



## 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, Framafaer, 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 <sup>(1) (2)</sup>                       |                                                                |                             |
|-------------------------------------------------|----------------------------------------------------------------|-----------------------------|
|                                                 | 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-<br>filer 120 FX |
| Weight [kg]<br>(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]<br>(re 1435 mm gauge, range ±10°)    | ±260                                                           |                             |
| Accuracy [mm]                                   | ±0.5                                                           |                             |
| Track position measurement                      |                                                                |                             |
| Track position accuracy [mm]                    | Single CP: ±2<br>Multi CP: ±1                                  | Single CP: ±3               |
| Track position accuracy with GNSS receiver [mm] | Hz. position: ±20<br>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 <sup>(1)</sup>                        |                                   |                 |
|------------------------------------------------------------|-----------------------------------|-----------------|
|                                                            | IMS 1000                          | IMS 3000        |
| Typical track survey speed [m/h]<br>(re CP interval: 60 m) | Single CP: 2500<br>Multi CP: 1000 | Single CP: 2500 |
| Max track survey speed [m/h]<br>(re CP interval: 60 m)     | Single CP: 4000<br>Multi CP: 1500 | Single CP: 4000 |

| AMU models             |       |      |      |
|------------------------|-------|------|------|
| Repeat accuracy @      | 1030P | 2030 | 2010 |
| 60 m CP interval [mm]  | ±0.8  | ±1   | ±3   |
| 120 m CP interval [mm] | ±1.5  | ±2   | ±6   |
| 300 m CP interval [mm] | ±3    | ±5   | ±20  |

| Amberg Profiler 120 FX <sup>(2)</sup>  |     |
|----------------------------------------|-----|
| 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                             | Round, Mini, 360, 360 Mini, Mini Zero, Tape | Prism-2 Tilting Assembly<br>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, 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)                                    |  |

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.