

## USER REPORT / 客戶報導

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Fröbel Kunststofftechnik, Germany

德國 Fröbel Kunststofftechnik 公司

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

### FRÖBEL 公司口罩採用威猛巴頓菲爾注塑技術製造

*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.*

總部位於德國巴登-符騰堡州布勞費爾登的 FRÖBEL 公司與位於霍芬海姆合作夥伴的 AKO Kunststoffe Alfred Kolb GmbH 公司共同開發了抗新冠病毒 COVID-19 的高質量口罩。在 FRÖBEL 生產口罩的零件是使用威猛巴頓菲爾公司的最新注塑技術。

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.

FRÖBEL 是第二代和第三代家族企業，成立於 1949 年。隨著不同需求的變化增長，該公司於 1960 年進入塑料加工業。如今，它向幾乎所有非汽車行業提供產品。它的產品和服務範圍涵蓋從單個零件和完整組件的開發和生產到成品。FRÖBEL 甚至會提供客戶後段的物流服務，交付產品至最終客戶。

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.

在 Fröbel 所擁有的 40 台注塑機中，鎖模力從 150 到 6000 kN 不等，其中 36 台來自威猛巴頓菲爾公司，包括 MacroPower 系列的大型機器，EcoPower 系列的全電動伺服機器以及伺服液壓 SmartPower 系列。總計 30 台機器手臂也來自威猛巴頓菲爾。此外，FRÖBEL 擁有自己的模具製造廠，除為公司帶來其他好處外，它還可以高度靈活地滿足客戶的需求。

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.

FRÖBEL 的最新產品是高質量的口罩，這是 FRÖBEL 與合作夥伴公司 AKO 共同開發的。對於該公司的初級管理合夥人 Tobias Fröbel 來說，除了希望與新冠病毒 COVID-19 作戰時，可持續性是這個項目的主要考慮因素。因此，對他來說，開發可重複使用的產品非常重要，其中濾網是唯一的一次性部件。

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.

與 AKO 合作製造的面罩包括帶有頂部的底座，其上固定有可調節的彈性帶。基部由柔軟的彈性等級 TPE 製成，可提供高度保護並具有出色的舒適性。除了用鬆緊帶的固定裝置外，頂部還將一次性 PP 過濾網固定在適當的位置，在將面罩交付給最終客戶時會自動包括十個過濾網。可以使用標準消毒劑或熱水清潔口罩。當人們戴上或脫下它們時，它們不會直接與一次性使用的過濾材接觸。基本上，面罩可以使用多種過濾介質進行升級。FRÖBEL 的客戶除了擁有柔軟，彈性的底座帶來的極高的佩戴舒適性外，還欣賞大面積過濾器的輕巧，良好的語音傳達屬性和高透氣性。

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.

口罩有兩種尺寸。除了標準型號 M 外，還開發了小 20% 的 S 型，主要用於女性和兒童。對於大批量訂單，也可以選擇自定義顏色。S 型主要用於婦女和兒童，可以選擇幾種不同的顏色作為標準配置。

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.

口罩在 FRÖBEL 公司和 AKO 公司均生產，並銷往世界各地。它們目前僅在 B2B 領域中分發。與合作夥伴的 B2C 解決方案正在準備中。目前，每週生產 70,000 個 S 型口罩和 140,000 M 個口罩，其中 70,000 個在 FRÖBEL 生產。

目前，該口罩正在接受 CPA / FFP2 認證過程。通過此認證，該口罩將被正式認可為防止新冠病毒呼吸口罩。

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.

威猛巴頓德國公司“WITTMANN BATTENFELD Deutschland GmbH”的服務工程師出勤也已經標準配備這些防護口罩，關於使用這些口罩的反饋，尤其是其佩戴舒適性和語音質量屬性，都是非常積極及正面的反應。

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.

FRÖBEL 的生產是在威猛巴頓的伺服電動 *SmartPower* 系列機器上以 900 kN 的鎖模力在兩穴模具上進行的，該機器配備了威猛的 PRIMUS 16 機器手臂。FRÖBEL 計劃在不久的將來通過增加目前正在建造的另外四個兩穴和四穴模具來擴大生產能力。這些模具將用於威猛巴頓菲爾全電動 *EcoPower* 系列的兩台機器上，它們的鎖模力為 1100 kN，液壓機型號為 HM 110。

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."

FRÖBEL 通過使用威猛巴頓菲爾的 *SmartPower* 和 *EcoPower* 系列機器生產可重複使用的口罩，從而為保護環境做出了另一貢獻，因為這些機器的特點之一是高能效，這對 Tobias Fröbel 和他的父親 Joachim Fröbel (公司的首席執行官) 都特別重要。Fröbel 還讚賞機器的高過程穩定性和易操作性，以及它們集成的機器手臂概念。Tobias Fröbel 評論說：“威猛巴頓菲爾的機器可

靠、節能且易於操作。它們的緊湊設計是它的另一個好處，這有助於我們充分利用生產工廠中的寶貴空間。”



**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)

圖 1：從左起：FRÖBEL Kunststofftechnik 總經理 Tobias Fröbel 和威猛巴頓菲爾德國總經理 Andreas Schramm 在 SmartPower 90/350 前面（照片：威猛巴頓菲爾）



