

press release

## RFID Tracking of Components for Stuttgart 21 Project

**The construction site for Stuttgart's new main station is the size of 5 football pitches. The project includes 27 skylights by seele, which need hundreds of fully laden trucks to deliver the incredible number of parts needed. However, thanks to seele's sophisticated goods tracking system, all the components will be perfectly organised from the production plant to final installation.**

Gersthofen, April 04, 2024. **seele** is supplying 27 light eyes and 3 gridshells for the large-scale project [Stuttgart 21](#). The parts for these structures are being produced in the plants in Gersthofen in southern Germany and Plzeň in the Czech Republic. Some components will be transported directly to the construction site, others will be stored temporarily near the site. To coordinate everything, **seele** has devised an automated inventory management system.

### **The seele RFID system**

The digital system is based on radio-frequency identification (RFID) technology, which uses radio waves to exchange data between a transponder and a reader device. Sebastian Lippert, virtual construction engineer at **seele**, was a driving force behind the implementation of RFID tracking. His aim was to map construction progress digitally in real-time. The outcome is now a fully digital logistics concept that helps all those involved in the project.

To implement the tracking, **seele** attaches a passive transponder in the form of a foil label with a titanium inlay to every package. The company has also set up 6 RFID gates – one each at the exit gates at the production plants in Gersthofen and Plzeň, one at the temporary storage and 3 at the construction site – to detect these labels automatically. In addition, **seele** has equipped staff on the building field with portable reader devices.

### **A component on the road**

Prior to being loaded onto a truck at a **seele** plant, every packaging unit, e.g. a box with metal sections for a light eye, is provided with an RFID label. The packing list holds available information about the precise number of items and the exact component designations. The transponder does not require a separate power supply, has a range of up to 12m and can be recycled. As soon as a truck leaves the plant, the reader device on the gate automatically scans all the labels and sends a status update to **seele's** ERP system. That marks the start of each component's journey.

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If the truck travels to the temporary storage first, then the entry gate there registers that the box of sections has arrived and sends this data to the ERP system. The box of parts makes a stopover here. When it is transported to the construction site later, the RFID label is once again detected so that the change of location is recorded in the system.

Upon arrival at the main construction site for the Stuttgart 21 project, there are 3 access gates equipped to note the arrival of the box. The **seele** staff on site who unload the truck can scan the label once again with a portable reader device. Once the box has reached its final destination, i.e. has been unloaded at its designated storage place and unpacked, the RFID label is placed in a special container at the digital terminal on site, which is also fitted with a reader device. Once the site crew have erected the metal sections, a final status update is sent to **seele's** ERP system. That system has an interface with a digital model of the light eye on which the components are now shown as installed.

### **Digitisation initiative at seele**

RFID goods tracking not only eliminates the sometimes time-consuming search for components. It also records the progress of work on site for every single part needed for Stuttgart's new main station. This measure therefore represents an important milestone in the digital transformation at **seele**. "From design office to production, all departments are working with the same 3D model that encompasses all the data. And now, with RFID tracking, we have been able to incorporate logistics and installation in the model as well. That eases the situation enormously for **seele** and offers our client, Deutsche Bahn, tremendous advantages," says Andreas Hafner, Managing Director of **seele** GmbH.

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seele group

The **seele** group, with headquarters in Gersthofen in Bavaria, is one of the world's top companies specialising in the design and construction of façades and complex building envelopes made from glass, steel, aluminium, membranes and other high-tech materials. The technology leader in façade construction was founded in 1984.

Based on a profound understanding of design and materials, **seele** provides everything necessary for ambitious one-off designs true to the original ideas of engineers and architects. The **seele** group offers its building sector and industrial customers a complete package of services ranging from R&D, individual advice and joint conceptual design right up to the planning, detailed design and construction of their projects. **seele's** own production plants for technologically challenging designs and the group's own erection crews on site provide a guarantee of the very highest quality "made by **seele**".

The 1,000 employees of the **seele** group worldwide together generate an annual turnover of about €250 million.

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Images



**seele** has installed 6 RFID gates with reader devices on both sides of each one of them.

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The 27 light eyes for the Stuttgart 21 project are spread over a large construction field.

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Each packaging unit contains several components.  
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The RFID transponder (bottom) with a titanium chip on the back complements the traditional delivery slip (top) on every packaging unit.  
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Every packaging unit has its own RFID label on the long side so that it can be detected by the reader device.  
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Once a truck passes through one of these gates, the load is automatically detected and the data sent to the ERP system.

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The light eyes are characterised by their intricate design with many components.

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The manufacturing and assembly of the light eyes requires maximum precision.

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