

EpsilonSensor and 3DSensor used in a composite deck



ES & 3DSensor: Case Study

The innovative foot deck was designed and implemented within an existing bridge in Rzeszów. DFOS fibres were integrated within the composite panels during their production (infusion), so sensors became an integral part of the entire structure. Appropriate fibres arrangement and their full integration inside the composite panels allowed us to utilise the idea of both strain sensing with the **EpsilonSensor** and vertical displacement sensing with **3DSensor**. The ready-to-use smart panels were delivered on-site.



Benefits of application

- **Full integration** of the sensors with the panel at the production (infusion) stage
- Reliable data for **structural assessment** from a **real zero strain/stress state**
- Simultaneous measurements of **strains and displacements (shape changes)**
- **Thousands of measurements points** within a single element for self-diagnostics

Example results

Example DFOS results (both strains and displacements) obtained during load tests are presented on the plot graph. Very good agreement with reference techniques proved the accuracy, reliability and high-quality performance of the applied solution, which is in line with the basic design of **Nerve-Sensors**.

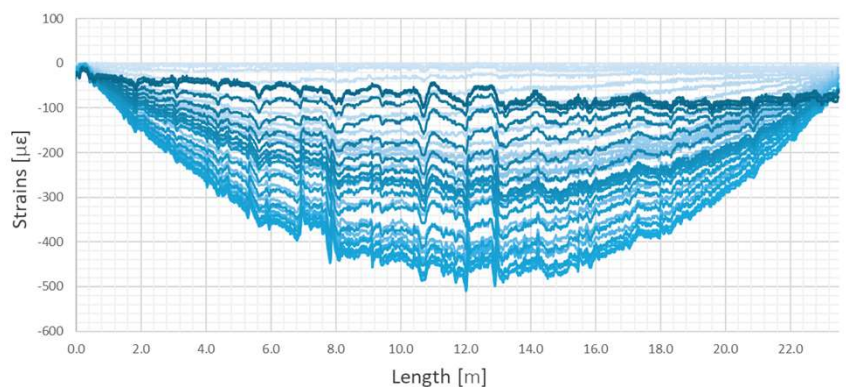
- 🎯 **70 800** measurement points
- 📏 **354 m** of sensing path
- NERVE **25 x** DFOS strain sensors
- 🕒 **load tests & long-term**



project
partner:



Axial strains ($\mu\epsilon$)



Vertical displacements (mm)

