

AMBERG TAMPING

Precision surveying for efficient tamping operations



3D TAMPING SURVEYING SOLUTIONS FOR BALLASTED TRACK WORKS



Amberg Tamping with Amberg GRP FX II System

The mobile measurement systems from Amberg Technologies let you record track position errors quickly and efficiently in the construction and maintenance of ballasted tracks. Whether on high-speed lines or railway station tracks, Amberg Tamping always delivers correction data of the highest quality.

Designed for efficient tamping operations

Maintaining accurate track geometry is essential for safe railway operation, passenger comfort and efficient infrastructure management. To minimise track possession times and maximise maintenance productivity, railway operators require reliable correction data that can be generated quickly and accurately. Amberg Tamping streamlines this process by delivering precise measurement data that supports efficient tamping operations and long-lasting track quality.

Fast, flexible field surveying

Amberg Tamping is a portable measurement solution designed for rapid deployment in the field. Surveying can be carried out ahead of maintenance activities and seamlessly integrated into normal railway operations. By combining mobile hardware with efficient kinematic

measurement methods, the system can survey up to 4 km of track per hour, enabling tamping operations to start without unnecessary delays.

Why Amberg Tamping?

- End-to-end integration from field measurement to tamping machine data preparation
- High-precision measurement technology designed for demanding railway environments
- Modular system configuration tailored to project and customer requirements
- Proven measurement methods accepted for use on high-speed rail networks

Optimised to meet your needs

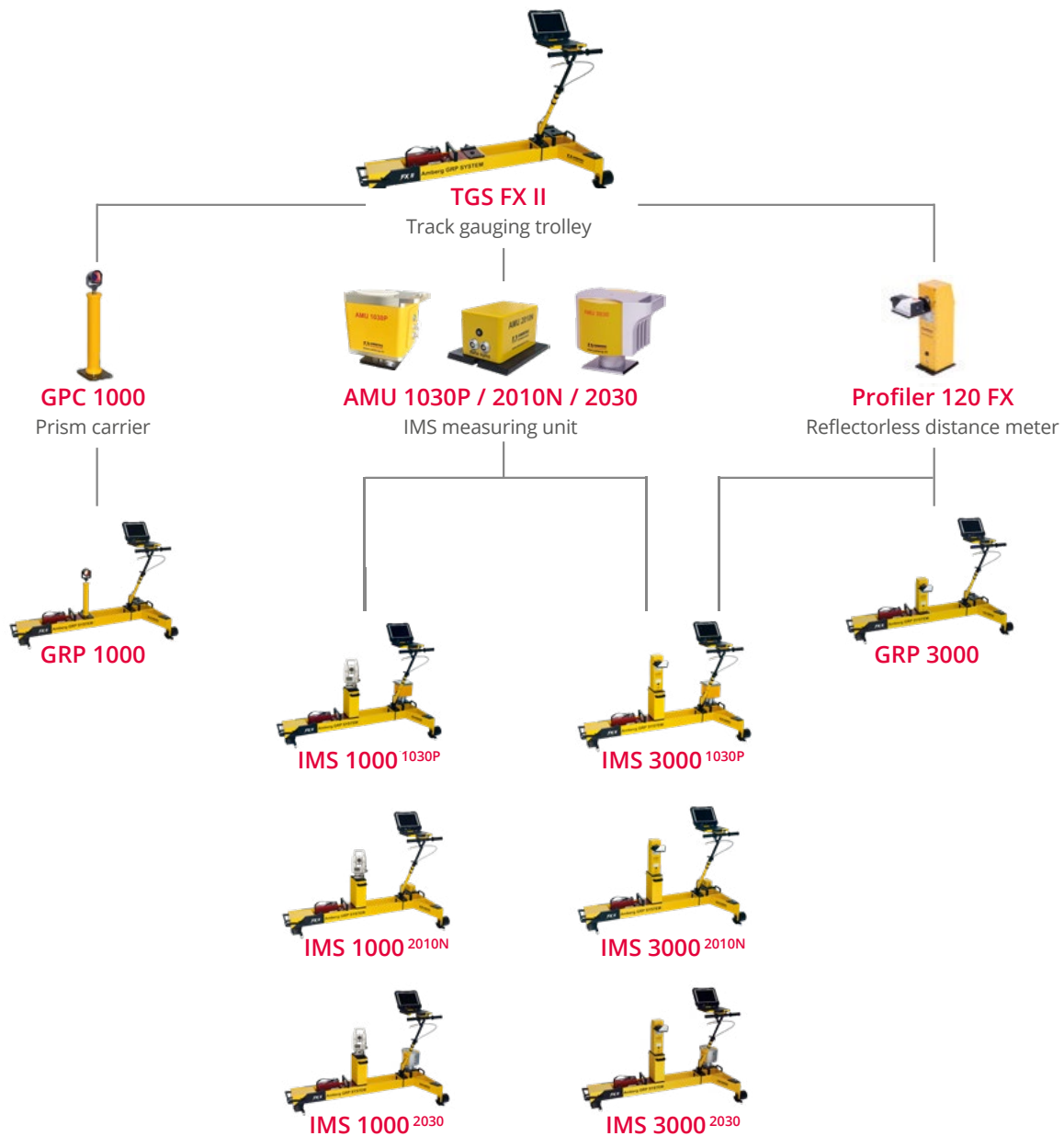
- Centralised management of project and measurement data
- Import of reference data from track layout plans or digital track databases
- Generation of lift and slew values in real time or for export to tamping machines
- Advanced editing tools for correction data preparation
- Comprehensive reporting and track geometry documentation