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

圖 2：口罩的上半部分（照片：威猛巴頓菲爾）

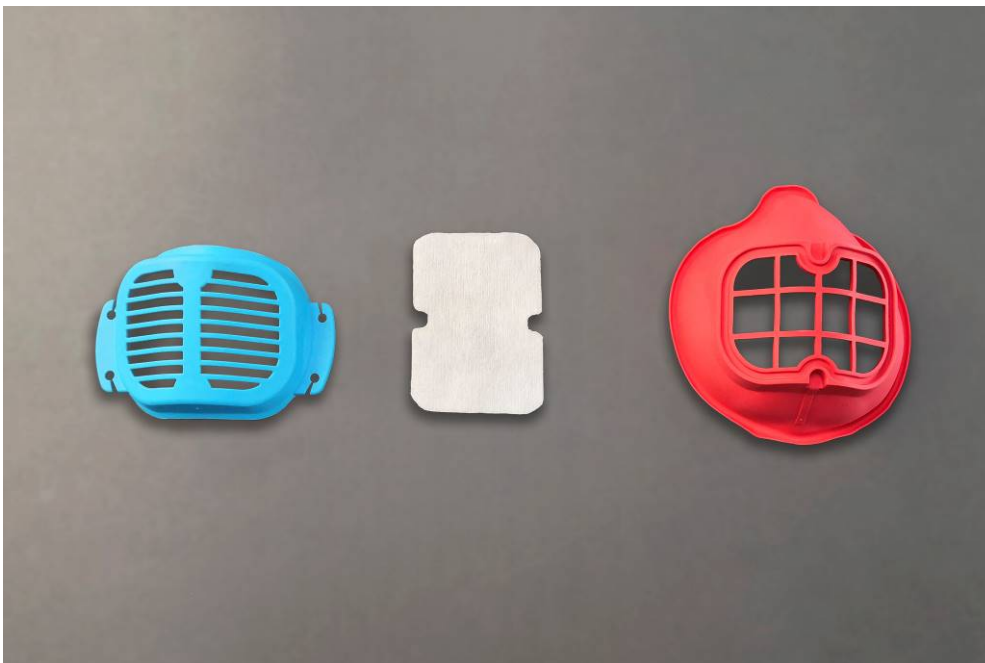


**Fig. 3a:** Community mask, M model – from the left: top piece of the mask, filter fleece and base made of TPE (Photo: FRÖBEL Kunststofftechnik)

圖 3a：M 型口罩-左起：口罩的上半部分，絨毛和 TPE 製成的底座（照片：FRÖBELKunststofftechnik）



**Fig. 3b:** Community mask, M model, from FRÖBEL (Photo: FRÖBEL Kunststofftechnik)  
圖 3b：FRÖBEL 的 M 型口罩（照片：FRÖBELKunststofftechnik）



**Fig. 4a:** Community mask, S model – from the left: top piece of the mask, filter fleece and base made of TPE (Photo: FRÖBEL Kunststofftechnik)  
圖 4a：S 型口罩-從左起：口罩的上半部分，濾棉和 TPE 製成的底座（照片：FRÖBELKunststofftechnik）



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

**圖 4b :** FRÖBEL 的 S 型口罩 (照片 : FRÖBELKunststofftechnik)

## The WITTMANN Group

The WITTMANN Group is a worldwide leader in the production of injection molding machines, robots and peripheral equipment 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 peripheral units, 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 peripherals.

### 威猛集團

威猛集團是塑料行業中製造射出機、機械手和周邊設備的全球領航者。威猛集團總部設在維也納/奧地利，由兩個主要部門，威猛巴頓和威猛組成，他們共同經營集團旗下分公司，在全球 5 個國家設有 8 個生產工廠，其中超過 34 個直屬子公司位於世界各大塑料市場，並各自負責該區域的銷售及售後服務。

威猛巴頓致力於製造最先進的射出機和工藝技術的獨立市場增長，提供現代化和全面的機械模組化設計，滿足塑料射出成型的實際和未來要求。

威猛的產品系列包括機械手和自動化系統，中央供料系統，除濕乾燥機，秤重式和體積式的計量機，粉碎機，模具溫度控制器和冷卻器。憑藉這種全面的周邊設備，威猛可為塑料加工商提供涵蓋所有生產要求的解決方案，從自主工作單元到整個工廠範圍的系統。

威猛集團的結合已經使所有產品線連接為一體，提供塑料加工商在射出機、自動化和輔助設備的無縫接軌，為塑料加工廠帶來了益處，對加工機械與自動化和外圍設備的無縫集成日益增長。

更多信息可參訪我們的網站 [www.wittmann-group.tw](http://www.wittmann-group.tw)

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威猛巴頓菲爾有限公司 Wittmann Battenfeld (Taiwan) Co., Ltd.

40768 台中市西屯區工業區 36 路 16 號

No.16, Gongyequ 36th Rd., Xitun Dist., Taichung City 40768, Taiwan (R.O.C.)

Tel.:886 4 23595158 Fax.:886 4 23592878 E-mail : [info@wittmann-group.tw](mailto:info@wittmann-group.tw)