PRESS RELEASE

Perforated sheets for high-alpine photovoltaic system

SCHÄFER Lochbleche supplies customised perforated sheet elements made of Magnelis® for protection and safety

Neunkirchen, 1st March 2023. Photovoltaic panels operate highly efficiently at unshaded Alpine altitudes and contribute to the power supply in winter. The photovoltaic system on the Valle di Lei dam in the Swiss canton of Graubünden has received a total of 1056 PV modules over a length of 550 metres. The forecast annual production is 380 MWh. The 343 kWp system was developed and planned by reech GmbH, which selected SCHÄFER Lochbleche to supply 540 precise perforated sheet elements on the basis of previous experience.

A construction project in high-alpine locations is a challenge in terms of planning, logistics and craftsmanship, with little or no margin for error. Any rework on construction sites in the high mountains is hardly possible.

The Lago di Lei dam is an arch dam with different curves and slopes, which was completed in 1963. Consequently, the development of the mounting structure – a structure that can be adapted to the different angles and maintain the necessary mounting precision despite these conditions – was one of the major challenges of the PV project.

In addition, the surface of the dam, which is now six decades old and made of unreinforced concrete, has weathered over time. As a result of many frost changes, i.e. freezing and thawing, the concrete surface has become brittle. The result is spalling. Due to the uneven surface, the precise drilling of the anchor holes for the mounting structure was also a delicate skilled manual task.

The installed perforated sheet elements are required for safety as upper contact protection of the solar panels and on the back to protect the PV modules from snow pressure and to protect the cabling. In addition, the perforation provides the necessary ventilation for the PV modules at the rear. Furthermore, the perforated sheet elements visually enhance the installation.

SCHÄFER Lochbleche supplied a total of 540 folded perforated sheet elements with round perforations Rv 20-30 in the format 965 x 974 mm for the project. 1.5 millimetre thick sheet metal made of Magnelis was chosen as the starting material.

Magnelis is a metallic, steel-coated product that uses a metallic chemical composition of zinc with 3.5% aluminium and 3% magnesium. This coating offers up to three times better corrosion resistance when compared to galvanised steel. The advantages are complete corrosion protection thanks to self-healing at cut edges. With these properties, the material is considered an economical alternative to stainless steel and anodised aluminium for rough outdoor applications, and is also easier to machine mechanically.

"A critical requirement for the perforated sheet elements was, among other things, low tolerance specifications across bends in order to ensure efficient installation with a specified hole grid behind the solar panels," explains Tamas Szacsvay, Managing Partner, reech planning office and system supplier. The company is known as a Swiss full-service provider for photovoltaic systems, storage systems and electric charging stations, and has taken on the planning and project support for the PV system on behalf of ewz.

The dam is owned by ewz, thanks to which hydroelectricity has been generated continuously in the Valle di Lei since 1963. In 2022, the dam wall was also equipped with solar panels on behalf of ewz. Following the successful project at the Albigna dam in 2020, this is ewz's second large-scale high-alpine solar plant in Switzerland.

Images and captions:

Fig. 1: VdL_Bild1_(c)_Schaefer-Werke-GmbH.jpg

Caption: Photovoltaic plant of ewz at the Valle di Lei dam in the Swiss canton of Graubünden.

Fig. 2: VdL_Bild2_(c)_Schaefer-Werke-GmbH.jpg

Caption: Perforated sheet elements from SCHÄFER Perforated Metal as backside protection of PV modules with passive ventilation function.

Fig. 3: VdL_Bild3_(c)_Schaefer-Werke-GmbH.jpg

Caption: Attachment of the mounting structure for PV modules at the Valle di Lei dam in the Swiss canton of Graubünden.

About SCHÄFER Perforated Metal (www.schaefer-lochbleche.de/en/):

Under the motto "Perforated sheets made to measure – individually and quickly", SCHÄFER Perforated Metal offers a wide range of high-quality perforated sheets for all industries and areas of application, with immediate availability. With high-precision tools, the company can fulfil almost all of the customer's wishes with regard to material, hole pattern, dimensions, processing and delivery. SCHÄFER Perforated Metal is part of the internationally successful SCHÄFER WERKE.

The owner-managed SCHÄFER WERKE Group, whose headquarters are in Neunkirchen in the Siegerland region, is active worldwide with diversified business units: EMW steel service centre, perforated sheets, fully recyclable standard and special stainless steel containers, data centre equipment as well as workshop and operations. These business units work on the common basis of high-quality steel sheet, the processing of which is one of the company's traditional core competencies.

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