Exact!

Application stories from around the world

Inside
Issue No. 23

Success by innovation - the leading centre for composites technology

Federal President Christian Wulff (centre foreground) and his wife Bettina (far left) inspect a DOPAG eldomix resin dispensing system at CFK-Valley, Stade in Germany

Carbon fibre-reinforced plastics are considered to be the material of the future and are characterised by weight reduction of up to 70% compared to steel, display high weight-specific strength and stiffness and have superior static and dynamic loading capability than conventional materials.

CFK-Valley Stade e. V. – Europe's unique competence network for fibre-reinforced plastic technology is located in Stade, a city within the metropolitan region of Hamburg. It incorporates CFK NORD research center for production technology of carbon fibre-reinforced plastic structures.

With its 20.000 m² research facility, CFK NORD is the most prominent part of CFK-Valley Stade e. V.'s research infrastructure. In CFK-Valley Stade e.V. enterprises, research organizations and universities are developing new solutions for innovative applications of CFRP.

The Hilger u. Kern / Dopag Group is technically supporting epoxy resin supplier Dow in Stade regarding the manufacturing optimization of wind energy rotor blades. The support of the Hilger u. Kern / Dopag Group is an indication of the importance to the group of continuous development and innovation.

Hilger u. Kern / Dopag Group

The power of quality

Power tool manufacturer relies on DOPAG quality in high volume manufacturing facility

You may not be familiar with the name ELRAD International d.o.o, but you are probably very familiar with many of the products the company develop and manufacture.

Internationally renowned companies such as Bosch, Miele, AEG, Rexroth, Bauknecht, Kärcher and Metabo, are just a few of the major brands that the company number amongst their customers.

Located in Gornja Radgona, Slovenia, the company, which also has manufacturing facilities in Serbia and China, was founded in 1996 and now employs over 300 people in each location. They develop and manufacture electronic assemblies for many types of end products, which encompass kitchen appliances, household appliances, products for the automotive industry and power tools. In all, the company produces over 8 million such products each year.

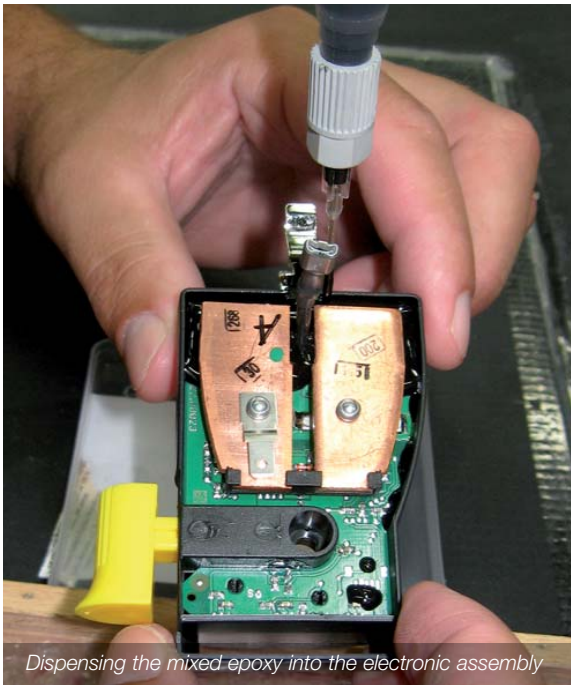
One type of power tool currently in production in Gornja Radgona is a hand held angle grinder which is produced for the international power tool giant Metabo. Designed to operate at 10,500 rpm, this high quality power tool is controlled by an electronic assembly located in the handle of the tool.

During production, it is necessary to encapsulate this assembly with a two-component epoxy resin to protect it from the ingress of water and other unwanted external influences. For this process, DOPAG economix metering, mixing and dispensing systems were selected by ELRAD to proportion the epoxy resin at a ratio of 100:20 before manually applying 25 ml shots of the mixed resin into the assemblies.

ELRAD were assisted in the selection of DOPAG dispensing equipment by Metabo, who suggested the use of DOPAG systems based on their own previous experiences.

The performance and reliability of the resulting systems have helped ELRAD to conform to stringent production requirements without compromising their high quality standards.

DOPAG economix systems feed proportioned epoxy to the manual work stations



Dispensing the mixed epoxy into the electronic assembly

Flexible bonding

flexcell

DOPAG helps Building Integrated PhotoVoltaic manufacturer overcome difficult bonding process

Building Integrated Photovoltaic (BIPV) is the integration of Photovoltaic (PV) components with a building skin to create a unique product - a true building component but with Photovoltaic functionality. They are flexible, lightweight, easy to install, and produce more kWh/kWp per year than crystalline modules with the same orientation.

