AMBERG TECHNOLOGIES

Amberg Tamping VMS 1000

The long-chord track survey system for precise track works

Proven measuring principle – optimized for track works

- Long chord method
- Combined survey of inner track geometry and absolute position in one run
- Absolute track accuracy 1 mm
- Correction data in real-time
- Fully automatic control point measurement
- Best survey performance
- More than 80 % cost savings compared to traditional methods

Modular system design – optimized for toughest project conditions

- Flexible system operation: twin-trolley mode or tripod mode
- Modular system upgrading
- Safe digital data handling – from measurement to final transfer of correction data
- Easy handling, simple transportation
- Flexible measuring mode
- No geodetic skills required
- LED-lighting for secure work at night

Twin-trolley mode: High performance for long track sections

- 1st choice for measurements during track closures
- Measuring performance up to 2500 m/h
- Length of reference chord of up to 250 m
- Measuring system GRP 1000 consisting of precision sensors for gauge, superelevation and distance, prism column and ruggedized notebook
- Measuring system GRP TSC+ with precision sensors and tachymeter on automatic self-levelling tribrach
- Extendable to two independent single trolley systems (for alternate operation in tripod mode)

Tripod mode: Greatest flexibility under demanding project conditions

- Ideal for shorter track sections, e.g. turnouts, multi-track sections and projects with limited track access
- Length of reference chord of up to 400 m
- Measuring system GRP 1000
- Tachymeter on tripod (optional with automatic self-levelling tribrach)
- Flex-Stop-Function for immediate measurement interruption and track release
- Upgradable with second measuring trolley at any time

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System performance and technical data

System configuration	
Gauge	1000, 1067, 1435, 1520/24, 1600, 1668/76 mm
Amberg GRP 1000	
Gauge measuring range ▪ for nominal gauges	-25 to +65 mm
Cross level (cant/superelevation) ▪ at 1435 mm	+/- 260 mm
Weight ▪ incl. batteries, notebook	27 kg
Amberg GRP TSC³ (twin-trolley mode)	
Gauge measuring range ▪ for nominal gauges	-25 to +65 mm
Cross level ▪ at 1435 mm	+/- 260 mm
Self-levelling tribrach ▪ time	< 5 s
Weight ▪ incl. total station, batteries, automatic tribrach	33 kg
Total station on tripod (tripod mode)	
Manual levelling or with optional automatic tribrach ▪ time	< 5 s
Total station	
Leica total station ▪ motorised, ATR	TS15/16, TS30, TS50/60, MS50/60

System accuracy	
Survey track position and height [1]	
▪ Stop & Go mode	+/- 1 mm
▪ Kinematic mode	+/- 3 mm
Cross level	
▪ Stop & Go	+/- 0.5 mm
▪ Kinematic	+/- 1 mm
Fixed-point measurement ▪ relative to track axis	+/- 1 mm

Measuring frequency	
Track geometry ▪ 3d track position, gauge, cross level	
Stop & Go mode	< 5 sec/ measurement
Kinematic mode	< 7 measurements/ sec

Environmental specifications	
Working temperatur range	- 10° to +50°
Humidity ▪ non-condensing	< 80 %

Typical performance [2]			
Mode	accuracy track position	twin-trolley mode	tripod mode
Precision	+/- 1 mm	1200 m/h	850 m/h
Performance	+/- 3 mm	1900 m/h	1150 m/h
Quick	+/- 10 mm	2300 m/h	1250 m/h

Tamping data	
Tamping data preparation ▪ Correction data calculation incl. ramping	< 15 min/500 m
Tamping data formats	Plasser WinALC, ALC CGV5 Framafer BAO3 Matisa Harsco

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 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)

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.

[1] Depending on e.g. chord length, atmospheric conditions, control point quality, positioning sensor and project conditions.
[2] Typical experience values, may depend on project conditions.

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