AMBERG TAMPING – MODULAR, SCALABLE, INTEGRATED

Amberg GRP System FX II

Amberg GRP System FX II is a modular measurement platform designed for accurate track geometry surveying and digital data acquisition. Thanks to its flexible architecture, the system can be configured to

match different project requirements and measurement methods, while integrating seamlessly into railway construction and maintenance workflows.



Amberg Tamping Software

IMS Add-on	Clearance Basic Option
TGR Add-on	
Amberg Tamping Plus	
Amberg Rail Basis Modul	

- **Clearance Basic Option**
Automated clearance surveying and analysis
- **TGR Add-on**
Track geometry record module for comprehensive reporting
- **IMS Add-on**
Data acquisition with IMS measuring module
- **Amberg Tamping Plus**
Application module for tamping surveying and correction data preparation for tamping machine
- **Amberg Rail Basic Module**
Project data management and general user settings

CHOOSE THE MEASUREMENT METHOD THAT BEST FITS YOUR PROJECT



Amberg FX II IMS 3000 1030

IMS – Inertial 3D Measurement

The Amberg IMS solution combines inertial measurement technology with advanced track geometry processing to deliver fast, accurate and reliable

correction data for tamping operations. Designed for efficient surveying in short track possession windows, IMS enables high-productivity data acquisition while maintaining the accuracy required for railway construction and maintenance.

Key benefits

- High-productivity measurement at speeds of up to **4.5 km/h**
- Accurate correction data for efficient tamping operations
- Ideal for construction, maintenance and track inspection
- Available in two hardware configurations:
 - **IMS 1000** – Total station and prism for proven geodetic positioning.
 - **IMS 3000** – Profiler 120 FX with reflectorless distance measurement for faster field workflows and efficient post-measurement of control points.
- Upgradeable platform that grows with operational needs
- Proven inertial technology successfully deployed on railway networks worldwide.



Amberg FX II GRP 1000

GRP – Geodetic 3D Measurement

The Amberg GRP solution combines high-precision total station positioning with proven track geometry measurement to generate accurate correction data for

pre-tamping surveys and reliable verification after tamping. Designed for projects where maximum absolute positioning accuracy is required, GRP provides a robust workflow from field measurement to correction file generation and acceptance reporting.

Key benefits

- High-precision geodetic measurement based on total station positioning
- Accurate correction data for pre- and post-tamping workflows
- Stop & Go and kinematic measurement modes
- Available in two hardware configurations:
 - **GRP 1000** – Total station and prism for high-precision track geometry surveys.
 - **GRP 3000** – Profiler 120 FX with reflectorless distance measurement for efficient control point acquisition, post-tamping verification and profile measurements.
- Direct export of correction files for major tamping machine manufacturers
- Comprehensive verification and acceptance reporting

FROM MEASUREMENT TO TAMPING



AMBERG RAIL – THE DIGITAL WORKFLOW BEHIND AMBERG TAMPING



One software platform

Manage projects, measurements and correction data from a single environment.

Guided workflows

User-guided processes reduce operator errors and improve consistency.

Direct tamping interfaces

Export correction files for Plasser, Matisa, Harsco and other supported tamping machines.

Advanced analysis

Visualise track geometry, compare design and as-built conditions, and validate results.

Acceptance reporting

Generate professional reports for documentation and quality assurance.

