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**Press release**

* **BBG: Five new mold carrier systems and concept studies for the ergonomic PUR encapsulation of large car glass panels**
* **Premiere of the world's largest mold carrier systems for glass processing**
* **Presentation at the "Ergonomics calls for innovation" forum**

*Mindelheim/Germany, 4. June 2019.* The system provider BBG has presented five innovative mold carrier systems and concept studies that have been specifically developed for the encapsulation of large car glass panels and one-piece panoramic sunroofs. All types come with electric drives, offer plate widths of up to 2,500 mm and depths of up to 1,600 mm and are among the world's largest mold carrier systems for glass processing.

They have been specifically optimized for ease of use when handling these unusual dimensions. The exhibition included the BFT-P V8 and the BFT-P V10 mold carrier systems, which were designed right down to the last detail for horizontal encapsulation. In addition, two 1:1 models were on display in which molds are secured vertically. Exhibits also included a concept study design for a further horizontal system.

The tool, machine and plant manufacturer presented the results of two years of development and design work at the "Ergonomics calls for innovation" forum at Mindelheim in mid-May. The event was organized as part of the 4th Innovation Day to mark the 20th anniversary of the company's existence.

**Conventional PUR encapsulation of large glass panels reaches its limits**

The PUR encapsulation of large glass panels in mold carrier systems is appreciated by many manufacturers as an alternative to window spray technology, a pressureless process in open molds. Simply increasing the current machine dimensions, however, is hitting against technological and ergonomic limits. "With plate depths of more than 1,200 mm, an operator normally has great difficulty cleaning all corners of the mold and spraying it with release agent. This also delays set-up," explains designer Oliver Weiß. BBG therefore opted for developing new machine concepts in cooperation with various customers.

**Model 1: BFT-P V8 – horizontal encapsulation with swiveling tower**

The classic horizontally aligned BFT-P V8 mold carrier system ensures user-friendly ergonomics by means of a swiveling tower. The handling of large molds is made easier by the fact that the upper mold mounting plate is opened first and then the tower moves both plates outwards in a single swiveling movement. This ensures effortless access to the entire mold.

The BFT-P V8 with a closing force of 300 kN was the first new development, so it could already prove its efficiency and reliability in extensive practical tests. The new BPF-P V8 was tested and optimized over more than one million work cycles. During the field test, the mold carrier system was completely maintenance-free, only the linear guide slides had to be regreased and the toothed belt had to be retightened.

[A separate press release on the BFT-P V8 mold carrier system is available at <https://www.auchkomm.com/aktuellepressetexte#PI_303>]

**Model 2: The „Pilkington“-BFT-P V10 – horizontal encapsulation with lateral shuttle**

The second model alternative developed by BBG is the BFT-P V10, which was ordered by the automotive supplier Pilkington. This mold carrier system, which is also designed for horizontal encapsulation, offers a new feature, i.e. a shuttle removes the mold laterally from the carrier frame after PUR encapsulation of the glass panel. This means that the upper and lower parts of the mold can be set up by two operators simultaneously. Since the system offers free access from the front and rear, feed and discharge systems for components, inserts and molds can also be integrated quickly. If required, the BFT-P V10 can also be used for fully automatic production, for example with the aid of a robot that inserts and removes workpieces.

**Model 3: Concept study K 3 – horizontal encapsulation with shuttle moving forwards and backwards**

The third model, the concept study K3, is similar to the BFT-P V10. Like the BFT-P, it has been designed for horizontal encapsulation and is also equipped with a shuttle, which moves forwards and backwards. So the mold moves toward the operator.

**Model 4: The 1:1 concept study K4 - vertical encapsulation and horizontal opening**

The K4 concept study makes a complete break from the first three models by allowing for vertical encapsulation. At the Ergonomics Forum, partial components were demonstrated in their original size: visitors were able to move between the two mold mounting plates that are 2.5 m in height and 1.6 m in depth and that are positioned parallel to each other at a distance of one and a half meters. The plates with the mounted molds move horizontally towards each other for the encapsulation of glass panels. The typical production plate temperatures of 80 ºC gave visitors a realistic impression of the operators' working conditions.

**Model 5: The 1:1 "book model concept study" K5 - vertical encapsulation, opening and closing in a rotary motion**

Like a book standing upright, the K5 concept study, which is also designed for vertical encapsulation, opens and closes like a vertical book and was presented at the Ergonomics Forum as a 1:1 solid model made of wood. The two mold mounting plates are attached to a vertical axle that can be opened for set-up so that the operator can easily access all areas of the mold.

**Ergonomics, productivity and safety**

The BBG designers succeeded in reducing the mass of moving parts by an average of 25% in all mold carrier systems through the use of finite element methods. "In combination with the appropriately dimensioned drives, we are able to build highly dynamic mold carriers, as is demonstrated by the BFT-P V8 by way of example," explains Oliver Weiß. The electric mold carrier systems are driven by maintenance-free toothed belts.

All mold carrier systems are equipped with the new user-friendly user interface Easy Control 2.0 from BBG. Thanks to extensive data acquisition and the Industry 4.0 connection, comprehensive remote maintenance with direct access to all information can be implemented upon request.

All models can be adapted to customer-specific requirements in order to further increase the productivity of the mold carrier systems.

**BBG has specialized in the encapsulation of large glass panels**

The system supplier BBG has comprehensive experience in handling large components. In addition to customer-specific production solutions, the group has for many years offered mold carrier systems and end-to-end solutions for the encapsulation of large glass panels such as sunroofs, front and rear windows and the encapsulation of photovoltaic modules with polyurethane.

**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 27 million Euros in 2018.

**Photos:**

Ein Bild, das drinnen, Gebäude, Wand enthält.

Automatisch generierte Beschreibung

Photo 1:

With the horizontal mold carrier system BFT-P V10 (left), a shuttle is used to remove the lower part of the mold sideways from the carrier frame so that the upper and lower parts of the mold can be cleaned parallel next to each other and at the same height, and release agent can be applied.

The BFT-P V8 can be seen on the right-hand side of the photo: The cleaning of and the application of release agent in large molds is made easier by the fact that the upper mounting plate opens first, then the tower moves both plates outwards in a single swiveling movement. The operator can thus reach both parts of the mold one after the other at a comfortable height (Photo: BBG GmbH & Co. KG).

Ein Bild, das Boden, drinnen, Mann, Gebäude enthält.

Automatisch generierte Beschreibung

Photo 2:

The K5 concept study, which is also designed for vertical encapsulation, opens and closes like a vertical book. At the Ergonomics Forum, designer Oliver Weiß presented it as a 1:1 solid model made of wood (Photo: BBG GmbH & Co. KG).

Ein Bild, das drinnen, Boden, stehend, Gebäude enthält.

Automatisch generierte Beschreibung

Photo 3:

The K4 concept study makes a complete break from the first three models by allowing for vertical encapsulation. At the Ergonomics Forum, partial components were demonstrated in their original size: visitors were able to move between the two mold mounting plates that are 2.5 m in height and 1.6 m in depth and are positioned parallel to each other at a distance of one and a half meters. (Photo: BBG GmbH & Co. KG).

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