

**USER REPORT / 客戶報導**

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FT-TEC Trading GmbH, Austria

**FACEshield fasteners from FT-TEC manufactured with injection molding technology from WITTMANN BATTENFELD****FT-TEC 的隔離面罩護具採用威猛巴頓菲爾的注塑技術製造**

*FT-TEC, domiciled in Neutal, specializes in the development and production of high-tech solutions for the automotive industry, railway engineering and the security sector. As an answer to the current COVID 19 situation, FT-TEC has developed a high-grade protective face shield. Injection molding technology from WITTMANN BATTENFELD is used to make the fastening devices for the shields.*

FT-TEC 的總部位於奧地利 Neutal，專門從事為汽車工業，鐵路工程和安全部門開發和生產高科技解決方案。為了應對當前的 COVID - 19 情況，FT-TEC 開發了一種高級防護面罩。威猛巴頓菲爾的注塑技術被應用於製造面罩護具。

FT-TEC, a medium-sized company based in the Austrian province of Burgenland, was founded in 2005 by its present Managing Partner Friedrich Trobolowitsch. The company has been located at its present address in Neutal since 2012. On its production floor, 8 injection molding machines from WITTMANN BATTENFELD are used, ranging from 650 to 4,000 kN in clamping force and equipped with robots and auxiliary appliances from WITTMANN. According to Friedrich Trobolowitsch, WITTMANN BATTENFELD owes the exclusive use of WITTMANN BATTENFELD technology at FT-TEC not only to its excellent personal support and fast response, but also primarily to the availability of machines, robots and auxiliaries all from a single source thanks to the company being a member of the WITTMANN Group. "For me, it is important to have just one contact partner for machines, automation and auxiliaries, especially for international projects," says Friedrich Trobolowitsch. Another great advantage for Friedrich Trobolowitsch is the possibility to access the machines via WebService in the event of any problems.

FT-TEC 是一家總部位於奧地利布爾根蘭州的中型公司，由其目前的執行合夥人 Friedrich Trobolowitsch 於 2005 年成立。自 2012 年以來一直位於奧地利 Neutal 的當前地址。

在其生產區域中，使用了 8 台威猛巴頓菲爾的注塑機，鎖模力範圍從 650 到 4,000 kN，並配有威猛的機械手臂和輔助設備。根據 Friedrich Trobolowitsch 的說法，威猛巴頓菲爾提供優良技術應用在在 FT-TEC 製程生產上，也因為威猛公司其出色的技術支持和快速服務的響應，而且還要歸功於注塑機與機械手臂和輔助設備的單一站式供應整合，讓生產製程非常順利。Friedrich Trobolowitsch 說：“對我而言，在機器、自動化和輔助設備上，特別是在國際項目上，只有單一個聯繫夥伴很重要。” Friedrich Trobolowitsch 的另一個重要優勢是，如果出現任何問題，可以通過 WebService 網路遠端服務訪問機器。

FT-TEC basically specializes in three main business segments.

Firstly, it develops and manufactures high-tech products for the automotive industry and is one of about 200 companies worldwide which are certified according to the IATF 16949 automobile standard.

The company's second line of specialization is railway engineering products, such as components for concrete sleeper production, fastening systems and dowel anchors. In this sector, FT-TEC holds the HPQ certificate (Manufacturer-related Product Qualification) from the German railway company Deutsche Bahn AG.

Thirdly, FT-TEC supplies emergency systems for the shipping industry and special fishery products. Worth mentioning in the fishery sector, for example, is an inductively rechargeable crab catcher which operates with light, sounds and vibration and partly replaces the bait fish which would otherwise have been used. For this product, FT-TEC won an innovation award in 2019. The emergency devices for the shipping industry are man-over-board (MOB) systems. The appliance developed by FT-TEC is the world's smallest MOB system licensed for professional navigation.

FT-TEC 基本上專注於三個主要業務領域。

首先，它開發和製造用於汽車行業的高科技產品，是全球約 200 家通過 IATF 16949 汽車標準認證的公司之一。

該公司的第二條專業線是鐵路工程產品，例如用於混凝土軌枕生產的組件，緊固系統和定位銷。在這一領域，FT-TEC 擁有德國鐵路公司 Deutsche Bahn AG 的 HPQ 證書（製造商相關的產品資格）。

第三，FT-TEC 為航運業和特殊漁業產品提供應急系統。例如，在漁業領域值得一提的是一種可感應充電的捕蟹器，它可以在光線、聲音和振動的作用下工作，並部分替代了原本會使用的誘餌魚。對於此產品，FT-TEC 在 2019 年獲得了創新獎。航運業的應急設備是機載人 man-over-board (MOB) 系統。FT-TEC 開發的設備是世界上最小的用於專業導航的 MOB 系統。

A new high-tech product FT-TEC is currently working on is an emergency device for 5G networks in the NB IoT (Narrowband Internet of Things) segment. The company's project partner is Deutsche Telekom AG, the customer is T-Mobile.