Open ecosystem

Support for total stations, GNSS and the latest Amberg measurement technologies.

SURVEYING MADE EASY

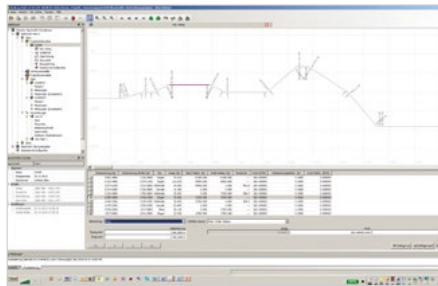
STEP BY STEP TO THE RESULTS YOU NEED

Step 1: Preparation

Efficient project data management

Logical and efficient management of survey data in a project is a central issue in the Amberg Rail solution. Among other things, this is achieved via the management of various track conditions. Survey data are allocated directly to the corresponding tracks.

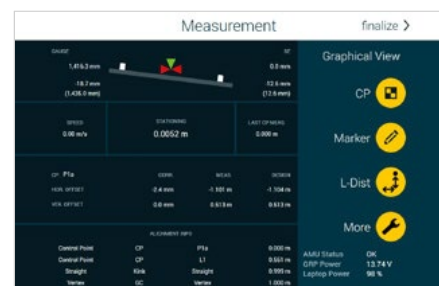
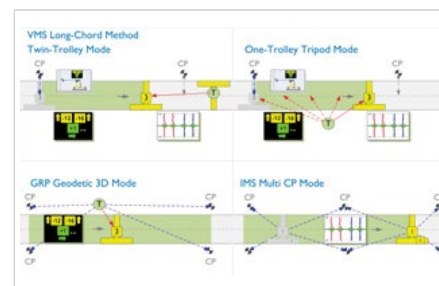
Line	Track	Condition	Survey Data
1.1-1.1.1	1.1.1	1.1.1	1.1.1
1.1-1.1.2	1.1.2	1.1.2	1.1.2
1.1-1.1.3	1.1.3	1.1.3	1.1.3
1.1-1.1.4	1.1.4	1.1.4	1.1.4
1.1-1.1.5	1.1.5	1.1.5	1.1.5
1.1-1.1.6	1.1.6	1.1.6	1.1.6
1.1-1.1.7	1.1.7	1.1.7	1.1.7
1.1-1.1.8	1.1.8	1.1.8	1.1.8
1.1-1.1.9	1.1.9	1.1.9	1.1.9
1.1-1.1.10	1.1.10	1.1.10	1.1.10
1.1-1.1.11	1.1.11	1.1.11	1.1.11
1.1-1.1.12	1.1.12	1.1.12	1.1.12
1.1-1.1.13	1.1.13	1.1.13	1.1.13
1.1-1.1.14	1.1.14	1.1.14	1.1.14
1.1-1.1.15	1.1.15	1.1.15	1.1.15
1.1-1.1.16	1.1.16	1.1.16	1.1.16
1.1-1.1.17	1.1.17	1.1.17	1.1.17
1.1-1.1.18	1.1.18	1.1.18	1.1.18
1.1-1.1.19	1.1.19	1.1.19	1.1.19
1.1-1.1.20	1.1.20	1.1.20	1.1.20
1.1-1.1.21	1.1.21	1.1.21	1.1.21
1.1-1.1.22	1.1.22	1.1.22	1.1.22
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1.1-1.1.62	1.1.62	1.1.62	1.1.62
1.1-1.1.63	1.1.63	1.1.63	1.1.63
1.1-1.1.64	1.1.64	1.1.64	1.1.64
1.1-1.1.65	1.1.65	1.1.65	1.1.65
1.1-1.1.66	1.1.66	1.1.66	1.1.66
1.1-1.1.67	1.1.67	1.1.67	1.1.67
1.1-1.1.68	1.1.68	1.1.68	1.1.68
1.1-1.1.69	1.1.69	1.1.69	1.1.69
1.1-1.1.70	1.1.70	1.1.70	1.1.70
1.1-1.1.71	1.1.71	1.1.71	1.1.71
1.1-1.1.72	1.1.72	1.1.72	1.1.72
1.1-1.1.73	1.1.73	1.1.73	1.1.73
1.1-1.1.74	1.1.74	1.1.74	1.1.74
1.1-1.1.75	1.1.75	1.1.75	1.1.75
1.1-1.1.76	1.1.76	1.1.76	1.1.76
1.1-1.1.77	1.1.77	1.1.77	1.1.77
1.1-1.1.78	1.1.78	1.1.78	1.1.78
1.1-1.1.79	1.1.79	1.1.79	1.1.79
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1.1-1.1.81	1.1.81	1.1.81	1.1.81
1.1-1.1.82	1.1.82	1.1.82	1.1.82
1.1-1.1.83	1.1.83	1.1.83	1.1.83
1.1-1.1.84	1.1.84	1.1.84	1.1.84
1.1-1.1.85	1.1.85	1.1.85	1.1.85
1.1-1.1.86	1.1.86	1.1.86	1.1.86
1.1-1.1.87	1.1.87	1.1.87	1.1.87
1.1-1.1.88	1.1.88	1.1.88	1.1.88
1.1-1.1.89	1.1.89	1.1.89	1.1.89
1.1-1.1.90	1.1.90	1.1.90	1.1.90
1.1-1.1.91	1.1.91	1.1.91	1.1.91
1.1-1.1.92	1.1.92	1.1.92	1.1.92
1.1-1.1.93	1.1.93	1.1.93	1.1.93
1.1-1.1.94	1.1.94	1.1.94	1.1.94
1.1-1.1.95	1.1.95	1.1.95	1.1.95
1.1-1.1.96	1.1.96	1.1.96	1.1.96
1.1-1.1.97	1.1.97	1.1.97	1.1.97
1.1-1.1.98	1.1.98	1.1.98	1.1.98
1.1-1.1.99	1.1.99	1.1.99	1.1.99
1.1-1.1.100	1.1.100	1.1.100	1.1.100



