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## USER REPORT

Fröbel Kunststofftechnik, Germany

### **Community masks from FRÖBEL manufactured with WITTMANN BATTENFELD injection molding technology**

***FRÖBEL, domiciled in Blaufelden, Baden-Wuerttemberg, has developed a high-quality community mask for the fight against COVID-19 together with its partner company AKO Kunststoffe Alfred Kolb GmbH in Hoffenheim. The parts for this mask are produced at FRÖBEL using latest injection molding technology from WITTMANN BATTENFELD.***

FRÖBEL, a family-owned company in the second and third generation, was founded in 1949. With the production of thermometers, the company entered the plastics processing industry in 1960. Today, it supplies its products to virtually all non-automotive sectors of industry. Its portfolio of goods and services ranges from the development and production of individual parts and complete assemblies to finished products. In some cases, FRÖBEL even takes care of its customers' logistics right up to the end customer.

Of the 40 injection molding machines installed at Fröbel, ranging from 150 to 6,000 kN in clamping force, 36 are from WITTMANN BATTENFELD, among them large machines from the *MacroPower* series, all-electric machines from the *EcoPower* series, as well as machines from the servo-hydraulic *SmartPower* series. The robots, a total of 30, have also come from WITTMANN BATTENFELD. Moreover, FRÖBEL operates its own mold making shop, which offers the company among other benefits a high degree of flexibility in fulfilling its customers' wishes.

The latest product from FRÖBEL is a high-quality community mask, which FRÖBEL has developed jointly with its partner company AKO. For Tobias Fröbel, the company's junior managing partner, the main consideration in this project apart from the desire to help with the fight against COVID-19 was the aspect of sustainability. Therefore it was important to him to develop a reusable product with the filter fleece being the only disposable part.

The mask created in cooperation with AKO consists of a base with a top piece, on which flexibly adjustable elastic bands are fastened. The base is produced from a

supple, elastic grade of TPE, which provides a high degree of protection together with excellent wearing comfort. In addition to serving as the fixture for the elastic bands, the top piece holds the disposable PP filter fleeces in place, of which a package of ten is automatically included in the delivery of the mask to the end customer. The masks can be cleaned with standard disinfectants or with hot water. When people put them on or take them off, they do not come into direct contact with the disposable fleece. Basically, the masks can be upgraded with a great variety of filter media. Apart from the high wearing comfort due to the soft, elastic base, FRÖBEL's customers appreciate the light weight, good speech attributes and high air permeability of the large filter area.

The masks are available in two sizes. In addition to the standard model M, a 20% smaller S version has been developed, which is intended primarily for women and children. For large-quantity orders, a customized color choice is also possible. The S model primarily intended for women and children is available with a choice of several different colors as standard.

The masks are manufactured at both FRÖBEL and AKO and sold worldwide. They are currently distributed exclusively in the B2B sector. A B2C solution with partners is in preparation. Currently 70,000 S model masks and 140,000 M model masks are being produced per week, of which 70,000 are manufactured at FRÖBEL. At present, the mask is undergoing a CPA / FFP2 certification process. With this certification, the masks would be officially recognized as Corona virus pandemic respiratory masks.

The service engineers of WITTMANN BATTENFELD Deutschland GmbH have also been equipped with these protective masks, and the feedback about the use of the masks, especially their wearing comfort and speech quality attributes, is very positive.

The production at FRÖBEL is carried out with a 2-cavity mold on a machine of the servo-electric *SmartPower* series from WITTMANN BATTENFELD with 900 kN clamping force, equipped with a PRIMUS 16 robot from WITTMANN. FRÖBEL plans to extend the production capacity in the near future by adding another four two-cavity and four-cavity molds currently under construction. These molds will be used on two machines of the all-electric *EcoPower* series from WITTMANN BATTENFELD with 1100 kN clamping force and a hydraulic HM 110 model.

With the production of its reusable masks using the machines of the *SmartPower* and *EcoPower* series from WITTMANN BATTENFELD, FRÖBEL also makes another contribution to protecting the environment, since one of these machines' attributes is high energy efficiency, an aspect of particular importance to both Tobias Fröbel and his father, Joachim Fröbel, who is the company's CEO. The high process stability

and easy operation of the machines, as well as their integrated robot concepts, are also appreciated at Fröbel. Tobias Fröbel comments: “The machines from WITTMANN BATTENFELD are reliable, energy-efficient and easy to operate. An additional benefit is their compact design, which helps us to make optimal use of the valuable space in our production plant.”



