

# Mobile cranes

By combining the technologies of mobile and self-erecting cranes, the partners have created a crane that can do the work of five.

**EUREKA project E! 2797 FACTORY MSETC (Mobile Self-Erecting Tower Crane) has successfully combined the technologies of mobile and self-erecting cranes to create a single crane that can do the work of five. The new crane features an anti-sway device which makes it safer as well as more efficient.**

The Belgian lead partner, Arcomet NV, has developed self-erecting tower cranes for the building industry for many years. "These cranes were mounted and remained in a fixed position on building sites for at least three months, when they were only needed for a total of about five hours work. Since a construction job may require cranes to be at different parts of the site, this was very expensive," explains Project Manager David Janssen.

The project partners devised new mobile self-erecting cranes that can be delivered on a truck, erected on site within a small area, and moved to new locations as and when required. This one crane can do the work which previously required several installations.

"To develop such a crane, it was necessary to combine knowledge of how self-erecting cranes and mobile (hydraulic) cranes are developed. By combining the know-how and development efforts of each partner, the time-to-market was minimised," says Janssen.

The project also had to redesign the truck or loader, and a crawler for use in particularly rough terrain, making the chassis lower and more stable so that it could be delivered

to all parts of a building site. They also developed a new anti-sway system that makes the installed crane safer and more efficient.

## Preventing sway

"We developed an anti-sway controller that minimises or completely prevents the sway motion of the load during operation," says Dr Jans Swevers of the University of Leuven.

"The device controls both the rotating (boom) motion and the motion of the trolley. Each aspect is independent of the load that is lifted, and the anti-sway controller adapts its parameters according to the length of the cable, taking into account the structural resonance of the crane. The controller was designed so that even an inexperienced operator can move loads safely without them swinging," explains Swevers.

"The crane does not require additional sensors to detect sideways movements, it reduces the sway motion by a factor of three, and it is guaranteed to give stability to a degree that no additional safety measures are required."

Thanks to EUREKA, the partners are ready to target new and existing markets throughout Europe. They already have orders for 15 of the new cranes.

"Working with our partners through EUREKA enabled us to create the new technology in a shorter time," says Janssen.

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David Janssen  
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## EUREKA

Participating countries  
Belgium, Germany, The Netherlands,  
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