Step 2: User-guided surveying

Practical measuring procedures

In Amberg Rail, surveying procedures are controlled by defined processes with the aim of eliminating surveying errors. They are adapted to the various applications using simple and clear masks on the touchscreen.

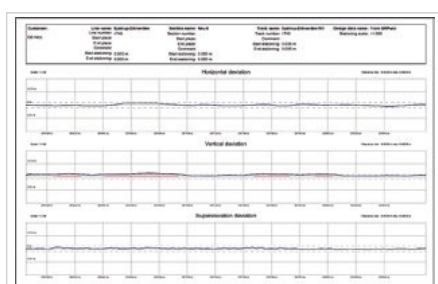
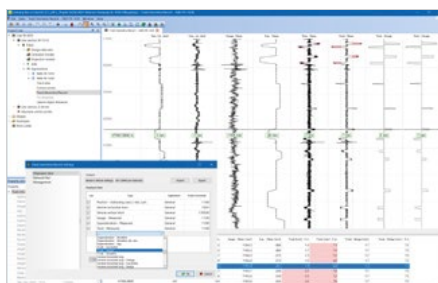


Step 3: Data analysis and reporting

Processing, analysis and preparation

Amberg Rail offers:

- simple processing and evaluation of survey data
- automatic merging of single track survey sections
- interactive correction data preparation for tamping machine
- data interfaces to tamping machines of Plasser, Matisa, Harsco
- National norms and customer specific requirements can be integrated into the existing solution.

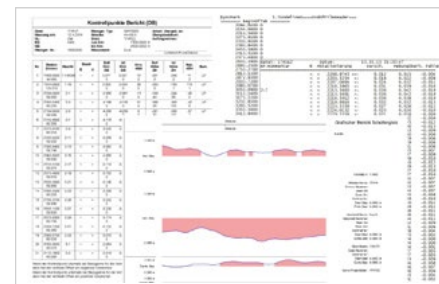
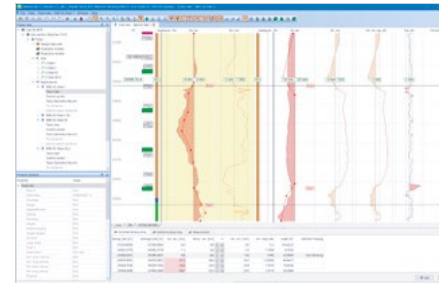


Amberg Track Geometry Record (TGR)

Sophisticated track geometry analysis

The Amberg TGR module «Track Geometry Record» offers:

- the user numerous options for protocoling the results of the track geometry analysis in the form of an established track measurement plot.
- the analysis and visualisation of more than 80 separate track geometry parameter.



Contributing to a smart use of space



Where experience and expertise open up new horizons

The Amberg Group is a unique knowledge, engineering and technology provider of logistics, constructions and infrastructures for smart cities, hubs and networks through innovative combinations of above and underground space usage.



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