

Beyond traditional solutions

From LWRT technology to super insulating materials: Ama Composites aims to transfer advanced solutions derived from other sectors to the world of RVs, from automotive to building & construction. The company has the necessary expertise to develop all parts of a vehicle, interiors and exteriors, being able to make use of its own Design & Engineering department

Words Renato Antonini

In recent years, Ama Composites' activity in the RV sector has intensified. The company has considerable experience in the automotive sector and in particular in the van sector. Recently a patent was adopted by Ford for a lightweight composite Transit bulkhead and was particularly appreciated for the weight reduction compared to traditional systems. Ama Composites works with modern materials and innovative solutions: LWRT (Light Weight Reinforced Thermoplastic) technology, derived directly from the automotive world, appears today to be the most interesting for application in the RV sector. Ama Composites has managed to reduce costs by making large wooden molds, avoiding the traditional aluminum molds, a solution that can be used

starting from a production of 50 pieces.

"We introduced LWRT technology in the RV sector as early as 2007 - explains Marco Corradini, CEO of Ama Composites - and today we can create various elements of the vehicles. We currently work a lot in the vans camper segment: we produce, for example, the internal side panels of the sleeping area, because we are able to perfectly follow the profile of the van's sheet metal. We are among the few companies that can study solutions based on maximum production flexibility: with a single mold, for example, we can obtain both a right and a left side panel".

The lining panels of the vans motorhomes made by Ama Composites integrate ther-

mal insulation. The internal finish can be of a soft touch material, or fabric of various colors or an imitation leather (PVC or TPO). It is even possible in some specific case to mold natural leather. So let's talk about ready-made panels: the vans camper manufacturer receives the finished panel and can send it directly to the production line. Ama Composites is able to work on different types of vehicles, not just classic vans motorhomes based on Fiat Ducato. At the moment, for example, the company is engaged in production for the Citroen Jumpy compact van. Several Tier 1's have evaluated the ability of Ama Composites

Super insulating materials

In 2012 Ama Composites selected super insulating materials for the building & construction sector: the best performing materials were analyzed worldwide, in contrast to traditional insulators such as expanded polystyrene and rock wool, and the choice fell on Aerogel. A very expensive product, also used by NASA for space missions. Ama Composites has integrated it with other materials to create a composite at acceptable costs, used for the thermal insulation of buildings but easily transferable to the RV sector. The use of these new high-performance materials could open new paths, would allow us to go beyond currently established norms.





LWRW cover
headliner

straight but not angular, with two sheets of thermoplastic material and eventually with super insulating Aerogel inside. The floors and walls of mobile homes can also be made ultra light and with high mechanical resistance.

"We are increasingly aiming to create super-performing and super-light products - concludes Marco Corradini, CEO of Ama Composites - able in some cases to replace sheet metal. We have already done some tests: we can obtain a molded, paintable and class A finish product, much lighter than sheet metal, usable in the RV sector. For example, we are contacting some door manufacturers to introduce these new materials. Through our components, according to our studies, we can offer a weight reduction of up to 250 kg per camper van. Compared to elements made with vacuum thermoforming, those produced with LWRW technology are between 4 and 5 times lighter".

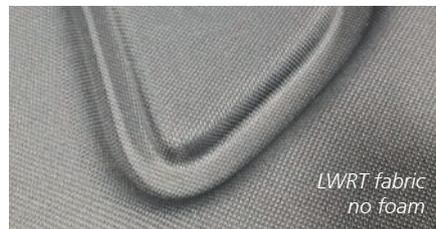
and placed orders, appreciating the existence of an internal R&D department, but also the existence of machinery that allows for production with automotive quantities. In Ama Composites there are, for example, very special presses capable of cutting in a steel mold. The company is in possession of the 3D data of various vehicles, or can easily obtain them, and it can also provide a reverse engineering service, detecting the mathematics on behalf of the customer. The LWRW technology is also used to create parts of overcabs, motorhomes and semi-integral, for example the roof of the attic, the dome, the side panels and the under-bed, including internal structures such as bulkheads and door panels. The company is able to produce large panels, up to 2 metres x 3 metres. It is important to note that, being able to change the weight between the structure and the surface part, the same mold can be used to create different versions, A, B or C, from an economic version to a luxury version with fine fabric. In this way the customer can easily differentiate the range. The structural part can be very light, using 800 gsm (grams per square meters), but it can also reach 2600 gsm to obtain a very resistant component that does not require further reinforcements, thus saving costs.

Among other things, Ama Composites can make the internal wheel arches with non-deteriorating sound-absorbing mat. The component has high mechanical strength and the LWRW technology has the characteristic of being hydrophobic and absolutely stable in all climatic conditions. It is possible to produce elements of this type from 1000 gsm, but were also tested ultra-light and ultra-thin elements with 500 gsm.

New goals

Ama Composites aims to overcome traditional construction schemes to open up new paths. For example, it can supply the various elements of the RVs with the wiring inserted providing a plug & play engineering solution.

All connections can go through a copper-based strip, where everything from data to power cables converges. The Ama Instruments division of the Ama group, which deals with software and electronics, can support the development of new solutions. Ama Composites is making many composites, for example combining LWRW with honeycomb. Excellent results were obtained especially for the construction of the platform, for example in straw polycarbonate,



LWRW fabric
no foam



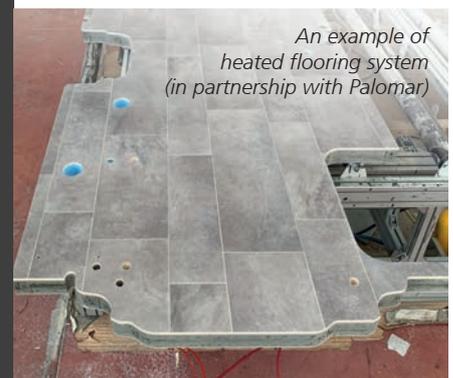
Heated flooring

Ama Composites has recently developed and patented an efficient and space-saving electric floor heating system. It is based on a fabric (weft and warp) made of copper (or even other materials) and glass fiber, heatable, which acts as a resistance. This fabric can be integrated within the fiberglass that forms the surface of the floor panel: by connecting the contacts to the inverter, it is possible to control the intensity of the heat. Working in combination with the aerogel it is even possible to convey the heat to a specific area or component part. The Ama Composites underfloor heating system differs from those already in circulation because it is integrated into the structure and is very high performance.



Company profile

Ama Composites is an Italian company based in Campogalliano, in the province of Modena. It is a division of the Ama group, a production company that employs 1,300 people and has a turnover of around 200 million euros. The Ama group is based in Italy, but has offices in various parts of the world, from China to South America, from India to Russia, but also in Indianapolis, near the American "Caravan Valley". In all, it has 33 companies working in various fields, from automotive to spare parts for agricultural machinery, through building & construction. Ama Composites was founded in 2004 and has been active in the RV sector since 2006. It operates in the field of high tech. composite plastic materials, materials that are able to ensure high strength and low weight, being able to be molded into the desired shapes. The internal Design & Engineering department of Ama Composites is able to develop every element of a vehicle, from the small detail to the entire vehicle, both external parts and internal elements, including parts related to wiring and instrumentation. Ama Composites focuses heavily on innovation, investing at least 3% on average of its turnover in research and development. The company has the ability to work using and integrating various technologies, from vacuum thermoforming to thermoplastic injection, from SRIM to LWRW, passing through RTM & the innovative and patented GRIT (Gloss Resin Impregnated Thermoplastic) without neglecting systems that include the use of super insulating materials such as Aerogel.



An example of
heated flooring system
(in partnership with Palomar)