

PRESS RELEASE

TRAINWHEELS

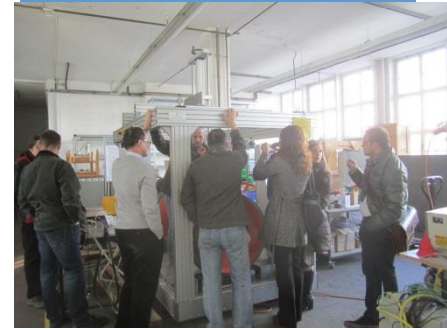
Towards a novel technology for detecting train wheels surface cracks by Non-Destructive testing based on thermography

The European rail network is getting more and more predominant in the transportation sector: it hosts high speed-trains, higher loads of more passengers or goods, with increased frequency. This determines a higher mechanical load for the moving parts of the carrier involved: therefore, **increasing inspection and maintenance are required in order to guarantee safety and well-being of trains**. One of the biggest concerns about transportation safety is **broken wheels due to cracks**. Frequent accidents and regular breakdowns have been registered in the latest years due to this failure.

Three testing methods have been investigated to identify cracks or problems on the surface or near the surface of the wheel: Magnetic Particle Inspection, Dye Penetrant Inspection, and Eddy current testing. These methods show the following drawbacks: MPI and DPI generates high amount of hazardous waste and none of them is automatable, while the Eddy current system is sensitive to lift-off variations and probes need to be positioned at a constant distance. **In conclusion a new, more efficient, automated and faster method is needed to detect surface cracks.**

In TRAINWHEELS Project, a European consortium integrated by three industrial SMEs, Termomacchine S.R.L. (IT), DS Plus (IL), Tecnología y Análisis de Materiales S.L. (SP) and two Research Centers, Tecnologías Avanzadas Inspiralia S.L. (SP) and Fraunhofer Institute for Manufacturing Engineering and Automation IPA (DE), seeks to optimize thermography in order to use it as an automated train wheel crack detection method, meeting all European Safety Standards. This would mean a big improvement in surface and near-surface train wheel crack control, and therefore minimization of the related accidents. Thermography is going to be part of a system which aims to achieve:

- A **decrease in accident occurrence** of up to a 25% from current yearly rates
- **Savings up to 25% for wheel manufacturers** who, through an early prediction of cracks in their wheels, will be able to repair them or improve altogether the new ones.
- **Savings of up to 20% in the induction process**, because the heating will be controlled and feed backed by the infrared camera and the coupling software, in order to run thermography under efficient parameters and operating costs.



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www.trainwheels.eu



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