

Schnitzer Group Newsletter

Future prospects for injection molding

An interview with Joerg Woerrlein

Joerg Woerrlein, injection molding specialist at the Schnitzer Group is a trained plastic molder and industrial foreman. Born in Treuchtlingen, he is considered by our customers and within the Schnitzer Group as a highly frequented "injection molding Yoda". Due to his extensive plastics expertise, but also because of his hands-on approach to things on site, he is often a savior in emergencies, a provider of ideas and alternatives, an active implementer, a speaker for injection molding seminars, a task force leader and is intensively booked by customers and suppliers.



Joerg Woerrlein

Mr. Woerrlein, what bothers you when you think about injection molding in 2023?

The demands on today's injection molded products are often at the limits of what is technically possible. Visually demanding component surfaces, complex geometries with tight tolerances and technical and mechanical properties all must be met at the same time. New tool technologies and materials are used for this purpose, for which there is still little practical experience. We at the Schnitzer Group help these products to achieve a stable series production process.

Mr. Woerrlein what do you think are the customer requirements for the components of the future?

The challenge in the future will be to integrate several functions in one off tool component #function integration. Multicomponent injection molding is already old hat. Of particular interest will be hybrid molds that integrate several components, for example for electrical functions, individual surfaces or specific mechanical properties. For designers and developers, this opens up completely new possibilities, which are also interesting in terms of costs, since this development leads to fewer individual parts overall. The complexity of the new generation of tools is all the higher for it. In particular, the transfer of these technologies into a stable series production process represents a challenge.

Mr. Woerrlein, which technologies are currently in greater demand?

Multi-component injection molding + MuCell + inserts for partial improvement of mechanical or geometric properties. Elements for backlighting / transillumination; integration of functions such as heaters; sensors; light effects. Diverse film technologies such as IMD and insert molding - the possibilities and ideas are limitless. The challenge is to develop the technical possibilities into an economical series product.

Mr. Woerrlein, what role does the Schnitzer Group play in this? How do we get development into series production? (Industrialization)

A holistic approach is the prerequisite for our actions. Article design, mold flow, mold concept, material, automation, industrialization, suitability for series production and readiness for series production must be considered in their entirety, so that the customer receives a high-quality and economical component.

Mr. Woerrlein, what possibilities and opportunities arise for our customers through cooperation with the Schnitzer Group?

The Schnitzer Group provides 55 experts with extensive technical knowledge and experience. Our USP is to have a central project contact, but at the same time access to the expertise of the entire Schnitzer Group. Internally, we call this swarm intelligence. For example, colleagues may temporarily involve me in their project to solve specific mold or process problems with me directly on the injection molding machine. Furthermore, with our companies in China and the USA, we offer a location advantage for our customers. We are also happy to pass on our expertise in various seminars.

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New quality service: Stamping drawing

Years of Schnitzer Group experience have taught us that major time and cost problems often arise shortly before the sampling date, and planned sampling dates fall through. When analyzing the sampling process, it then turns out time and again that not completely "stamped" drawings including missing VDA report can be the trigger.

The purpose of sampling is to assure the supplier to the customer that they understand the product in the current design. With sampling, the supplier provides proof that they have met the requirements for the production process and the product. This so called PPF procedure (production process and product approval) is used to document the assurance of the "quality capability" of production processes and products under series conditions and subsequently produced in the required quantity and quality.

Our SYSTEMIC Quality Managers support our customers in realizing a secure basis for an orderly, on-time sampling process. A central component of every sampling process is the availability of an agreed, stamped product drawing with the associated VDA report. In line with our SYSTEMIC Upgrade, creating added value for our customers, we have therefore added the service "Stamping drawings" to our portfolio.

Procedure:

1. stamp drawing

All inspection characteristics (e.g., dimensions, textually formulated requirements, standards/customer standards, customer-specific requirements, etc.) are stamped. This ensures that no customer requirement is overlooked or even forgotten.

2. create VDA report

All stamped inspection characteristics are transferred to the VDA report (Excel) by the stamping software. In addition, further customer requirements, requirements from rules and regulations, and legal/official requirements can be added to the VDA report created in this way.

3. sampling meeting

The sampling coordination meeting required by the VDA can be documented in this VDA report and constantly updated during the sampling phase in the respective requirement item. In the process, the sampling agreement protocol and VDA report are combined and thus only one verification document is required, which significantly reduces the error rate in the transferability of information.

Basically, this creates a win-win situation. Both the customer and the supplier use this PPF process to create the basis for a transparent, trouble-free sampling process.

