A partner with forward thinking solutions

The Stäubli PV cable coupler portfolio connects more than 50 % of the global photovoltaic capacity

Facing the fast and dynamically growing photovoltaic (PV) capacity worldwide, the market leader for PV connections is prepared to serve and improve the safety of this still young industry. Stäubli Renewable Energy offers tailored services along the PV project lifecycles for eBoS (electrical Balance of System) applications and is investing in product innovation, resources and expertise. Two new members of the global team give a brief personal insight.

Stäubli has been active in the photovoltaic industry (PV) since the beginning, at that time as Multi-Contact company. With its first pluggable PV connector MC3 the connectors specialist was pioneering. Ever since, the successor model, the Original MC4 connector of Stäubli, has set the benchmark in the industry and the company has become the international leader with its PV connector portfolio. Throughout 20 plus years, the global growth of cumulative PV capacity has constantly increased and become a mainstream electricity source. The cost reduction evolution in PV technology has favored a larger and more sustainable market development accompanied by national as well as international energy and climate programs to accelerate the energy transition.

Over these years, Stäubli Renewable Energy has continuously held a strong presence in the PV industry and meanwhile consistently advanced from component manufacturer and supplier to solution provider. While around 50 % of the worldwide cumulative PV capacity rely on Stäubli PV connectors, the company has a strong commitment to contribute to a safer PV industry. Stäubli Renewable Energy is continually investing in the development of product innovation, product safety and product reliability as well as elaborating services for eBoS applications (electrical Balance of Systems) along the PV project lifecycles. At the same time the investments are also with a focus on production capacity and human expertise. This overall expansion is not only a response to the industry development, but also it empowers Stäubli to grow faster than the market.

Product innovation for valuable continuity

The Stäubli MC4 PV connector is the leading PV connector in the market. Based on the unique MULTILAM contact technology that allows for low-loss energy transfer and offers minimal contact resistance with high power density, these connections guarantee a safe long-term operation. Besides being compliant with national and international standards according to IEC 62852 and UL 6703, Stäubli connectors are also tested beyond the standards in the company's own test laboratories to ensure high-level quality. The Original MC4 connector portfolio is suited for all climatic environments thanks to its resistance to UV, ammonia, and high IP class (IP68).

Following the market development with more and more PV installations in the unobstructed vastness of the desert or in high altitude with more irradiation, Stäubli Renewable Energy has had tested the suitability of its connectors for such applications. Given the situation that about 35 % of the continental surface of the earth are deserts by definition, it is reasonable to use these mostly uninhabited and economically hardly usable areas for large photovoltaic power plants. However, higher temperatures also increase the electrical resistance of the eBoS components that interconnect and convert the modules with each other and to the inverters. Now, the Stäubli PV connector portfolio is the first which meets, according to the TÜV Rheinland test procedure, the requirements for installations in PV systems at an upper limit temperature (ULT) of a minimum value of 105°C.

Another productive location for PV installations is high altitudes. On one hand, at high altitudes in mountainous areas the irradiation is stronger and the diffusion is less, which leads to around 50% more energy than on the plains. The very high solar radiation and the rarely overcast sky create ideal conditions for a high electricity yield. On the other hand, highlands and high mountain regions in South America and Asia offer vast, less economically developed areas for large PV systems. Indeed, for applications at higher altitudes, the requirements for insulation coordination of electrical products differ. The clearance must be corrected, because the decreasing air pressure reduces the resistance of electrical installations to flashovers of the voltage across the clearance. To make PV

The offering of Stäubli Renewable Energy covers all products and services of the eBoS application

plants on high altitude more reliable and safer for best efficiency, the Stäubli PV connectors are now also the first ones to meet the IEC standards for installations up to 4000 m above sea-level.

Reliable partner for lasting alliances

Stäubli Renewable Energy not only accompanies the technological advancement for eBoS applications in PV systems. The leader for quality PV connectors also anticipates the strong market growth. The global team is expanding to serve the market with the most suitable resources, locally and close to the partners and customers. Manufacturing capacity is responsively adapted to continually ensure the production quality at its high level. Interdisciplinary skills from product design and engineering, to purchasing and material inspection all the way to regulatory aspects, sales and logistics go hand in hand to make sure that the Stäubli quality promise can last for the future.

