AMBERG TAMPING GRP 1000 / 3000

HIGHEST PRECISION FOR TAMPING SURVEYS AND ACCEPTANCE

The Amberg Tamping GRP system is a high-precision solution for pre- and post-tamping surveys. Based on total station positioning, it captures as-built track geometry, compares it with the design, and delivers correction files and acceptance reports with confidence.

Hardware Configurations

- **GRP 1000:** Remote total station + prism on trolley. Absolute positioning via total station tracking for accurate analysis of design deviations
- **GRP 3000:** Remote total station + Profiler FX + prism on trolley. Adds fast post-tamping validation, control point measurement, and lateral object capture using Profiler FX
- Optional GNSS: For early tamping runs where maximum accuracy is not required

Profiler FX Capabilities (GRP 3000)

- Lateral control point measurement for post-tamping acceptance
- Lateral object and profile measurement
- Clearance assessment via Amberg Rail – Clearance Module

Pre-Tamping Workflow

- Set up the remote total station to track the prism on the GRP 1000 or GRP 3000 trolley.
- Alternatively, use GNSS for early tamping runs where ultra-high accuracy is not required.
- Record track geometry in Stop & Go or kinematic mode.
- Export correction files for Plasser, Matisa, Framafer, Harsco, and others

Post-Tamping Workflow

- **GRP 1000:** Track the prism using the remote total station and record track geometry in Stop & Go or kinematic mode.
- **GRP 3000:** Use the Profiler FX for fast track position verification via lateral control points, or operate in GRP 1000 mode using the prism.
- Generate verification and acceptance reports in Amberg Rail – Tamping Module.

Amberg Rail Software – Tamping Module

- Unified project management with design, measurement, and tamping parameters
- Streamlined workflows with real-time graphical display
- Automated processing with clear visual and numerical outputs
- Direct export of correction files for tamping machines
- Comprehensive tamping and acceptance reports

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SYSTEM PERFORMANCE AND TECHNICAL DATA

System [1] [2]		
	GRP 1000	**GRP 3000**
Gauge [mm]	1000, 1067, 1220, 1372, 1435, 1495, 1520/1524, 1600, 1668/1676	
Profiling unit	–	Amberg Profiler 120 FX
Weight [kg] (re 1435 mm gauge)	26.8	30.0
Gauge measurement		
Range [mm] (re nominal gauges)	-25 to +65	
Accuracy [mm]	±0.3	
Cant measurement		
Range [mm] (re 1435 mm gauge, range ±10°)	±260	
Accuracy [mm]	Stop & Go: ±0.5 Kinematic: ±1.0	
Track position measurement		
Track position accuracy [mm] (remote total station + prism on trolley)	Stop-&-Go: ±1 Kinematic: ±3	
Track position accuracy [mm] (GNSS receiver)	Hz. position: ±20 Height: ±40	
Trolley battery		
Type	Amberg GBS 1010 Li-Ion, rechargeable	
Operating time [h]	>12	>6
Field computer battery		
Type	Panasonic FZ-G2 compatible	
Operating time [h]	>4	
Environmental specifications		
Working temperature range [°C]	-10 to +50	
Humidity [%] (non-condensing)	<80	

Performance on track [1]		
	GRP 1000	**GRP 3000**
Track survey with remote total station and prism on trolley [m/h]	800 - 1200	
Track survey with GNSS receiver [m/h]	3000	
Control point survey with Profiler FX [m/h] (re CP interval: 60 m)	–	1500 - 2500

Amberg Profiler 120 FX [2]	
Measuring range [m]	<30
Distance measuring accuracy @ 5 m [mm]	1

Positioning sensors & accessories			
	Leica	**Topcon**	**Sokkia**
Total station (≤1")	TS15/16, TS30, TS50/60, MS50/60	GT-1200, MS AXII	iX-1200, NET AXII
Prism	AP20, Round, Mini, 360, 360 Mini, Mini Zero, Tape	Prism-2 Tilting Assembly Item ID: 724806	
GNSS receiver	GPS1200, GS10/14/15/16/18	HiPer VR	GRX3

Tamping operations	
Typical track applications	New construction, rehabilitation, renewal, maintenance, tamping only
Track type	Open track, turnout systems (incl. structural gauge enlargement, e.g. FAKOP®)
Tamping data preparation (correction data calculation incl. ramping)	<10 min per 500 m
Tamping data formats (further formats on request)	Plasser WinALC, DosALC, AGGS, CGV5, Framafer BAO3, Matisa, Harsco

System approvals
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, EN 13977:2011, 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)

1) Typical performance may vary depending on project conditions.
2) Results depend on factors such as control point density, control point quality, and overall project conditions

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