



**CASE STUDY**

**COMPLEX PLASTIC  
HOUSING FOR  
ELECTRIC BATTERY**

**HIGH MATERIAL REQUIREMENTS  
FOR A PROJECT UNDER TIME PRESSURE**

## CHALLENGE

Precisely fitting and dimensionally stable components with minimal tolerances.

Reliable protection of sensitive battery cells.

Time pressure, as the customer's product presentation is already scheduled.



## SOLUTION

Fast coordination between customer and Jäger development team.

Extensive knowledge of materials for perfectly matched components.

On-time delivery through a comprehensive network of suppliers.



## RESULT

Cost savings, as product presentation can take place as planned.

Innovative product design perfectly matches components to the application.

Reliable delivery capability for serial production.



**CHALLENGE**



# JÄGER SAVES ORDER WITH COMPLEX BATTERY PACK FOR ELECTRIC SCOOTERS

The requirements for the battery pack are extensive: A large number of different components for the housing and inner workings have to be mass-produced with extremely precise fit. The components have to fit pre-

cisely so that the cells inside are reliably protected. In addition, time is pressing for this project, because the presentation for the new electric scooter is already scheduled!

## CHALLENGE



# EXTENSIVE REQUIREMENTS FOR A COMPLEX SYSTEM

13 molds for parts production are now to be manufactured, and this within only 50 days! In addition, the battery pack must be completely designed in the first place, taking into account the widely varying requirements for the individual components. The experts at Jäger rely on their knowledge of materials to meet this challenge. They decide to use four different materials in injection molding to meet the requirements:

- A special ABS for the interior: In the battery, many small cells are securely connected to each other. The material must therefore be extremely accurate and dimensionally stable.
- A glass-fiber-reinforced PP for the battery's housing components, which has an extremely high impact strength.

— TPE provides the base for the battery's foot on the casing, a rather soft plastic and thus slip-resistant and a good vibration buffer.

— PC on the other hand is used for the display window, which can be used to read the battery's charge status.

The high time pressure for the battery pack production is intensified by the increase in the order: In addition to the tools, Jäger Gummi und Kunststoff GmbH shall produce the parts in series and deliver 2,000 sets in advance by air freight. The Jäger team provides the perfect mix for this: a site manager who is fully committed to the project, a professional in project management and a product developer with a reliable network, supported by a very structured office staff.



**SOLUTION**

## PRECISION FIT IN EVERY DETAIL

While the final test stand adjustments are being made and the marketing concept is being worked out in greater detail, designers and component developers are fine-tuning the individual parts: no small matter - the parts have to match the material and the process. And vice versa. The strategy is clear: everything comes from a single source. This also applies to the choice of project managers.

The tasks within the JÄGER Group are clearly outlined and assigned down to the last project steps. Clear responsibilities ensure fast, stringent processes. Meanwhile the customer's technicians determine how the specified tolerances are to be evaluated. Where is there no alternative, where can tolerances be extended?

A man with a beard, wearing a green sweater over a checkered shirt, is focused on inspecting a small, dark, cylindrical component in his right hand. He is standing in a modern industrial environment, likely a factory or laboratory, with various pieces of machinery and equipment visible in the background. The lighting is bright and even. The overall scene conveys a sense of precision and technical expertise.

**SOLUTION**

# COMPLEX MATERIALS CAUSE PROBLEMS

At first the special glass-fiber-reinforced PP which was initially requested by the customer throws back the production several times: This material brings in enormously high stability, but not everyone succeeds in processing it. In this case, the housing parts for the batteries warp again and again. The solution is found in a quick and very direct exchange of knowledge between all those involved. Afterwards the engineers relocate the injection points at which the material is injected into the mold.

The colleagues work out all the necessary improvements and avoid time-consuming correction cycles. After just 24 hours, the optimized molds are installed on the injection molding machine again. The project manager personally monitors the production status and sampling.

**RESULT**



## AN EFFICIENT NETWORK

The material selection of the complex battery components, the total costs of the order and the production locations of the JÄGER Group, all these components have to be taken into account. It quickly becomes clear that one manufacturing company alone cannot handle the large number of tools. But the Jäger network stands firm. Several well-known toolmakers are available at short notice. They know each other personally, which pays off. Arrangements down to the last detail are made on the spot. The customer benefits from a proven, exclusive network, which can only be accessed via the JÄGER Group.

While the designers get the shape of the parts underway, the project managers draw up the necessary logistics concept for just-in-sequence delivery to the assembly line of the scooter manufacturer in Germany. Reusable packaging adapted to the respective article rounds off this project.

The time has come. All components and series sets are delivered on schedule in the requested quality and quantity. The manufacturer can keep its presentation date and present the new electric scooter model as planned. It remains to wish: Have a good trip!



# CONTACT



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