Supporting the Stäubli Renewable Energy advancement

PES met two new members of the global Stäubli Renewable Energy team: Andrea Viaro, Head of Sales EMEA and Guido Volberg, Senior Consultant Product Regulatory Affairs.

PES: Andrea, you joined Stäubli one year ago after having had several national and international positions in the PV industry. What is your mission at Stäubli Renewable Energy?

AV: I joined Stäubli with more than 12 years' experience in the global PV industry. And in fact, the PV industry is truly based on worldwide relationships and networks. From my past I have a broad knowledge of the customer's expectations regarding technological and economical requirements in PV projects. As Head of Sales for the markets in Europe, Middle East and Africa, I focus on coordinating the team for the markets' development, aiming to strengthen the relationships with the various industry players and further expanding the leading position of Stäubli in the market.

PES: How would you describe the characteristics of the PV markets in your responsibility?

AV: The European market started to grow about 15 years ago and many European countries have more than twice the installed capacity per capita than elsewhere, but is still strongly growing. In contrast, the countries in Africa and Middle East show a very high potential and a double-digit growth rate. But overall, the PV market is very dynamic and fast moving. Therefore, it is important that I interact very closely with my local colleagues in the countries to allocate the right resources at the right time. I also support the global Stäubli Renewable Energy team by fostering strategic partnerships with a holistic view on the customer needs.

PES: Guido, you are part of the global PV team at Stäubli since last autumn. However, you have more than 25 years' work experience in the PV industry. How would you describe your new assignment?

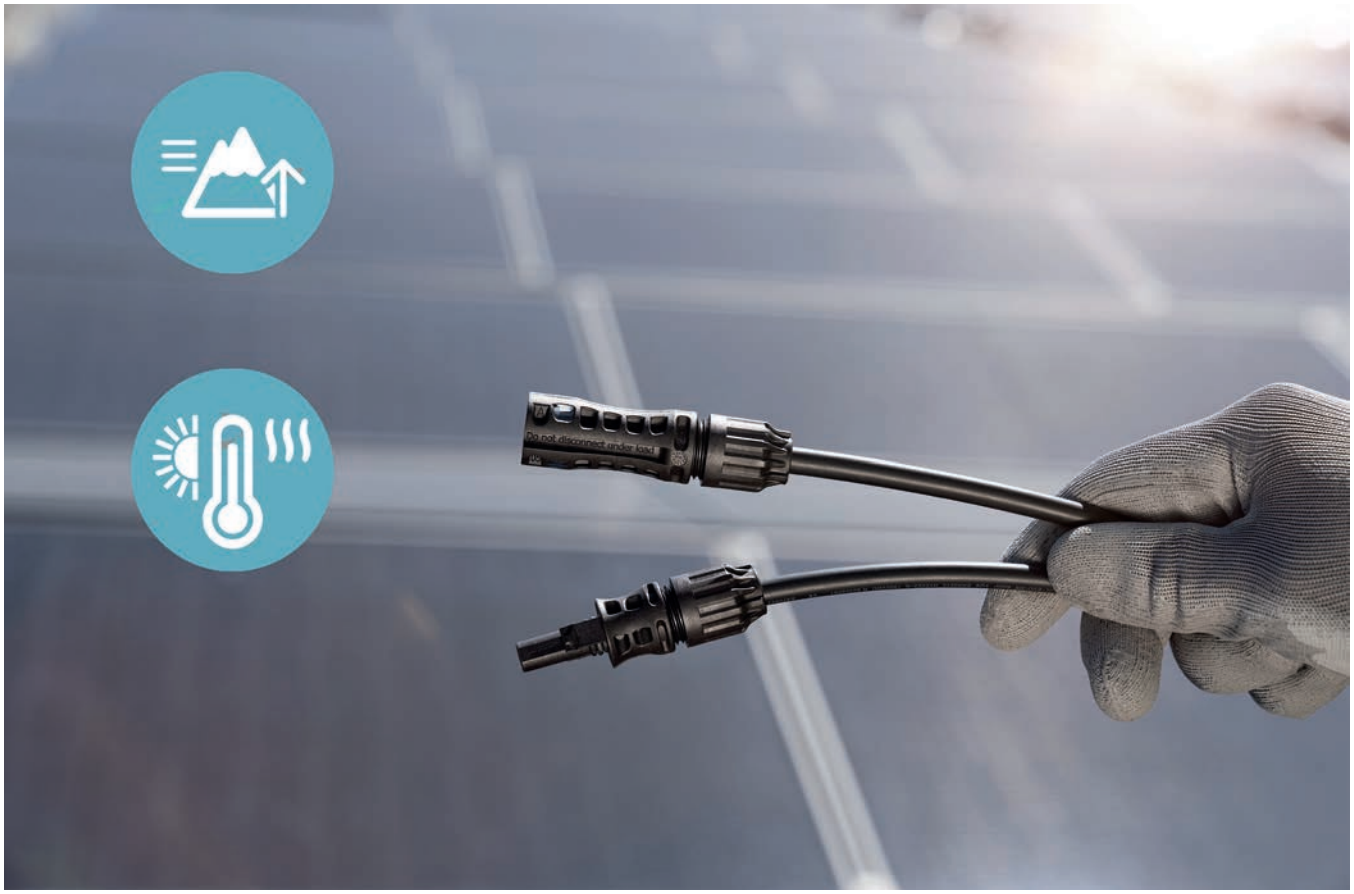
GV: Basically, my role in Stäubli's PV business is to advice and support product innovation in all areas of standardization, regulatory aspects and coordination with official bodies for standards. I do this in close cooperation with our engineering specialists and product management. In fact, complying with industry standards and ensuring that industry standards exist, is an important part for Stäubli as a market leader. Moreover, this aspect strongly supports Stäubli's commitment of improving the safety of the PV industry and ultimately to ensure profitable PV power production for our customers.