However, more than 95% of today's PV systems are still glass-based modules, which as a result of their inherent structural rigidity and weight cannot easily be integrated onto most industrial building components without a rigid sub-structure that involves additional installation costs.

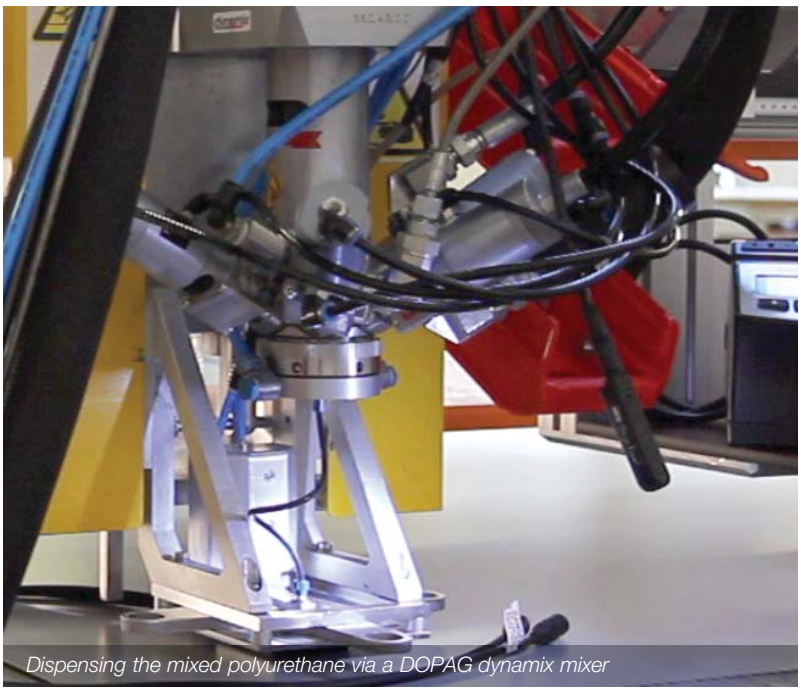
Located in the town of Yerdon-les-Bains in the Canton of Vaud, Swiss company VHF-Technologies SA, better known under the brand name of Flexcell, is at the forefront of the design and production of BIPV modules which have a total capacity of 8 megawatts per year.

During production, the panels are laid onto a surface constructed of Ethylene Tetrafluoroethylene (ETFE), a product that ensures good PV film protection and also provides a smooth surface for the application of adhesive. However, bonding items such as junction boxes satisfactorily to this surface can be problematic and demands a very careful choice of adhesive as well as application method.

DOPAG was able to solve the application problem by means of an eldomix 101 gear pump type metering, mixing and dispensing system in order to proportion the two-component polyurethane at the specified ratio of 100:27.

A DOPAG dynamix mixer was used to homogenously mix the two components. It was fitted with a cooling jacked in order to dissipate excess heat generation.

The mixed polyurethane is dispensed at a rate of 40 ml/minute simultaneously bonding the junction box to the substrate and encapsulating the device to form a weather-proof product, ensuring that BIPV's function equally well in rain as well as shine.



Dispensing the mixed polyurethane via a DOPAG dynamix mixer

A junction box after bonding to the BIPV substrate

New lamps for old

LOPOLIGHT

Marine navigation lighting company benefits from future-proof encapsulating system

With the frequent need to replace spent incandescent navigation lights on seagoing craft, access ways and ladders are often required resulting in some large, expensive and sometimes unsightly structures.

So, in a complete break with tradition, Danish company Lopolight ApS decided to produce a completely new and unique range of long-lasting navigation lights.

Designing the lights became a challenge for Lopolight, so there was no consideration given to the classic way of constructing a navigation light, a design that was established in the days when the primary light source was kerosene.

