

Amberg Tamping Applications – Comparison

	Amberg Tamping							
	VMS long chord method		GRP geodetic 3D method			IMS		
	VMS 1000	VMS 3000	GRP 1000	GRP 3000		IMS 1000		IMS 3000
			absolut mode	absolut mode	relativ mode	Single CP mode	Multi CP mode	Single CP mode
Project data management 1)								
Horizontal alignment - 3D	○	○	●	●	-/-	○	●	○
Horizontal alignment - Relative	○	○	○	○	-/-	○	○	○
Vertical alignment	○	○	●	●	-/-	○	●	○
Superelevation	○	○	●	●	○	○	●	○
Gauge	○	○	●	●	○	○	●	○
Leading rail	●	●	●	●	○	●	●	●
Relativ control points	●	●	○	○	○	●	●	●
Absolut control points	○	○	○	○	○	○	●	○
Chainage axis	○	○	○	○	○	○	○	○
Clearance envelope	●	○	●	○	●	●	●	○
Import data interface: Landxml, dxf, gsi, geo, various local formats	○	○	○	○	○	○	○	○
Surveying								
Tachymeter: Leica Nova TS50, TS30, MS50, Viva TS15, TPS1200	○	○	○	○	-/-	○	○	-/-
Tripod mode (1 GRP)	○	○	○	○	-	-	-	-
Twin-trolley mode (2 GRP)	○	○	●	●	-	-	-	-
Relative CP mode (1 GRP) - w/o Tachymeter	○	○	●	●	○	●	●	○
IMS single-trolley mode	-	-	-	-	-	○	○	○
Stop&go measurement (S&G)	○	○	○	○	○	○	○	○
Kinematic measurement (Kin)	○	○	○	○	●	○	○	○
S&G and Kin mixed survey operation	○	○	○	○	○	○	○	○
Geodetic skill of operator	-/-	-/-	●	●	-/-	-/-	○	-/-
Geodetic tachymeter software for positioning	-/-	-/-	●	●	-/-	-/-	○	-/-
Measurement control points (CP)	○	○	●	○	○	○	○	○
Measuring device CP	Tachymeter	Profiler 110 FX	-	Profiler 110 FX	Profiler 110 FX	Tachymeter	Tachymeter	Profiler 110 FX
Aiming to CP (visu = visual, auto = ATR)	auto	visu	-	visu	visu	auto	auto	visu
Measurement accuracy CP (mm)	1	3	-	3	3	1	1	3
Type of measurement								
Prism	○	●	-	●	●	○	○	●
Reflectorless	○	○	-	○	○	○	○	○
CP nominal vs. as-built comparison (absolute track position)	○	○	●	○	○	○	●	○
Initial CP definition during measurement	○	○	●	○	○	○	●	○
Results of measurements in real-time (nominal vs. as-built comparison)	○	○ 2)	○	○	○ 2)	○ 2)	-	○ 2)
Direct track section geometry review immediately after end of survey onboard of the trolley control computer	○	○	○	○	●	○	○	○

