

# Amberg Tamping GRP 3000



## The configuration consists of

- Premium hardware GRP 3000
- Application specific software Tamping Plus
- Robust and guaranteed precision thanks to GRP Fidelity
- First-class application support

## Technical data GRP 3000

System configuration		Cont. system accuracy	
Gauge (mm)	1000, 1067, 1435, 1520/24, 1600, 1668/76	Gauge	+/- 0.3 mm
Control point measuring device	Amberg Profiler I10 FX	Superelevation - stop&go mode - kinematic mode	+/- 0.5 mm +/- 1.0 mm
TGS FX		Control point accuracy	+/- 3 mm
Gauge - for nominal gauges	- 25 mm to + 65 mm	- relative to track axis - at a distance of 5 m	
Superelevation (Cant) - at 1435 mm	+/- 260 mm (+/- 10°)	Positioning	
Profiler I10 FX		Leica total stations - motorised, ATR - radio modem	TS15/16, TS30, TS50/60, MS50/60
Control point distance	< 15 m	Leica GPS	GPS1200, GS10/14/15/16/18
Sensor performance		Power supply	
Track geometry measurement (Position, Gauge, Superelevation)		TGS FX – sensors	GBS 1010, rechargeable > 8 h
Measurement stop&go - duration	TPS: 5 s GPS: 1 s	Battery life*)	
Measurement kinematic - data frequency	TPS: 7 Hz GPS: 10 Hz	Panasonic control computer Battery life*)	Li-Ion battery, rechargeable > 4 h
System accuracy		*) Depending on conditions.	
Determination of track position and height*)		Environmental specifications	
GRP with total station (TPS) - stop&go mode - kinematic mode	Pos./Height: +/- 1 mm +/- 5 mm	Working temperature range	-10° to +50° C
GRP with GPS - with reference station	Position: +/- 20 mm Height: +/- 40 mm	Humidity - non-condensing	< 80 %
		System weight	
		GRP 3000 - ready to measure - incl. battery and computer	30 kg

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

## 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. structural 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	1500 – 2500 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	
CE Conformity	EN 61326-1:2013 EN 61000-6-2:2005 EN 61000-6-4:2007/A1:2011 EN 60825-1:2014 EN 13848-4 Directives 2014/30/EU Directives 2014/35/EU Directives 2011/65/EU
GRP System FX approvals from	Network Rail / London Underground (UK), Deutsche Bahn (DE), SBB (CH), SNCF (FR), ÖBB (AT), RFI (IT), Adif (ES), ProRail (NL), Infrabel (BE)
Extract of references	
Amberg's railway surveying solutions have proven their high performance all over the world. Demanding projects have been successfully realised in e.g. Germany, Austria, Belgium, the Netherlands, Denmark, France, Italy, Spain, Greece, Turkey, Australia, United Kingdom, Saudi Arabia, UAE, Korea, USA, PR China.	

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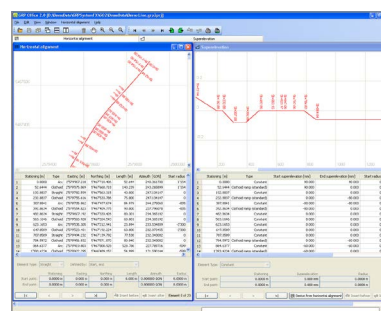
## System performance and technical data

### Amberg Tamping

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

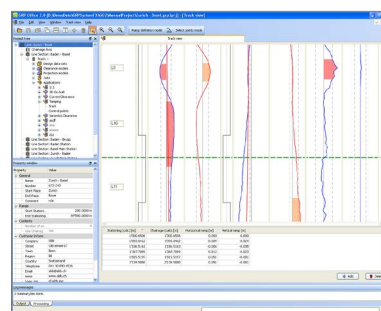
#### Project data management

- 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).



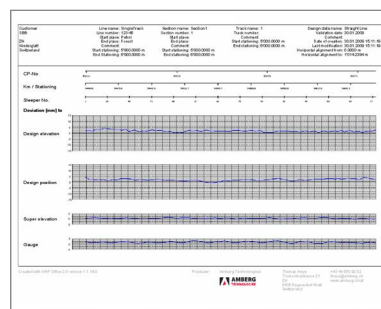
#### Surveying

- 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.
- Use of the Profiler I 10 FX for control point surveying after completion of track work.



#### Evaluation and reporting

- 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, Framafier and Matisa tamping machine control computers.
- Comprehensive reports of inner and outer track geometry analyses, including control point record.



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