**Fig. 1:** from the left: Tobias Fröbel, Managing Director of FRÖBEL Kunststofftechnik, and Andreas Schramm, Managing Director of WITTMANN BATTENFELD Germany, in front of the *SmartPower* 90/350

(Photo: WITTMANN BATTENFELD)



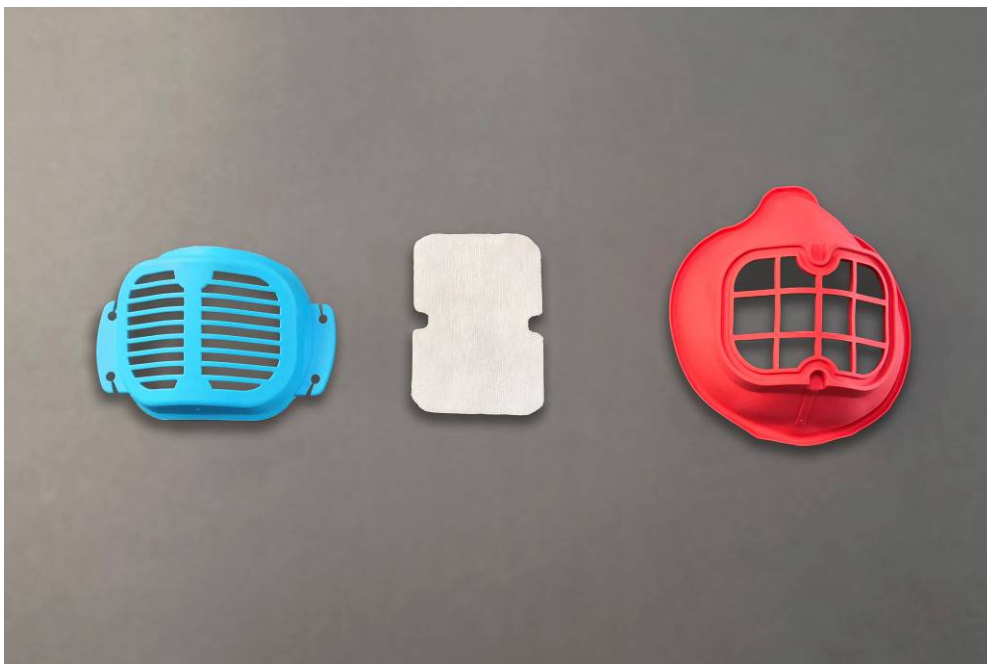
**Fig. 2:** Top pieces for the masks (Photo: WITTMANN BATTENFELD)



**Fig. 3a:** Community mask, M model – from the left: top piece of the mask, filter fleece and base made of TPE (Photo: FRÖBEL Kunststofftechnik)



**Fig. 3b:** Community mask, M model, from FRÖBEL (Photo: FRÖBEL Kunststofftechnik)



**Fig. 4a:** Community mask, S model – from the left: top piece of the mask, filter fleece and base made of TPE (Photo: FRÖBEL Kunststofftechnik)



**Fig. 4b:** Community mask, S model from FRÖBEL (Photo: FRÖBEL Kunststofftechnik)

## **The WITTMANN Group**

The WITTMANN Group is a worldwide leader in the production of injection molding machines, robots and auxiliaries for the plastics processing industry, headquartered in Vienna/Austria and consisting of two main divisions: WITTMANN BATTENFELD and WITTMANN. They jointly operate the companies of the group with eight production plants in five countries, and its additional sales and service companies are active with 34 facilities on all important plastics markets around the world.

WITTMANN BATTENFELD pursues the further expansion of its market position as an injection molding machine manufacturer and specialist for state-of-the-art process technologies. As a supplier of comprehensive, modern machine technology in modular design, the company meets both present and future market demands for plastics injection molding equipment.

The WITTMANN product portfolio includes robots and automation systems, material handling systems, dryers, gravimetric and volumetric blenders, granulators, temperature controllers and chillers. With this diversified range of auxiliaries, WITTMANN offers plastics processors solutions to cover all production requirements, ranging from independent production cells to integrated plant-wide systems.

The syndication of the various segments under the umbrella of the WITTMANN Group has led to complete connectivity between the various product lines, for the benefit of plastics processors with an increasing demand for seamless integration of processing machinery with automation and auxiliaries.

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