

## CASE STUDY

# ROOF SPOILER

## MOUNTING

### MORE STABILITY, LESS EFFORT

When attaching a roof spoiler in the premium segment, an automobile manufacturer encountered a requirement that quickly pushed a standard solution to its limits:

A self-adhesive moulded part had to ensure high holding forces, withstand extreme temperatures and fit perfectly into the installation space – without additional process steps at Tier 1.

The crucial point: the tear-resistant, fabric tape-reinforced pull tab had to enable final fixing at an unfavourable pull-off angle – but without compromising the previous assembly process.

This case study shows how we combined these requirements in a single, series-optimised solution.

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## INITIAL SITUATION

We manufactured a total of 20 different self-adhesive items for the roof spoiler assembly for the premium segment of an automobile manufacturer. One component was particularly challenging: it was used for the final attachment of the spoiler – and therefore had to reliably withstand high loads, tight tolerances and demanding assembly steps.

## CHALLENGE

- High holding force and temperature resistance
- Precise material thickness for tight installation spaces
- Black material – invisible integration on the component
- Very stable peel-off function against the stickiness direction

This made it clear that it was not only the material itself, but above all the pull tab that determined the success of the series.

### Process-related key requirement:

#### A strong but interference-free tab

The pull tab must not hinder assembly at any point – even though it will later be crucial for the final fixing.

In addition, it was pulled off in the opposite direction to the adhesive surface. This movement generates strong tensile and peel forces that a conventional tab cannot reliably withstand. A seemingly minor function – with major process relevance.

### Customer process

1. The moulded part is removed from the roll.
2. The moulded part is applied to the component – the cover liner remains on the moulded part.
3. The component is installed in the vehicle line.
4. Only at the OEM is the remaining liner pulled off in the opposite direction and the moulded part finally fixed in place.

To ensure smooth installation, it had to be long enough and securely fixed in place, without sticking out or getting caught, and without requiring any additional handling.

A conventional pull tab design or a pull tab that was stuck on later would have been disruptive and prone to errors in this case.

## THE SOLUTION

A conventional tab design could have become stuck or accidentally detached during the first process step, directly impacting cycle time and scrap rates. At the same time, the tab had to function reliably under high tensile forces in the opposite direction during the OEM process.

**Our solution: a pre-folded flap fixed in a process-neutral manner that only unfolds its function at the decisive moment.**

After die-cutting, the tab is precisely pre-folded and securely fixed to the moulded part via a defined adhesive surface. This ensures that it remains completely undisturbed during the initial assembly steps – and can be released in a controlled manner during final removal.

To reliably absorb the strong pull-off movement against the direction of adhesion, the tab was additionally reinforced with fabric tape. This ensures that the forces generated are cleanly transferred into the material – even with tight tolerances and demanding component geometries.

The result: error-free assembly, reliable final fixing, stable series production process.

### Additional process optimisation:

#### **narrower rolls for greater efficiency**

Further potential for optimisation became apparent during the course of the project: the rollers were to be hung side by side for assembly. Due to the production of the pull tabs from liner protrusions, the roller was very wide, but the moulded part on it was no longer, as the tabs were subsequently folded and the overall moulded part width was reduced. This meant that only a few rollers could be hung side by side. This meant that they had to be replaced more frequently, interrupting the process.

### Our Solution:

- Trägerliner specifically reduced in width after die-cutting
- More rolls available at the same time
- Fewer changes during the process
- Less material waste, better ergonomics and tidiness

An example of how small improvements can have a big impact.

## THE RESULT

By combining a pre-folded, reinforced tab with optimised roller geometry, we achieved:

- Reliable fastening in the demanding premium segment
- Secure pull-off function despite unfavourable angle
- Process acceleration in assembly
- Less material loss and waste
- Series-ready stability for millions of units



The solution is stable, precise and easy to assemble – exactly what the vehicle line needs.

## WHY INNO TAPE

Complex requirements such as these demonstrate why a specialised converter is much more than just a supplier of moulded parts. The decisive factor is a manufacturer-independent selection of materials, in which adhesive tapes, liners and reinforcements are combined precisely according to their function. At the same time, good engineering does not start with the product, but with the process: installation space, peel angle, stresses and handling are considered from the outset – not just afterwards.

The result is solutions that function reliably in everyday series production: stable, reproducible and easy to assemble. This results not simply in moulded parts, but in process-optimised series products that make a noticeable difference for the customer.

## AND WHAT CAN WE DO FOR YOU?

No matter how far along you are in your project, feel free to contact us – we will support you and take the work off your hands: as a partner, manufacturer-independent, flexible and fast.

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