Solar Car Charging Stations

Lindapter Hollo-Bolts provided a solution for onsite assembly of solar roofs.

Project Background

Location: Germany
Market: Renewable Energy
Product: Hollo-Bolt by Lindapter
Client: EnBW Energie

The new federal government of Germany wants to be at the forefront of electromobility.

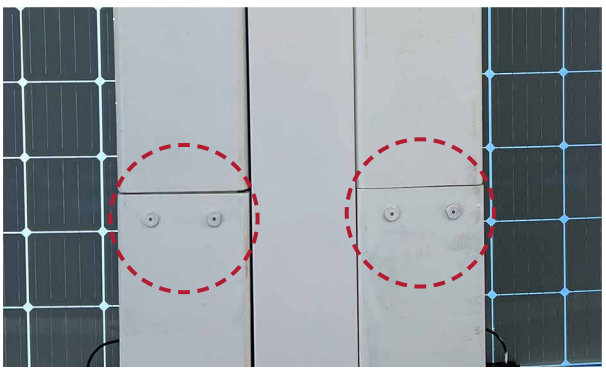
It is investing heavily in the market and providing funding for private sector companies to expand the country's infrastructure. One of these companies is EnBW Energie Baden-Wuerttemberg AG, an energy supply company headquartered in Karlsruhe and the third-largest energy company in Germany.

Client Requirement

As the demand for electric vehicles increases, so does the need to build more infrastructure such as charging stations. EnBW Energie has ambitious plans to build 2,500 charging stations across Germany by 2025, driving forward the transition to e-mobility in Germany.

The charging stations are designed with a solar roof frame manufactured from Structural Hollow Sections (SHS). The client needed a simple and durable solution for connecting the SHS together onsite.

Solar roof frame connected using Hollo-Bolts



Hollo-Bolt (countersunk head) installed in a splice connection

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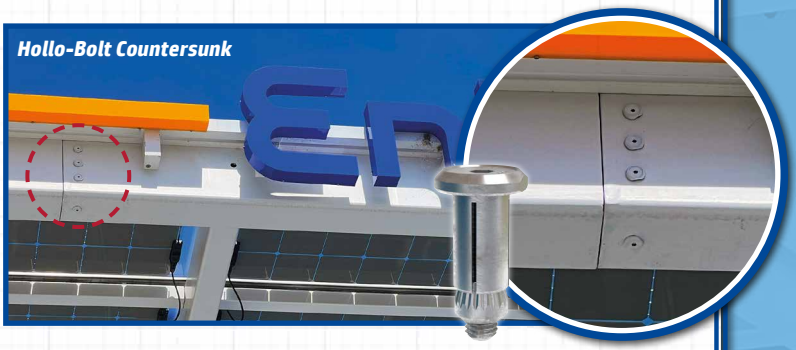
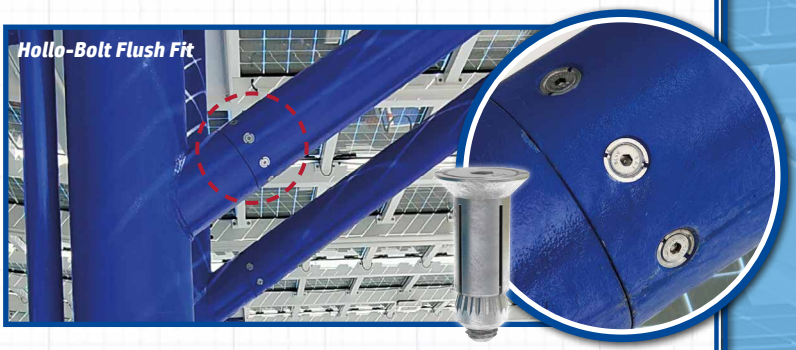
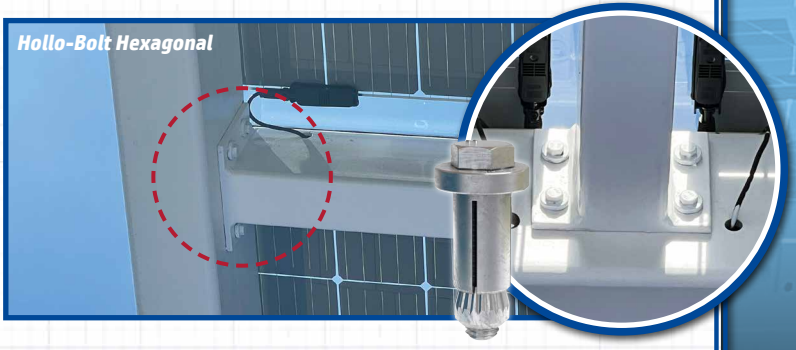
Design Solution

Lindapter's technical support team worked with the client in order to design a suitable connection using Hollo-Bolt, the original expansion bolt for structural steel that requires access to only one side of the SHS. The design incorporated splice connections with pre-drilled holes in the SHS which the Hollo-Bolt could be inserted through to join the roof framework together.



Hollo-Bolt Countersunk and Flush Fit head types were specified in critical locations to prevent the heads obstructing the solar panels whilst Hexagonal head Hollo-Bolts were used in less critical locations in the roof framework. A Sheraplex coating was also specified for the Hollo-Bolts to provide a high level of corrosion protection.





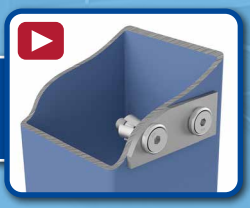
Installation

The structural hollow sections were manufactured in a fabrication shop where they were cut to length, and holes drilled to suit the requirements of the Hollo-Bolts.

The SHS was also galvanised prior to delivery to reduce labour costs and time onsite whilst also ensuring long lasting corrosion protection. Once onsite each finished and coated part was assembled by simply inserting the Hollo-Bolts into the predrilled holes and tightening them with a wrench to the recommended tightening torque.

To complete the installation, solar panels were connected to the framework and then the whole roof hoisted into position on steel support columns.

Click here to watch the installation videos



Result

The specification of Hollo-Bolts provided a simple and secure connection solution that is now being replicated on new charging stations built by EnBW. The Sheraplex coating on the Hollo-Bolts also provided the necessary corrosion protection demanded by the client.

EnBW continue to expand the country's energy infrastructure with over 50 large charging stations already built and over 200,000 charging points operated across nine other European countries.

Key Benefits

- ✔ Simple splice connection solution
- ✔ Sheraplex finish for high corrosion protection
- ✔ Choice of head types to suit different situations

Click here for more details