



SURVEY-GRADE PRECISION WITH MAXIMUM EFFICIENCY

The Amberg Tamping IMS system combines survey-grade accuracy with the speed of continuous IMU-based measurement. It eliminates repeated total station setups and streamlines pre- and post-tamping workflows with fast analysis, correction file export, and reliable verification.

Hardware Configurations

- **IMS 1000:** Total station + IMU on trolley. Absolute positioning via onboard total station with continuous IMU-based track trajectory measurement
- **IMS 3000:** Profiler FX + IMU on trolley. Absolute positioning via lateral single control point measurement using Profiler FX
- Optional GNSS: For early tamping runs where ultra-high accuracy isn't required

Profiler FX Capabilities (IMS 3000)

- Lateral single control point measurement for post-tamping verification
- Lateral object capture
- Profile measurement
- Clearance model assessment via Amberg Rail – Clearance Module

Pre-Tamping Workflow

- **IMS 1000:** Absolute positioning via multiple control point measurement, lateral control point measurement or GNSS
- **IMS 3000:** Absolute positioning via lateral control point measurement or GNSS
- Continuous geometry capture via IMU
- Export correction files for Plasser, Matisa, Framafar, Harsco, and others

Post-Tamping Workflow

- Absolute positioning via single or multiple control points
- IMU-based track geometry recording
- Verification and acceptance reporting

Amberg Rail Software – Tamping Module

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



SYSTEM PERFORMANCE AND TECHNICAL DATA

System ^{(1) (2)}		
	IMS 1000	IMS 3000
Gauge [mm]	1000, 1067, 1220, 1372, 1435, 1495, 1520/1524, 1600, 1668/1676	
Control point measuring device	Total station on trolley	Amberg Pro- filer 120 FX
Weight [kg] (re 1435 mm gauge, AMU 2030)	43.5	40.9
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]	±0.5	
Track position measurement		
Track position accuracy [mm]	Single CP: ±2 Multi CP: ±1	Single CP: ±3
Track position accuracy with GNSS receiver [mm]	Hz. position: ±20 Height: ±40	
Trolley battery		
Type	Amberg GBS 3010 Li-Ion, rechargeable	
Operating time [h]	>8	
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⁾		
	IMS 1000	IMS 3000
Typical track survey speed [m/h] (re CP interval: 60 m)	Single CP: 2500 Multi CP: 1000	Single CP: 2500
Max track survey speed [m/h] (re CP interval: 60 m)	Single CP: 4000 Multi CP: 1500	Single CP: 4000

AMU models		
Repeat accuracy @	AMU 2030	AMU 2010
60 m CP interval [mm]	±1	±3
120 m CP interval [mm]	±2	±6
300 m CP interval [mm]	±5	±20

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

Positioning sensors	
Leica total station (motorized, ATR, radio modem/handle)	TS15/16, TS30, TS50/60, MS50/60
Leica GNSS receiver	GPS1200, GS10/14/15/ 16/18

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, Framafar 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)	

References	
Amberg's railway surveying solutions have demonstrated high performance globally. They have been successfully implemented in demanding projects across Germany, Austria, Belgium, the Netherlands, Denmark, France, Italy, Spain, Greece, Turkey, Australia, the United Kingdom, Saudi Arabia, the UAE, South Korea, the USA, and China.	

- 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.