Smart Monitoring Technology Supports Rapid HS2 Bridge Installation in Warkwickshire (UK)

In a remarkable feat of engineering and coordination, the A46 Bypass Bridge near Kenilworth was installed in just 18 days as part of the UK’s High Speed 2 (HS2) programme. The project, led by Balfour Beatty VINCI (BBV), demonstrates how innovation and collaboration can overcome complex construction challenges, especially when time, safety, and precision are critical.

The A46 is a vital transport corridor linking Coventry, Kenilworth, and Leamington Spa to the M40. To minimise disruption to road users, the 14,500-tonne, 4,300-cubic-metre concrete box structure was built offline and then slid into place across a newly excavated section of the highway.

Once positioned, the structure required approximately 400 cubic metres of concrete infill on either side to secure it. However, the design, featuring tall, enclosed voids and no direct line of sight, posed a significant challenge: how to ensure complete and accurate concrete placement without the ability to visually inspect the pour.

To address this, the project team turned to a real-time monitoring solution developed in collaboration with PERI UK and Vemaventuri. Using 24 PHONO sensors connected wirelessly to a central hub and cloud platform, the team was able to track the flow of self-compacting concrete live on site. This allowed them to confirm full coverage, switch pump lines as needed, and maintain the required rate of rise, approximately 0.9 metres per hour, across a three-day pour involving more than 800 cubic metres of material.

“The PERI/Vemaventuri void sensors proved to be an invaluable addition to our quality assurance and control processes during the A46 bridge slide and associated pours,” said Maurice Dowling, Works Manager at Balfour Beatty VINCI. “They gave us the confidence, control, and traceability needed for a critical and complex operation.”

The result was a flawless installation completed ahead of schedule, with minimal disruption to the public and a validated digital record of the concrete placement, supporting both structural integrity and long-term compliance.

This project not only marks a milestone in the HS2 programme but also sets a new benchmark for how smart construction technologies can enhance safety, efficiency, and quality in infrastructure delivery.

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About Vemaventuri:

Vemaventuri, a subsidiary of PERI, is at the forefront of concrete sensor innovation. By combining advanced technology with practical construction insights, the company delivers solutions that enhance efficiency, safety, and sustainability. For more information, visit www.vemaventuri.io.

About PERI UK

Since 1969, PERI has grown to become one of the world’s largest providers of formwork and scaffolding.

With a diverse workforce of over 10,000 employees, PERI leverages its expertise, passion, and creativity to deliver innovative solutions. Combining high-quality German engineering with a strong local presence, PERI is committed to helping its customers build faster, safer, and more efficiently through its wide range of evolving solutions and services for the construction industry.

In the UK, PERI products and services have been employed by the civil engineering and building sectors on many major award-winning projects. Nationwide depots and design offices support PERI’s commitment to customer service through the provision of formwork design, custom fabrication, training and distribution. The company has continued to invest in long-term solutions for its customers. One of these investments is the training facility and impressive product exhibition hall at its Brentwood office. This multi-use space has already been used to deliver approved training courses, product demonstrations and host customer visits.

Images:

Ein Bild, das Gelände, Beton, Höhle, draußen enthält.

KI-generierte Inhalte können fehlerhaft sein.Ein Bild, das Kabel, Gelände, Elektrische Leitungen, Boden enthält.

KI-generierte Inhalte können fehlerhaft sein.Ein Bild, das Himmel, draußen, Gelände, Nacht enthält.

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Ein Bild, das Luftfotografie, draußen, Verkehrsknotenpunkt, Kreuzung enthält.

KI-generierte Inhalte können fehlerhaft sein.Ein Bild, das Pfeife Flöte Rohr, Gelände, draußen, Kompositmaterial enthält.

KI-generierte Inhalte können fehlerhaft sein.Ein Bild, das draußen, Himmel, Baugeräte, Fahrzeug enthält.

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