



Application Case

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Dispensing system for bonding the world's first retractable solar roof

DOPAG configures automated metering and mixing system for Swiss start-up dhp technology

Parking spaces, logistics areas and waste water treatment plants require a lot of space. Why not make efficient use of this space? This is what the Swiss start-up dhp technology thought when it constructed the world's first retractable solar roof. The individual modules are manufactured with dispensing technology from DOPAG.

The world's first patented retractable solar roof was developed under the name Horizon by dhp technology AG. The car park roofing is one of the latest projects from the young Swiss company based in Zizers in the canton of Graubünden. This all began with the roofing of wastewater treatment plants. In 2018, the first model went into operation in the wastewater treatment plant for the town of Chur. It was the first installation of its kind in the world. With an area of 6,400 m², the retractable solar roof covers 20 per cent of the electricity demands of the energy-intensive wastewater treatment plant. The benefit of this is that the entire system remains fully accessible, and the retractable solar roof provides shade during necessary maintenance work in summer and reduces algae growth.

Focus on automation

The retractable solar roof has a system control function with an integrated meteo algorithm. In connection with data collected by a weather station mounted on the system, the modules are either unfolded or, during inclement weather, folded up and stored in a garage. The lightweight system consists of a galvanised support structure and the roof made of solar modules suspended from supporting cables.

For the production of the individual solar modules, the eldomix metering and mixing system from DOPAG was integrated into the production line. It meters and mixes a dual-component adhesive which is used to bond the thin plastic photovoltaic modules to a metal frame. Application of the material is fully automated. The individual modules are then assembled into a complete retractable roof group. The company has already used a rental system from DOPAG in the production of a prototype.

Eldomix conveys the two components by means of two gear metering pumps. These are driven by three-phase asynchronous motors and offer high metering precision. The material is supplied directly from the original container by means of two drum pumps. In general, eldomix is suitable for processing low to medium-viscosity multi-component materials based on polyurethane, epoxy or silicone. The material is homogeneously mixed via a static mixing system. The mixing ratio and the discharge quantity are variable. The material can be discharged in shot form or continuously via a dispensing valve.

In this way, the photovoltaic modules can be safely and reliably bonded to the metal frame and then assembled into a high-quality retractable solar roof. Andreas Hügli and Gian Andri Diem have been successful with their idea. The production line is running at full capacity and more retractable solar roof systems will soon follow in Switzerland and Germany.

Please click here for more information about dhp technology: www.dhp-technology.ch



Retractable solar roof from dhp technology (Picture: dhp technology)



Everything is fully automated in the production hall: the photovoltaic modules are bonded to the metal frame with the eldomix metering and mixing system. The material is supplied via gear pumps. They are then assembled into a complete retractable roof group. (Pictures: dhp technology)



Metering and mixing system eldomix from DOPAG (Picture: DOPAG)



About DOPAG

We are one of the world's most experienced manufacturers of high-quality metering technology. Wherever adhesives, resins, silicones or lubricants are metered and applied in industrial production, we offer reliable, precise solutions. We provide systems and components for highly automated production processes, including for the automotive, wind, household appliances and electrical industries, as well as for aviation and space travel.

DOPAG is part of the HILGER & KERN GROUP, a reliable supplier, development and service partner to industrial companies in a variety of market segments for over 90 years. The group employs around 350 people and has subsidiaries and distributors in more than 40 countries.