**Ein Bild, das Zeichnung enthält.

Automatisch generierte Beschreibung**

**Press release**

* **BBG presents self-closing HP-RTM molds for compact universal hydrogen tanks**
* **Series production with simple production technology and low investment cost**

*Mindelheim/Germany, September 16, 2020.* BBG has presented a concept for HP-RTM molds that allows for the quick and reproducible manufacturing of compact, modular hydrogen tanks, which are made of CFRP and can be used in many vehicle types. The tank modules are made of carbon-fiber reinforced plastics (CFRP) and are autonomously produced in self-closing molds. The process does not require a press or further production equipment, such as autoclaves for curing.

To this end, cylindrical hollow bodies are overbraided with carbon fiber, and then a low-viscosity, resin-based mixture is injected under a high level of pressure in the heated mold. After curing in the mold, the modular CFRP cylinders can be removed and connected to form a tank.

BBG, a manufacturer of molds, machinery and plants, has developed and manufactured molds for the high-pressure resin transfer molding (HP-RTM) process for many years. As early as in 2019, the company presented a mold for the production of hydrogen tanks at the JEC World Composite trade show.

**Compact tanks, range similar to those of internal-combustion engines**

Since tanks are made of individual CFRP cylinder modules, they can be tailored precisely to the installation space available in a vehicle. The modules can be integrated, for example, in the floor assembly to save space. Such a tank filled with 700 bar internal pressure facilitates a range that is similar to those offered by internal-combustion engines for hydrogen-powered passenger and commercial vehicles.

**Self-closing HP-RTM mold suffices for series production**

First the inner shells of the cylinders, which are also referred to "liners", are overbraided with carbon fiber. (Photo: BBG) Then the blanks thus prepared are inserted into the two-part mold. Up to 15 cylinders with a diameter of 50 mm and more can be produced simultaneously per operation.

A low-viscosity, resin-based mixture is injected under a high level of pressure once the heated mold has closed autonomously. This mixture penetrates the carbon-fiber braid, enclosing the individual fibers evenly and without defects in the process. After curing in the mold, the finished pressure-resistant components can be removed and assembled to form a tank.

**Simple technology and low investment cost**

In comparison to other processes, series production with self-closing molds offers the benefit of being based on a simple technology, which results in low investment cost. Replacing large cylindrical hydrogen storage units by more compact tanks and the reduction of production cost play an important role in the development of fuel cell vehicles. Among other initiatives, the research project Bryson, in which TU Dresden (Dresden Technical University), Hochschule München (Munich University) and Leichtbauzentrum Sachsen (Lightweight Construction Center Saxony) participate in addition to BMW, is looking for solutions to this problem.

**Efficient and reliable production of hydrogen tanks**

Gerhard Hörtrich, project and sales manager at BBG, refers to the company's large competence in tool and mold making: "Since the high pressure applied to hydrogen tanks requires a great deal of component stability, we attach particular importance to maximum precision in the design and production of HP-RTM molds.

For the production of the hydrogen tanks to be as efficient as possible at the same time, we have developed and integrated a reliable sealing system, among other things. This system ensures that virtually no manual reworking is required when the resin mixture is processed", says Hörtrich.

**BBG’s customers are active the world over**

BBG GmbH & Co. KG, a manufacturer of molds, machinery and plants, is a renowned specialist for the plastics-processing industry. In addition to end-to-end production facilities, we design, develop and produce molds for the processing of polyurethane (PUR), PVC, TPE and other elastomers as well as a wide range of fiber-reinforced materials. This includes production processes such as PUR-CSM (PUR Composite Spray Molding), LFI (Long Fiber Injection), RTM (Resin Transfer Molding), SMC (Sheet Molding Compound) or GMT (Glass Mat reinforced Thermoplastics), which are selected depending on the desired qualities of the finished products. Further important areas include solutions for light-weight design, the processing of composites and the manufacturing of components made of fiber-reinforced plastics for a large number of industries.

BBG, the family-owned business, which is located in Mindelheim/Allgäu and is run by Hans Brandner, the managing partner, supply their products to their customers all over the world, with the Asian market playing an important role in addition to the markets in Europe and North America. With a headcount of around 170, BBG generated worldwide sales to the tune of 25.4 million Euros in 2019.

**Photos:**

Ein Bild, das sitzend, Tisch, haltend enthält.

Automatisch generierte BeschreibungPhoto 1:

The HP-RTM molds developed by BBG allow for the flexible production of compact tanks in varying sizes. Since the tanks are assembled from individual modular CFRP cylinders, they can be tailored precisely to the installation space available in a vehicle. (Photo: BBG)

Ein Bild, das drinnen, sitzend, Metall, Tisch enthält.

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Photo 2:

First the inner shells of the cylinders, which are also referred to "liners", are overbraided with carbon fiber. (Photo: BBG)

Ein Bild, das drinnen, sitzend, Auto, Pfanne enthält.

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Photo 3:

A tank consists of several individual CFRP cylinders that have a small diameter and are connected to each other (photo: BBG).

**Please visit for a download of the press release (Word documents) and print-quality photos.**

**<https://www.auchkomm.com/aktuellepressetexte#PI_374>**

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