Contact:

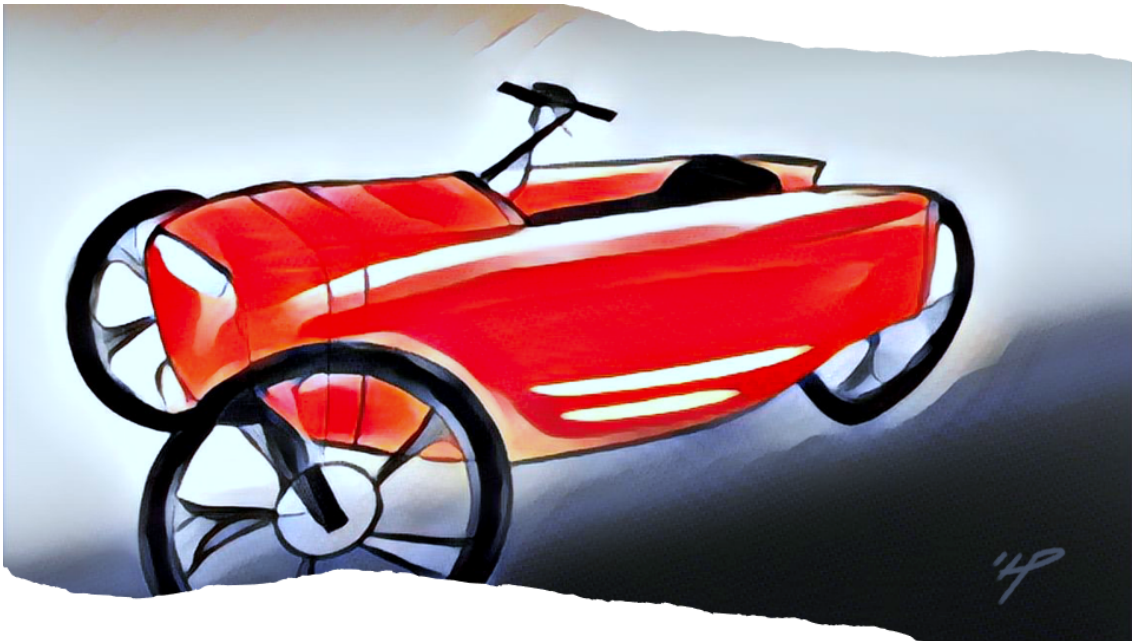
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In the big city, the smallest is likely to win!

The Upgrader - eMobility made easy

When it comes to redesigning modern urban mobility, the approaches are diverse particularly in the transit area between public transport and home. In 2020, Stefan Mangold began developing a concept vehicle specially adapted for this purpose, called the "Upgrader" for an internal eMobility study at the Schnitzer Group.



With its lightweight construction from standardized semi-finished products, the Upgrader is a very energy-efficient e-trike, both in production and in driving. In the existing configuration for high ranges, it also offers our partners the opportunity as a stakeholder platform to further develop the technology with a focus on efficiency and safety.

The e-trike has a safe road handling and does not tend to zigzag when starting up or in slow-moving traffic, as is the case with two-wheelers (e-bikes or e-scooters), which can lead to accidents under certain circumstances. This makes the Upgrader ideal for higher loads and an aging society.

It is powered by human power and supported by an e-bike motor. Therefore, the study is considered a three-wheeled bike, or trike, in terms of traffic regulations. With its current weight of around 40 kg, it has a front and side panel for better visibility and aerodynamics which incorporates lighting through additive manufacturing. The lightweight chassis and wheel suspensions, made exclusively from aluminum profiles, require no special tooling. For the Schnitzer Group team, it is important to pragmatically try out new materials, technologies and processes, ideas and approaches. And that's exactly what the "Upgrader" concept vehicle is for. In early 2022, there were the initial test drives for everyday suitability. Since then, various adjustments have been made to technical features, design and, in particular, weight. Classic lightweight construction will continue to be important here. Since the same principle applies regardless of the mobility concept: less moving mass - less energy consumption.

In terms of carbon footprint, it's possible that the smallest vehicle will come out on top in urban areas.

Technical specifications:

Motor	Bafang hybrid	Charging time	2-3 hours
Drive	Rear-wheel drive	Range	90km with 1km incline
Assist modes	5-stage up to 25km/h	Transmission	7-speed (manual)
Rated continuous power	250W	Brakes	hydraulic
Battery charging	external	Tires	26 inch
Battery capacity	1.008Wh / 28Ah		

Ulrike Schnitzer

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