The prerequisites for tomorrow's technologies

Scheugenpflug focuses on e-mobility and autonomous driving and, with its high-quality dispensing solutions, is accompanying an imminent turn of events in the growth field of mobility.

KENNESAW, GEORGIA. Digitalization, e-mobility, autonomous driving, industry 4.0 and energy system transformation: Many of today's megatrends would be unachievable without safe, reliable electronics. These electronics are becoming smaller, more complex and more powerful, and at the same time the demands on their longevity and reliability are increasing. Modern adhesives, sealants and encapsulants are used to protect these components from harmful influences in the long term. The systems for the application of these materials to the components were supplied by Scheugenpflug AG, headquartered in Neustadt/Donau. The product and technology range of the East Bavarian company, which has branches in the USA, China, Mexico and Romania and employs a total of just under 700 people, is diverse: In addition to dispensing systems and systems for material preparation and feeding, it also includes customer-specific inline and automation solutions.

With this portfolio, the company also sees itself well equipped regarding the growing field of mobility. Because e-mobility poses one of the greatest challenges in the history of the automotive industry. “However, we must not reduce our mobility to drivetrain alone", says Christian Geier, CEO of Scheugenpflug Inc.

Irrespective of whether we are talking about hybrids or pure e-cars, another change has long since taken place: Our vehicles have become “rolling computers" with a growing number of electronic components. Systems such as ABS, light and rain sensors as well as airbags have become standard features. Driver assistance systems such as fatigue detection or emergency brake assist are also gaining ground in all model segments. And the more stages the vehicle passes through on its way to fully autonomous driving, the more systems will be added. “The smooth functioning of computers, sensors, control units or cameras depends on, among other things, optimally applied sealants and adhesives, potting compounds and thermally conductive pastes", explains Geier. “They protect the parts and components from harmful influences such as high temperatures, dirt, moisture or strong vibrations and prevent costly and safety-relevant part failures and defects.” And all this is essential for the safety of road users.

With the further development of electronics, the demands on dispensing technology are also changing. The bonding, sealing and potting tasks are becoming more and more demanding. At the same time, more and more casting resins with very complex formulations or high filler content are being used. Processing these media can be very challenging. An example is the potting of high-voltage batteries used in electric vehicles. In order to prevent damage to the battery and vehicle due to excessive temperatures, large quantities of thermally conductive paste are used. Several liters of these media are dispensed per vehicle between the battery modules and the enclosing housing. Scheugenpflug has developed a new dispensing solution especially for this purpose, consisting of the Dos HP high-performance dispensing unit and the PailFeed200 Abrasive material feeding unit. Here it is possible to connect two feeding systems parallel with the dispensing unit and thus realize redundant system operation without downtimes. Even with highly abrasive thermally conductive materials, the system allows dispensing speeds of up to 80 ml/s.

Whether it is head-up displays, digital mirrors or touchscreens - the number of displays installed in cars is constantly increasing. Especially on the way to the autonomous vehicle, these are becoming increasingly important as human-machine interfaces (HMI). The adhesive, dispensing and potting

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solutions of Scheugenpflug are also used here. “In the first step, vehicle displays are all about good legibility, high robustness and optimum touch functions", explains the Scheugenpflug CEO. „However, safety-relevant aspects such as the head impact test are also becoming increasingly important. This is why these displays are optically bonded, i. e. bonded with liquid, highly transparent adhesives. The highest quality is required here because the end users interact directly with the displays.“

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As vehicle electronics continues to evolve, the adhesives, sealants and encapsulants used become more complex. The processing of these materials can be very challenging - as here with the application of a thermally conductive paste.

Christian Geier, CEO of Scheugenpflug Inc.

Pictures: Thomas L. Fischer Photographie

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About Scheugenpflug:

Scheugenpflug is a leading manufacturer of precision engineered systems and machines for efficient adhesive bonding, dispensing and potting processes. The product and technology range extends from cutting-edge material preparation and feeding units and high performance manual work stations to modular in-line and automation solutions, specially tailored to customer specifications. Scheugenpflug systems are used in the automotive and electronics industries as well as the telecommunications sector, medical technology and the chemical industry. The company has four additional locations in the USA, China and Mexico as well as numerous service locations and sales partners all over the world. Due to its considerable expansion Scheugenpflug was able to double its number of employees within 5 years and now employs nearly 700 staff.
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