SmartMeasures

Tough projects call for smart measures.

AmbergRail

High-Speed Railway Construction Project
西成高铁
Xi'an-Chengdu, China

Project

- Final adjustment of track geometry, Section K219+000-K245+000 with a total length of 53 km
  西成高铁

Duration

- 21.02 - 01.03. 2017

Contractor

Xi'an railway Bureau
西安铁路局
www.xaronline.com

Tasks

- Measurement and evaluation of track geometry
- Detection of fault zones with deformation and settlement

Challenges

- Comparison of the IMS 1000 survey results with other measuring methods
- Difficult geological conditions
- Far away from the next city, difficult transportation situation
- Time and cost pressure due to weather conditions

Fast track improvements lead to successful final quality check

The Xi'an-Chengdu Passenger Dedicated Line is a dual-track, electrified, high-speed railway line in Western China connecting the historical city of Xi'an with Chengdu, the capital of the Sichuan province.

The 658 km long line started operating on 6 December 2017 and is designed for trains travelling at speeds of up to 250 km/h. The travel time between the two provincial capitals was reduced from 16 to less than 3 hours. The line crosses the rugged Qin and Daba Mountains and connects the Guanzhong Plains with the Sichuan Basin. In the Qin Mountains, the line consists of 127 km of tunnels, including six over 10 km long. The railway also runs through ecologically sensitive areas including the Taibaishan and Hanzhong Crested Ibis National Nature Reserves.

AMBERG TECHNOLOGIES

«The IMS 1000 was introduced in 2014 in China for high-speed railways. Since then, the IMS 1000 has been successfully used country-wide in a variety of construction and maintenance projects, and has a good reputation.

Our Bureau used for the first time the IMS 1000, which is an Amberg GRP System with IMU technology, for the construction of the Xi'an–Chengdu high-speed railway. Since then we have made use of it for various sections of railways under various conditions.

With the IMS 1000, the track surveying work can even take place under difficult light and weather conditions with fog or dust. It is very easy to use and provides reliable results. The high performance helps us to save a lot of time.»

Yuyang Deng 邓宇洋
Surveying Engineer
Xi'an railway Bureau

Amberg Technologies' products used

- Amberg IMS 1000 system
- Amberg Rail 3.0 software with SlabTrack Acceptance module

Customer benefits

- Compact, light-weight and easy to use system
- User-friendly measurement module
- Chinese user interface
- Supporting Chinese railway parameters, reports and standards
- High performing system saving time
- Not influenced by weather and/or light conditions

Efficient fieldwork

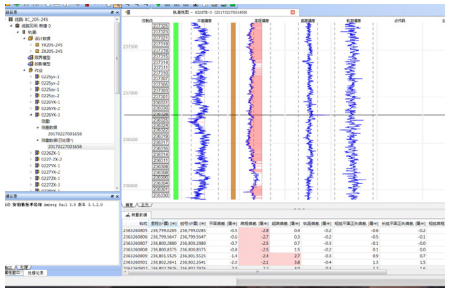
The IMS 1000 is a compact, light-weight and easy to use track measurement system. The preparation of the system and the data acquisition can be performed by trained workers without comprehensive knowledge of surveying and mapping.

Thanks to its high performance IMU technology the device delivers a continuous survey of track geometry at a walking speed of up to 5 km/h. Therefore the dynamic mode of the IMS 1000 for Slab Track application is 10 times faster than common trolley systems with Stop&Go mode.

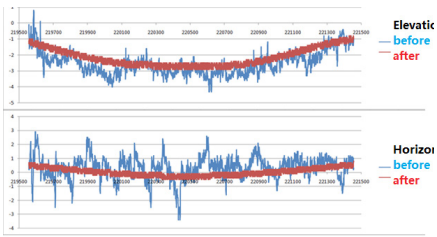
With the SlabTrack Acceptance Module and the Multi-CP mode, we can achieve a greater precision and reliability because we are using multiple control points instead of one single control point. The user-friendly measurement module supports the automatic target aiming, which saves us plenty of time.

Automatic processing

With the SlabTrack application of the Amberg Rail software, the coordinates and the geometry of the track can be determined in the absolute mode using reference control points. The relative state of the track geometry with parameters such as gauge, super elevation, horizontal and vertical alignment, twist, etc. can be evaluated and analyzed with customized settings.



Amberg Rail supports not only the Chinese language, but also the special Chinese railway parameters, reports and standards, which simplifies our daily office work.



Reliable results

With the calculated correction data for each sleeper, the tracks have been adjusted.

Results: We achieved a significant improvement in a short time and passed the final quality check.

Conclusion

The Amberg IMS 1000 system is easy to use, efficient and reliable. The results have been proved by several comparison tests with other methods. We are convinced that the IMS 1000 was the best choice for the track measurement of the Xi'an–Chengdu high-speed railway construction project. Thanks to the high performance of the system, the time pressure was reduced.

Contact

Amberg Technologies AG
Trockenloostrasse 21
8105 Regensdorf-Watt
Switzerland
Tel +41 44 870 92 22
rail@amberg.ch
www.amberg.ch/at

Made in Switzerland

AMBERG TECHNOLOGIES