

Vimi Fasteners announces patents 'No-Contact' bolt monitoring technology

Vimi Fasteners SpA has announced the approval of its patent for an innovative system that enables the “no-contact” monitoring of threaded joints

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Revolutionary system integrates AI and sensing for predictive maintenance, boosting safety in aerospace and defense. Vimi Fasteners SpA has announced the approval of its patent for an innovative system that enables

the “no-contact” monitoring of threaded joints. The breakthrough technology is poised to redefine structural safety management and industrial maintenance protocols across multiple sectors. The patent, granted two years after the original filing, confirms the originality and broad applicability of Vimi’s solution.



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Marco Sargenti Ceo Vimi Fasteners

At the core of Vimi Fasteners’ innovation is a methodology that verifies the integrity of critical mechanical joints without requiring any modification to the bolt or screw itself.

The system employs a “no-contact” sensor positioned near the threaded joint. This sensor continuously measures the bolt’s tension state and monitors the overall performance

of the mechanical system against its design parameters.

A key feature is the integration of a machine learning algorithm that processes real-time sensor data to detect variations and trends. Over time, this combination enables the early identification of potential anomalies—well before they exceed operational safety thresholds.

Thanks to its non-intrusive nature, the technology can be applied to any type of metallic fastener, regardless of size or geometry, making it extremely versatile.

The patent opens new possibilities for continuous monitoring of mechanical joints in: complex infrastructures, industrial machinery and components, high-criticality sectors such as aerospace and defense.□These “smart bolts” enable condition-based maintenance, where interventions are driven by actual performance data rather than fixed schedules. This predictive approach helps prevent mechanical failures or structural fatigue due to joint loosening or degradation.

“With this patent, Vimi Fasteners strengthens its position as a leader in mechanical innovation,” said Marco Sargenti, CEO of Vimi Fasteners. “We are providing a technical solution that enhances system integrity, safety, and operational efficiency. It also opens new opportunities for collaboration with leading sensor technology companies to develop next-generation products.”

Vimi Fasteners SpA is a global leader in high-precision mechanical engineering, specializing in the design and manufacture of fastening systems and components with advanced technical specifications. Its products are used in applications demanding exceptional performance, strength, and reliability—serving industries from automotive and energy to oil & gas and aerospace.

<https://vimifasteners.com/>

francesca schenetti

Ti Lancio

+ +39 339 809 3543

[email us here](#)

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