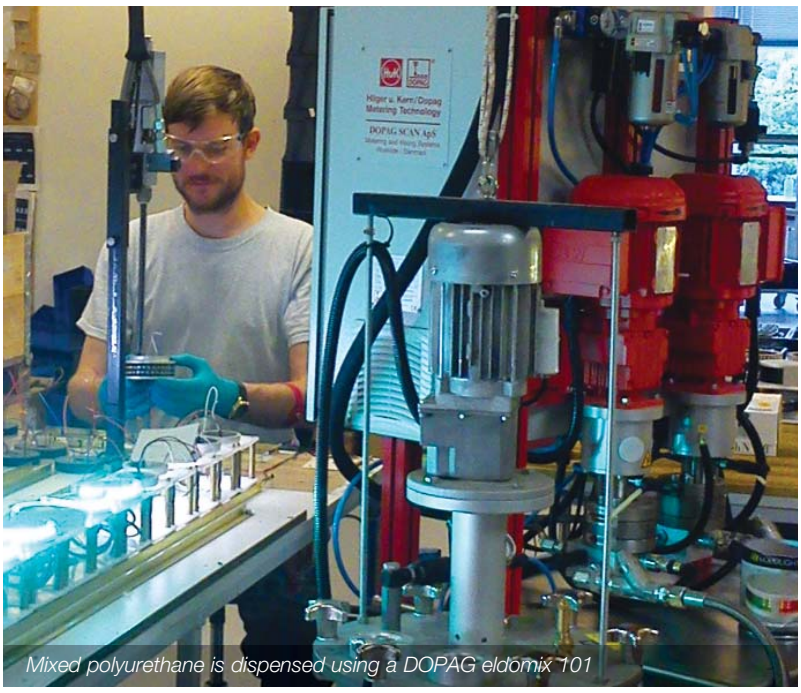
Instead, Lopolight concentrated their efforts on the use of LED lighting. The result was a range of navigation lights that have a typical lifetime of more than 50,000 hours, or the equivalent of 4,200 nights, all but eliminating the necessity for costly access to traditional style lighting on board.

During the production process, the lighting assemblies are encapsulated in order to be made completely water and vibration proof. Lopolight use a two-component polyurethane for this purpose, producing a most satisfactory result that has led to their occasional and successful use even on submarines.

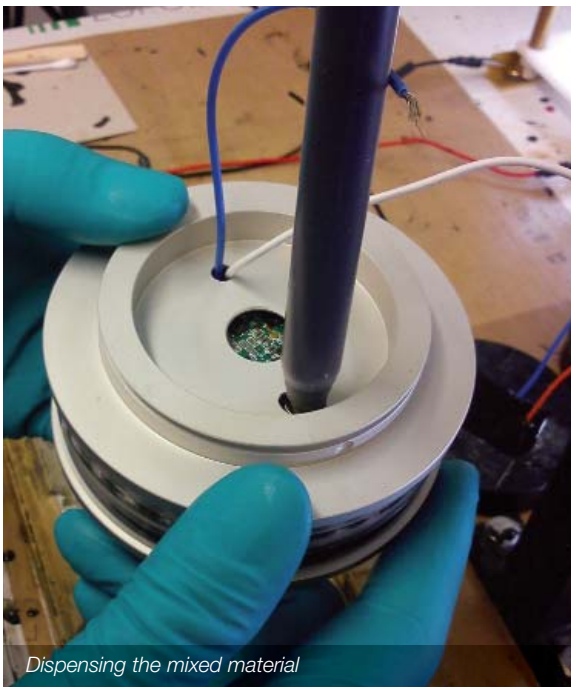
The two components are fed to a DOPAG eldomix 101 from pressure feed containers and proportioned at a ratio of 100:35, before dispensing can take place by means of a DOPAG twin valve fitted with a disposable static mixer.

Although the dispensing process is carried out manually at present, Lopolight plan to automate the process in the future as demand increases, when they will be able to utilise the automated interface control of the existing DOPAG eldomix 101 system.

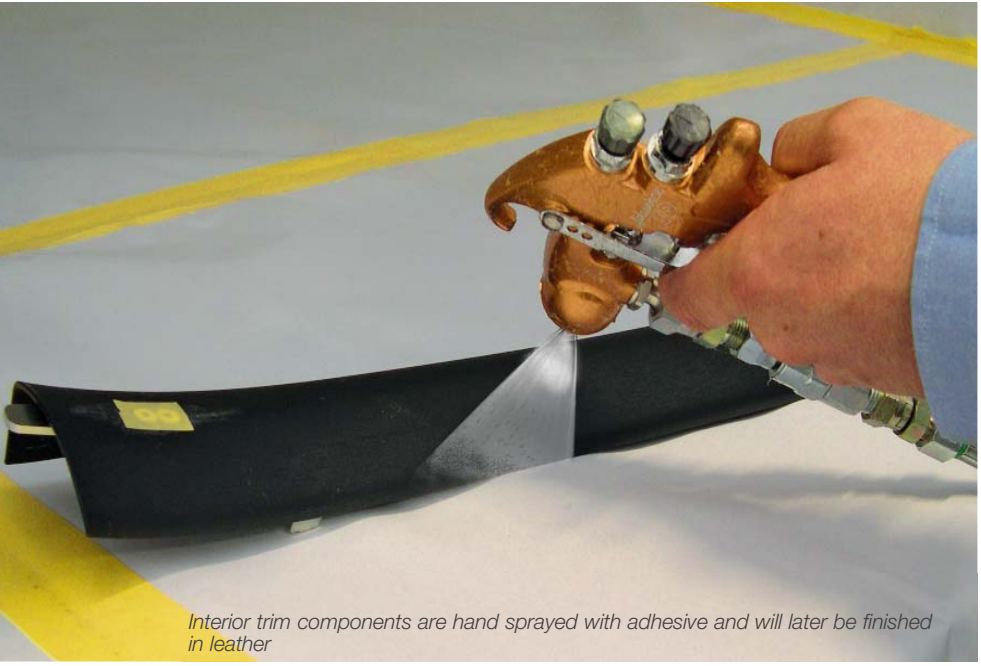
In the meantime, the DOPAG eldomix 101 system continues to help to produce accurately filled and clean, state of the art navigational lighting, making life better and easier for sailors everywhere.



