

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]	±260	
(re 1435 mm gauge, range ±10°)		
Accuracy [mm]	Stop & Go: ±0.5 Kinematic: ±1.0	
Track position measurement		
Track position accuracy [mm]	Stop-&-Go: ±1	
(remote total station + prism on trolley)	Kinematic: ±3	
Track position accuracy [mm]	Hz. position: ±20	
(GNSS receiver)	Height: ±40	
Trolley battery		
Type	Amberg GBS 1010 Li-lon, rechargeable	
Operating time [h]	>12	>6
Field computer battery		
Туре	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	1
@ 5 m [mm]	

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	AP01
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.
- Results depend on factors such as control point density, control point quality, and overall project conditions

