measurement instruments (total stations and scanners)
- 3D visualization and fast interpretation of the results
- Offers all profile analysis necessary during tunnel construction: as-built, layer thickness, geological over-break, circularity
- Tools for TBM and drill&blast headings
- Export profile measurements to mesh for a smooth data transfer to BIM platforms



# Amberg Profile

## System Overview

Basic functions and features
Manage complex tunnelling projects within one Amberg Tunnel project (multiple axes and construction stages)
Data organized in construction stages (theoretical profiles, sections, transverse slope and blocks)
Support for all underground projects (incl. inclined tunnels (e.g. hydro-power projects) and vertical shafts)
Define theoretical profiles vertically or inclined relative to longitudinal profile
Comfortable and interactive project data input with direct graphical visualisation
Comprehensive import of project design (e.g. Cremer, LandXML, DXF, ASCII, TUN (SBG) or IFC)
Comprehensive profile editor for simplifying routine tasks (blow-up function, mirroring, drag and drop, split, etc.)
Support for transition zones between various profile geometries (linear or centroid-based interpolation)
Graphical visualisation of project geometry data in the 3D viewer
Automatic project data consistency testing on input
Axis calculator to transform absolute coordinates to axis coordinate system (2D / 3D) and back
Export axis and design for independent check (ASCII, PTS, OBJ, PLY)
Management of the control points for each drive, including history and quality checks
Project-specific adaptation of units (e.g. meters, international and US feet) and the display of decimal places
Integrated address management for personalised reports (e.g. contractor or client)
Construction progress logging for each construction stage
Project export to Amberg Navigator tablet (USB, Cloud), Amberg Applications, Leica RoadRunner, PPS, LandXML

Functions for profile measurement analysis	Basic	Plus
Automatic data synchronization with Amberg Navigator Tablet for trouble-free data transfer	✓	✓
Import of data from Amberg ProScan Plus (*.dbx) and profiles from Leica Roadrunner	✓	✓
Import of data from any type of ASCII file for quick access to measurement data	✓	✓
Profile extraction from point clouds (*.pts, *.xyz, *.sdb, Leica MS, *.zfs, *.fls, *.pcd, *.las, *.laz)	✓	✓
Management of measured profiles for each construction stage	✓	✓
Unlimited number of profile measurement analyses	✓	✓
Display of the block information for every profile	✓	✓
2D and 3D views of the profiles for a quick interpretation of results	✓	✓
Repositioning of measured profiles based on updated control point coordinates (for Amberg Navigator or Amberg Applications data)	✓	✓
Exclusion of areas using cross-section lines, section angles and distance between points	✓	✓
Tools to clean and correct measured points on profiles	✓	✓
Flexible profile filtering (based on measured date and stationing)	✓	✓
Merge data from multiple construction stages into one analysis	✓	✓
Project-specific reports allowing many settings for calculations and display	✓	✓
Calculation of the centre point of a circle (least squares point) for the measured profiles	✓	✓
Generation of graphical and tabular (incl. over and under break volumes) reports	✓	✓
Export of measured profiles in ASCII (Excel) including all calculated values	✓	✓
2D and 3D export of profiles to DXF	✓	✓
3D export of horizontal or vertical cutting planes to DXF		✓
Export measured profiles to mesh as *.obj and *.ply files for a smooth data transfer to a BIM		✓
Analysis of measured profiles in comparison to the design data (as built analysis)	✓	✓
Analysis of measured profiles as compared to measured profiles of a second construction stage (e.g. layer thickness analysis)		✓
Analysis of geological over-break (according to the Swiss SIA 198 standard)		✓
Analysis of circularity/ovalization compared to original design or best fit circle		✓