

Repair of Cairo's urban motorway:

Fast repair thanks to MOBA levelling technology

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Cairo, the political, economic and cultural centre and capital city of Egypt with around 20 million people living in its catchment area, is the largest and most important city of the North African country. The population of the city and catchment area has grown continuously in recent years, which means that increasing numbers of people use the roads in and around Cairo every day. This in turn results in ever more frequent and longer traffic jams due to overloading of the main roads, especially at peak times. This also goes for the 100 kilometre long orbital motorway, Cairo's most important traffic artery, that was built in the 1980s. From 1990 to 2000 alone, the number of vehicles rose from 38,000 to 100,000 daily – and this number also continued to increase unchecked in the following years. Owing to repair backlogs and severe wear, the road surface had many cracks and potholes and was in dire need of repair. In spring 2015, the road surface along a 30 kilometre section of the eight-lane orbital motorway to the west of the city was therefore removed and a new, five centimetre thick surface layer was laid.

Ultrasonic system for maximum planarity

Thanks to the MOBA-matic levelling system with the Big Sonic-Ski that the construction company General Nile Company for Road Construction (GNCRC), one of the biggest road construction companies in Egypt, used on both sides of the Terex CR462 paver, it was possible to lay the asphalt quickly and precisely.

The Big Sonic-Ski is a combination of up to four ultrasound sensors attached to a flexible 13 metre long mechanical system. The Big Sonic-Ski uses this to scan the substrate at various,

widely spaced points. Each Sonic-Ski emits five beams for height measurement. The measurement values with the greatest deviations are discarded in order to rule out false measurements caused by, for example, stones lying on the reference. The sensor derives an average value from the remaining measurements. With the Big Sonic-Ski, which combines three or four sensors, all of the sensors send their measurement values to the MOBA-matic. The MOBA-matic calculates an average value so that even long sections of unevenness can be detected and smoothed out during asphaltting by means of automatic adjustment of the screed.

Big Sonic-Ski ensures fast and exact asphalt paving

With this solution, it was possible to avoid complete closure of the motorway and to complete the repair work quickly. And because the pavers only worked during the night, the effect on the traffic was minimised so that no additional traffic jams were caused. The use of the ultrasound system that operates without a reference was the best possible solution because the milled-off surface was extremely uneven and had many milling cavities. “With the Big Sonic-Ski, it was possible to smooth out the unevenness without problem and to lay an extremely level and uniform asphalt surface”, explains Mohamed Saaied, Head of Technical Sector GNCRC.

Without a levelling system, this reference unevenness would have been copied – the new road would then be quickly damaged again because unevenness not only reduces driving comfort, it also increases susceptibility to potholes and cracks.

The only possible alternative to the Big Sonic-Ski would have been to use a levelling system in combination with a string line as reference because the kerbstone had too many holes and was too uneven to be used as a reference. Furthermore, surveying using a string line would not only have been expensive and more time-consuming, it would also have made it necessary to close

the road, which in view of the traffic situation was impossible. This is why the customer opted for the MOBA levelling system MOBA-matic with the Big Sonic-Ski.

"We extremely pleased with the accuracy of the system and that the system is so easy to use", states Mohamed Saaied. And the Big Sonic-Ski provided an added bonus: The safety lamps, which are required for work at night, could be easily mounted on the mechanical system.

Hafez Abdelmoamen, chairman GNCRC: „We are not only one of the biggest road construction companies, but also one of the pioneers in using new technologies in this sector. That is how we can get the best results in road construction”.

"In Egypt, the use of new technologies is, as it were, still in its infancy. Such projects are important as they demonstrate the benefits – and these benefits are not only evident in the perfect road surface but are also illustrated by the fact that savings in time and material were achieved. And that it was possible to use the machine more quickly for other projects", reports Hesham Farghaly, managing director of Egytitans Engineering, MOBA partner in Egypt that supervised equipment of the machinery. The company based in Maadi, near Cairo, specialises in the marketing and installation of machine control systems for road construction.

About MOBA

With more than 40 years of experience in the development and manufacture of measurement and control technology, identification and weighing systems for construction machines and waste disposal vehicles, MOBA is a globally recognised expert in the field of mobile automation. MOBA is one of the leading system specialists and OEM partners in the industry. With headquarters in Limburg, branch offices in Dresden, Langenlonsheim and Merenberg, eleven subsidiaries and equity stakes in local enterprises, and an extensive international dealer network, MOBA has a presence in all important growth markets.

Press information



Company sales grew over the past decade from 26 million euros in 2004 to more than 54 million euros in 2014; the number of employees increased in this period from 210 to 482.



Jobsite at night: Cairo Motorway



Handset MOBA-matic II – thanks to the illuminate and keys it is also possible to work at night



Egytitans, GNCRC and MOBA team: George Mounier, Hesham Farhaly, Erik Geis, Hafez Abdelmoamen, Mohamed Saaied, Hatem Abdelhamed (from left to right)

Photos: MOBA

Further information and downloads of press texts and images available at www.moba-automation.com.

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