FT-TEC 正在開發一種新的高科技產品，它是 NB IoT（窄頻聯網）領域中用於 5G 網絡的應急設備。該公司的項目合作夥伴是 Deutsche Telekom AG，客戶是 T-Mobile。

The COVID - 19 crisis prompted FT-TEC to develop a protective face shield covering the eyes, nose and mouth. In this context, it was important for Friedrich Trobolowitsch to stick to his philosophy of creating a high-quality product which is not only fit for everyday use, but also meets the most stringent requirements for medical technology and is thus also suitable for use in hospitals and nursing care environments. Consideration of its environmental impact was not neglected either.

COVID - 19 危機促使 FT-TEC 開發出一種覆蓋眼睛，鼻子和嘴巴的防護面罩。在這種情況下，Friedrich Trobolowitsch 堅持其創造高質量產品的理念非常重要，該產品不僅適合日常使用，還滿足醫療技術的最嚴格要求，因此也適合在醫院使用和護理環境。也不忽略其對環境的影響。

With the help of 3D printing, an appropriate design was created which differs from other models on the market primarily by the fact that the shields are less strongly bent and consequently offer more freedom of movement. Series production was started in mid-April.

在 3D 打印的幫助下，創建了一種與市場上其他型號不同的適當設計，主要是因為防護罩的彎曲程度較小，因此提供了更大的移動自由度，並在 4 月中旬開始批量生產。

To meet the high quality requirements, exclusively face shields made of PETG are used. This type of PET modified with glycol offers extremely high transparency, low viscosity and high impact resistance. The attributes of this material allow the exchangeable and recyclable face shields to be cleaned with disinfectants containing alcohol. The shields are cut to size from rolled sheet and given the required form by a laser cutter.

為了滿足高質量要求，僅使用 PETG 製成的面罩。這種用乙二醇改性的 PET 具有極高的透明度、低粘度和高抗衝擊性。這種材料的特性使得可以用含酒精的消毒劑清潔可更換和可回收的面罩。面罩的尺寸可以依照需求來切割完成。

FT-TEC makes the fasteners for the shields by injection molding with equipment from WITTMANN BATTENFELD. The material used is POM, a resin ideally suited for the production of high-precision parts due to its excellent dimensional stability. Fasteners are currently produced from recycled POM in white, red, black and blue. The respective molds, a single-cavity mold used on a machine with 650 kN clamping force and a 4-cavity mold fitted onto a machine with 1,100 kN clamping force, have come from the Burgenland-based company HWB Horitschoner Werkzeugbau.

FT-TEC 使用威猛巴頓菲爾的設備通過注塑成型來製造面罩的框架裝置。使用的材料是 POM，由於其出色的尺寸穩定性，該樹脂非常適合用於生產高精度零件。框架裝置目前由回收的 POM 製成，有白色，紅色，黑色和藍色。模具部份，分別是位於布爾根蘭州的 HWB Horitschoner Werkzeugbau 公司的模具，該模具是在 650 kN 鎖模力的機器上使用的單腔模具，而在 1100 kN 鎖模力的機器上安裝的 4 腔模具。

The face shields can be printed individually with an alcohol-resistant UV printing toner. The finished products are packaged at FT-TEC and can be purchased via the web shop

<https://www.faceshield.at>.

In addition to the standard models, the company makes special models to fit children. The present daily production capacity stands at about 25,000 units.

該面罩可以使用耐酒精的 UV 印刷碳粉分別印刷。成品在 FT-TEC 中包裝，可以透過網上商店 <https://www.faceshield.at> 購買。除了標準型號外，該公司還製作適合兒童的特殊型號。目前的日生產能力約為 25,000 單位。

As a next step, FT-TEC is planning to develop a new product for the medical sector. These models will be suitable for intensive care medicine, where protective goggles are required to be worn as well.

下一步，FT-TEC 計劃開發用於醫療領域的新產品。這些型號將適用於需要戴防護眼鏡的重症監護醫學。



**Fig. 1:** from the left: Christoph Schweinberger, Sales WITTMANN Kunststoffgeräte, Roland Pechtl, Sales WITTMANN BATTENFELD and Friedrich Trobolowitsch, CEO FT-TEC, with fasteners made of recycled POM for the FACEshield (Photo: WITTMANN BATTENFELD)

圖 1：從左起：WITTMANN Kunststoffgeräte 銷售人員 Christoph Schweinberger，WITTMANN BATTENFELD 銷售人員 Roland Pechtl 和 FT-TEC 執行長 Friedrich Trobolowitsch，以及用於 FACEshield 的再生 POM 製成的框架（照片：威猛巴頓菲爾）



**Fig. 2:** The FACEshield fasteners are produced in 4 colors. (Photo: WITTMANN BATTENFELD)

圖 2：FACEshield 框架裝置有 4 種顏色。（照片：威猛巴頓菲爾）



**Fig. 3:** Finished FACEshields (Photo: WITTMANN BATTENFELD)

圖 3：完成的隔離面罩護具 FACEshields (照片：威猛巴頓菲爾)



**Fig. 4:** Friedrich Trobolowitsch, CEO of FT-TEC, with a finished product ready for shipment (Photo: WITTMANN BATTENFELD)

圖 4：FT-TEC 執行長 Friedrich Trobolowitsch，成品準備好裝運 (照片：威猛巴頓菲爾)

## 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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