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Measurement performance								
Twin-trolley mode, typ./max. (m/h)	1500/2500	1300/2300	-	-	-	-	-	-
Tripod mode, typ./max. (m/h)	1100/1500	1000/1400	600/1000	600/1000	-	-	-	-
Single-trolley-CP mode, typ./max. (m/h)	-	2500/4000	-	2500/4000	2500/4000	-	-	2500/4000
IMS single-trolley mode	-	-	-	-	-	2500/4000	1000/1500	2500/4000
Man power per setup								
no of workers	3	3	3	3	2	2	2	2
no persons with geodetic know how	0	0	1	1	0	0	1	0
Accuracy track measurement								
Abs. position S&G / Kin (mm)	1 / 3	1 / 3	1 / 3	1 / 3	-	2 / 2	1 / 1	3 / 3
Superelevation S&G / Kin (mm)	0.5 / 1	0.5 / 1	0.5 / 1	0.5 / 1	0.5 / -	0.5 / 0.5	0.5 / 0.5	0.5 / 0.5
Offset distance measurement (profile) - object to track axis								
Non-contact object measurement	●	●	●	●	●	●	●	●
Neighbour track	●	●	●	●	●	●	●	●
Overhead wire	●	●	●	●	●	●	●	●
Platform edge	●	●	●	●	●	●	●	●
Cross-section	●	●	●	●	●	●	●	●
Clearance gauging	●	●	●	●	●	●	●	●
Evaluation								
Track information								
Track point interval	●	●	●	●	●	●	●	●
Survey point interval at 1 m/s measuring speed (cm)	~15	~15	~15	~15	●	~15	~15	~15
Interpolation at definable interval	●	●	●	●	●	●	●	●
Combined analysis of single (S&G) and Kin measurement	●	●	●	●	●	●	●	●
Nominal vs. as-built comparison								
Absolute track position	●	●	●	●	○ 2)	●	●	●
Absolute track height	●	●	●	●	○ 2)	●	●	●
Cross level (superelevation)	●	●	●	●	● 2)	●	●	●
Gauge	●	●	●	●	● 2)	●	●	●
Calculated track parameters - per track: axis, left rail, right rail								
Twist	●	●	●	●	●	●	●	●
Horizontal versine - definable, symmetrical or asymmetrical (40/60) chord length	●	●	●	●	●	●	●	●
Vertical versine - definable, symmetrical or asymmetrical (40/60) chord length	●	●	●	●	●	●	●	●
Gauge change over 1 m	●	●	●	●	●	●	●	●
3D Track coordinates (E/N/H) in project coordinate grid								
Measured track point (axis, left / right rail)	●	●	●	●	●	●	●	●
Corresponding design track point (axis, left / right rail)	●	●	●	●	●	●	●	●
Tamping correction data analysis								
Ramp definition for interactive correction data calculation	●	●	●	●	○	●	●	●
Horizontal ramp (direction / shifting)	●	●	●	●	○	●	●	●
Vertical ramp (gradient / lifting)	●	●	●	●	○	●	●	●
Correction per design or definable target elevation	●	●	●	●	○	●	●	●

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Control points								
Direct export of tamping data by means of CP results	●	●	-	●	●	●	●	●
Synchro points	●	●	●	●	●	●	●	●
Object offset-distance analysis								
Neighbour track	●	●	●	●	●	●	●	●
Overhead wire	●	●	●	●	●	●	●	●
Platform edge	●	●	●	●	●	●	●	●
Cross-section	●	●	●	●	●	●	●	●
Clearance analysis	●	●	●	●	●	●	●	●
Reporting / Export								
Data for tamper								
Plasser ALC	●	●	●	●	●	●	●	●
Plasser WinALC	●	●	●	●	●	●	●	●
CGV5	●	●	●	●	●	●	●	●
Framafar BAO3	●	●	●	●	●	●	●	●
Matisa	●	●	●	●	●	●	●	●
Graphic reports track								
To scale graphic standard reports of track geometry analysis	●	●	●	●	○	●	●	●
Configurable, to scale graphic reports of track geometry analysis	●	●	●	●	○	●	●	●
Text reports track								
Standard reports of track geometry analysis	●	●	●	●	○	●	●	●
Configurable reports of track geometry analysis	●	●	●	●	○	●	●	●
Control point lists								
Numerical reports of results of nominal vs. as-built comparison	●	●	●	●	●	●	●	●
Measured objects (ASCII / DXF)								
Numerical reports of results of offset measurement	●	●	●	●	●	●	●	●
Clearance analysis plots (ASCII, DXF, PDF)	●	●	●	●	●	●	●	●

Legend:

supported	●
supported - with certain limitations	○
not supported	●
optional	●
recommended	○
necessary	●
not necessary	-/-

- Project data are only necessary at the time of measurement, if direct evaluation on site is requested.
- only at CP