PES: From your background you have known Stäubli as a pioneer in the PV industry for quite a while?

GV: Yes, indeed. I have been working very closely with the engineers designing these first PV connectors back in the days. I have maintained a very intense exchange with the company ever since and benefitted to learn a lot on the practical challenges e.g. material properties and product design in the industry. However, what impressed me over all those many years was the innovation spirit at Stäubli, at that time Multi-Contact, and the way the company drives new ideas and product improvements and makes them market-ready. I am glad to contribute today to the further development of Stäubli's market leading position and to advance product innovation to be at the pulse of time of even ahead of it.

Andrea Viaro

Guido Volberg



Product innovation: the Stäubli MC4 PV connector portfolio is the first to be tested for use up to 105°C and at least up to 4000 meters altitude (N.N)

Perfect synergy

With a clear commitment to a close partnership with its customers and business partners, the offering of Stäubli Renewable Energy covers all products and services of the eBoS application. This subsystem in PV plants is the connecting element between the power generation and the power conversion. Stäubli uses its profound experience to provide all eBoS components from one single source, thoroughly geared to each other, throughout the entire project life cycle: from the very beginning in the project planning phase, through implementation, to operation and maintenance (O&M). The company's claim to quality goes beyond the products themselves reaching to consulting and service, backed on the many years of experience in the industry and now supplemented by an enhanced global team of experts. This consistent further development allows Stäubli to act as valuable partner in the market providing connections for sustainable change.

All eBoS components from Stäubli Renewable Energy as single source

About Stäubli

Stäubli offers innovative mechatronic solutions in three core areas including Connectors, Robotics and Textile. Founded in 1892, today Stäubli is an international group headquartered in Pfäffikon, Switzerland with more than 5,500 employees worldwide. Stäubli has a presence in 29 countries with production companies, sales and service subsidiaries and is supplemented by agents in 50 countries.

As a world market leader in the field of connectors, Stäubli manufactures quick connector systems for all types of fluids, gases and electrical energy. The Electrical Connectors product portfolio ranges from miniature connectors to high-performance connectors for power transmission, industrial automation, transportation, test and measurement. In Photovoltaics, Stäubli Renewable Energy is the global market leader with its MC4 connector components. The core of all Stäubli electrical connectors is the unique MULTILAM technology.

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