AMBERG TECHNOLOGIES

Amberg Tamping Plus
GRP 1000 / 3000

The configuration consists of

- Premium hardware: GRP 1000 (track measurement) or GRP 3000 (measurement of track and control points)
- Application specific software Tamping Plus
- Robust and guaranteed precision thanks to GRP Fidelity
- First-class application support

Technical Data GRP 1000 / 3000 for Amberg Tamping Plus

System configuration	
Gauge (mm)	1000, 1067, 1435, 1520/24, 1600, 1668/76
Control point measuring device (GRP 3000)	Amberg Profiler 110 FX
TGS FX	
Gauge - for nominal gauges	- 25 mm to + 65 mm
Superelevation (Cant) - at 1435 mm	+/- 260 mm (+/- 10°)
Profiler 110 FX	
Control point distance	< 15 m
Sensor performance	
Track geometry measurement (Position, Gauge, Superelevation)	
Measurement stop&go - duration	TPS: 5 s GPS: 1 s
Measurement kinematic - data frequency	TPS: 7 Hz GPS: 10 Hz
System accuracy	
Determination of track position and height*)	
GRP with total station(TPS) - stop&go mode - kinematic mode	Pos./Height: +/- 1 mm +/- 5 mm
GRP with GPS - with reference station	Position: +/- 20 mm Height: +/- 40 mm

*)Typical project accuracy. Depending on e.g. atmospheric conditions, control point quality, positioning sensor and project conditions.

Cont. system accuracy	
Gauge	+/- 0.3 mm
Superelevation - stop&go mode - kinematic mode	 +/- 0.5 mm +/- 1.0 mm
Control point accuracy - relative to track axis - at a distance of 5 m	+/- 3 mm
Positioning	
Leica total stations - motorised, ATR - radio modem	TS30 TPS1200 TPS2000
Leica GPS	GPS1200
Power supply	
TGS FX – sensors	Leica GEB171, battery, rechargeable
Battery life*)	> 8 h
Panasonic control computer	Panasonic Li-Ion battery, rechargeable
Battery life*)	> 4 h
*) Depending on conditions.	
Environmental specifications	
Working temperature range	-10° to +50° C
Humidity - non-condensing	< 80 %
System weight	
GRP 1000 GRP 3000 - ready to measure - incl. battery and computer	27 kg 30 kg

System use and typical system performance

Tamping applications	
Typical track work applications	- New construction - Rehabilitation - Renewal - Maintenance - Tamping only
System use	- Track - Turnout systems, incl. structual gauge enlargement (e.g. FAKOP®)
Typical project performance	
Track survey with total station	800 – 1200 m/h
Track survey with GPS - GPS receiver and reference station necessary	3000 m/h
Control point survey - track offset report - average control point interval 60 m	1200 m/h
Tamping data (lift and slue values)	
Tamping data preparation - correction data calculation incl. ramping	< 10 min per 500 m
Tamping data formats - further formats on request	Plasser WinALC, DosALC, CGV5 Framafer BAO3 Matisa
System approval	
Unlimited electro-magnetic compatibility (PET wheels)	Approvals from: - Network Rail (UK) - Deutsche Bahn (DE) - ÖBB (AT) - RFI (IT) - etc.
Amberg Tamping reference extract	
Ambergs' Tamping solution has proven its high performance all over the world. Demanding projects have been successfully realised e.g. in Germany, Austria, Belgium, The Netherlands, Denmark, Italy, Spain, Greece, Turkey, Australia.	

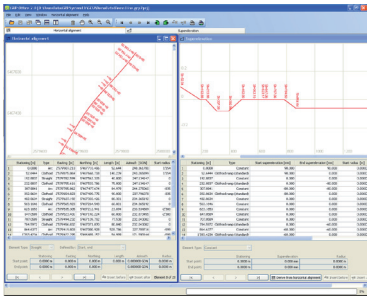
Amberg Tamping Plus

Amberg Rail 2.0

Amberg Tamping

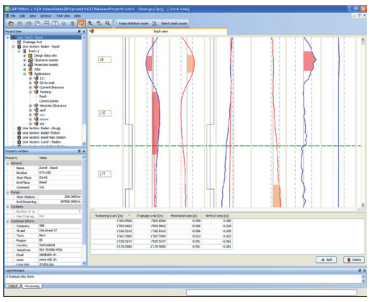
The perfect track with Amberg Tamping. High-performance system solution for track design based or control point based tamping survey.

Project data management



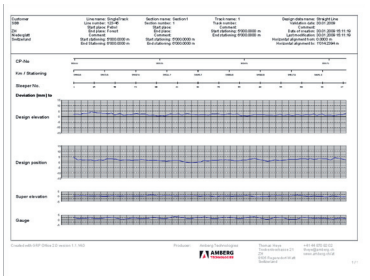
- Central database for input, visualisation and management of all track project data including route data chronology, control points and survey and construction progress.
- User-defined project definition either as manual input of the (relative) track axis data from a track layout plan or as (absolute) coordinate referenced track axis data directly from the database or design software.
- Prior definition of geometrical tamping parameters (e.g. max. lift, max. slue per run).

Surveying



- Automatic surveying of current track position including inner track geometry as basis for calculation of lift and slue values.
- All relevant track information available on track in real-time.
- Data logging in static or kinematic surveying mode, depending on project requirements – with surveying performance up to 3 km/h.
- GRP 3000: use of the Profiler 110 FX for control point surveying after completion of track work.

Evaluation



- Automatic survey data processing and evaluation – including automatic linking of subsequently surveyed sections.
- User friendly tamping data editor for interactive graphical data analysis and processing.
- Direct export of correction data for Plasser, Framafer and Matisa tamping machine control computers.
- Comprehensive reports of inner and outer track geometry analyses, including control point record.

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