Mixed polyurethane is dispensed using a DOPAG eldomix 101



Dispensing the mixed material



Interior trim components are hand sprayed with adhesive and will later be finished in leather

Keeping in trim

DOPAG drum pumps feed adhesives to interior trim spray facilities at Aston Martin

Aston Martin is acknowledged as an iconic global brand synonymous with style, luxury, performance and exclusivity.

The company has a unique heritage and is instantly recognised around the world for their use of quality craftsmanship and graceful styling to produce a range of critically acclaimed cars that have catapulted Aston Martin to a position as one of the world's coolest brands.

Famous for their long-term relationship with the James Bond film genre that began in 1964 with "Goldfinger," the association continues to the present day.

The first Aston Martins were created with a distinctive and individual character, handcrafted to the highest of standards and over the decades the marque has stayed true to these values, creating some of the most famous British sports cars of the post-war era.

Each vehicle is meticulously produced at the company's state-of-the-art production facility at Gaydon in the Warwickshire countryside.

Stylish design and luxurious quality also define the internal trim of each vehicle, much of which is finished in real leather. During the production process, the leather is applied to trim mouldings by means of an adhesive, which is carefully sprayed onto the mouldings by hand.

The manual spray guns are supplied with adhesive from a remote pump feed station, recently installed by DOPAG (UK) Ltd. Adhesive arrives at the pump station which is located adjacent to twin spray booths in 200 litre size bung drums.

A pair of DOPAG 23:1 ratio drum pumps designed to fit snugly inside the bung holes of the drums are mounted onto pneumatically powered elevators, which carefully lower the pumps into the drums.

Adhesive is then fed to both spray booths, where precision DOPAG material pressure regulators reduce the pressure of the adhesive to the optimum for the spraying process.

When in production, one pump provides adhesive to both spray booths, whilst the second pump remains on standby, so that when the first drum of adhesive becomes exhausted, the second pump becomes active, thus ensuring that there is no interruption to production.

The finished leather covered trim

The pump feed station

New faces

A warm welcome to Martin Rohrer, who joined the management team at DOPAG in Cham on 1st September. Martin, who is 46 and is married with two children, joins the company from a background in industrial management. Outside of the working environment he is a keen motorcyclist.

Guido Hamel has joined Hilger u. Kern GmbH as Area Sales Manager responsible for the western part of Germany. Guido, who is 45, has more than 24 years experience as a sales agent. He is married with two children, in his spare time he can often be spotted riding his bike.

Daniel Müller has been promoted to Area Sales Manager responsible for DOPAG activities in South and Central America and Spain, having worked for six and a half years in Customer Service for DOPAG in Cham. In his spare time Daniel can often be spotted hiking in the beautiful Swiss countryside.

Coming from a background of auto repair and inventory control, 22 years old Danny Jenkins has recently joined DOPAG (US) Ltd, where he is now responsible for service, repair, installations and inventory control. Recently married, Danny is excited about learning DOPAG technologies.

Silvan Renggli has recently joined DOPAG in Cham as Area Sales Manager and is responsible for sales in the German speaking areas of Switzerland. Silvan is an apprentice trained engineer whose interests include hiking and reading crime novels.

Joining DOPAG SCAN ApS as Sales Engineer in Roskilde Denmark, is 32 year old Dennis Sutrow. Dennis is married with two young children and is currently studying international sales and marketing management and logistics in his spare time.

Giuseppe Martino has joined DOPAG as Area Sales Manager responsible for Italy, France and the Italian and French speaking areas of Switzerland. Giuseppe has more than 10 years experience of direct selling. He relaxes by fishing in the Nordic countries.

Editor

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