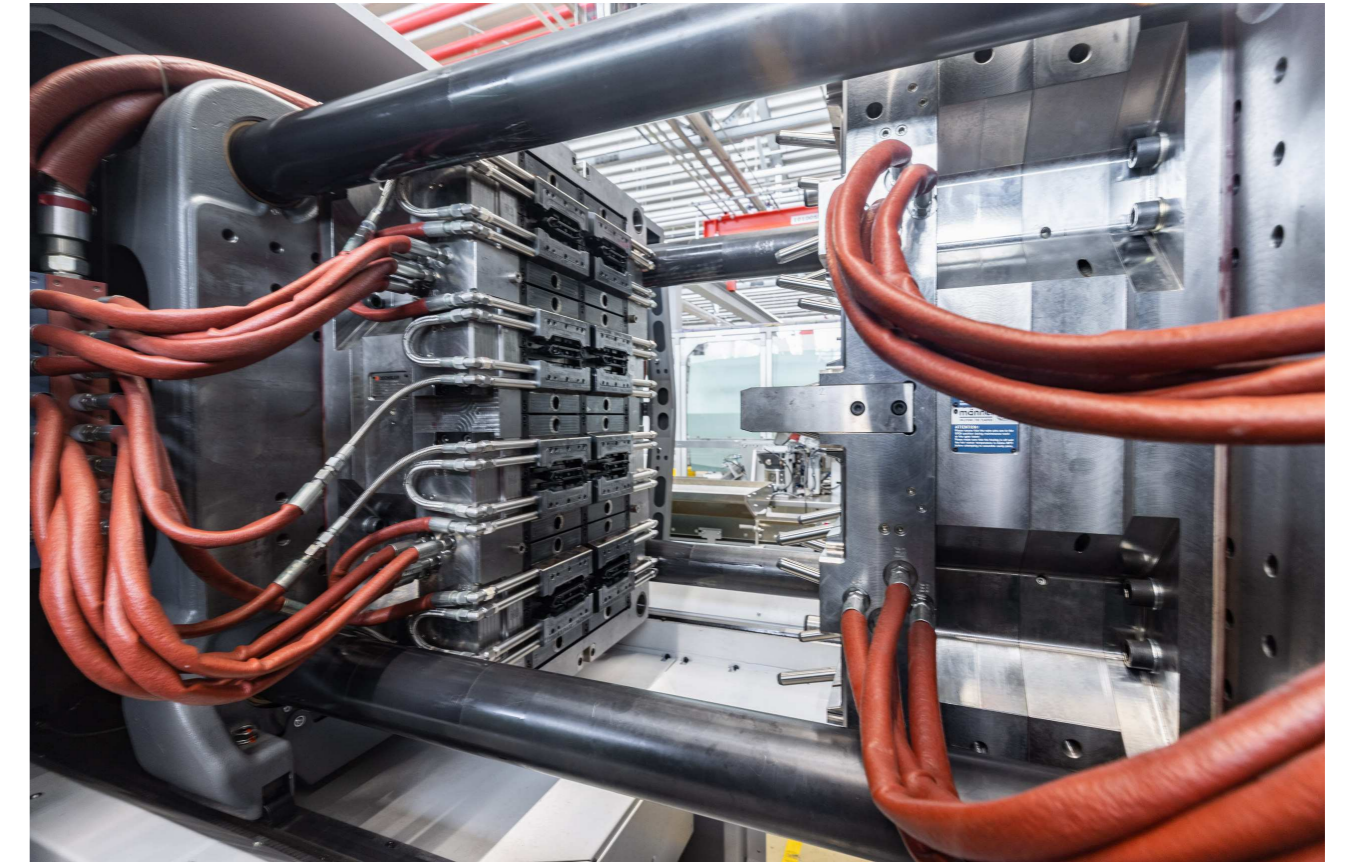


# OECHSLER'S ELECTRIC PARKING BRAKE SUCCESS STORY





# INTRODUCTION

**Application:**

Electronic Parking Brake (EPB) in its sixth generation

**Why OECHSLER:**

We provide technically sophisticated solutions, that result from more than 20 years of experience in actuator development, prototyping and manufacturing. The connectors can be adapted to various cars and trucks.

**Material used:**

Gearboxes made of metal and high-performance polymers; case made of polymers

**The result:**

Polymer-based actuator solutions for security relevant features and comfort in automotive braking systems.



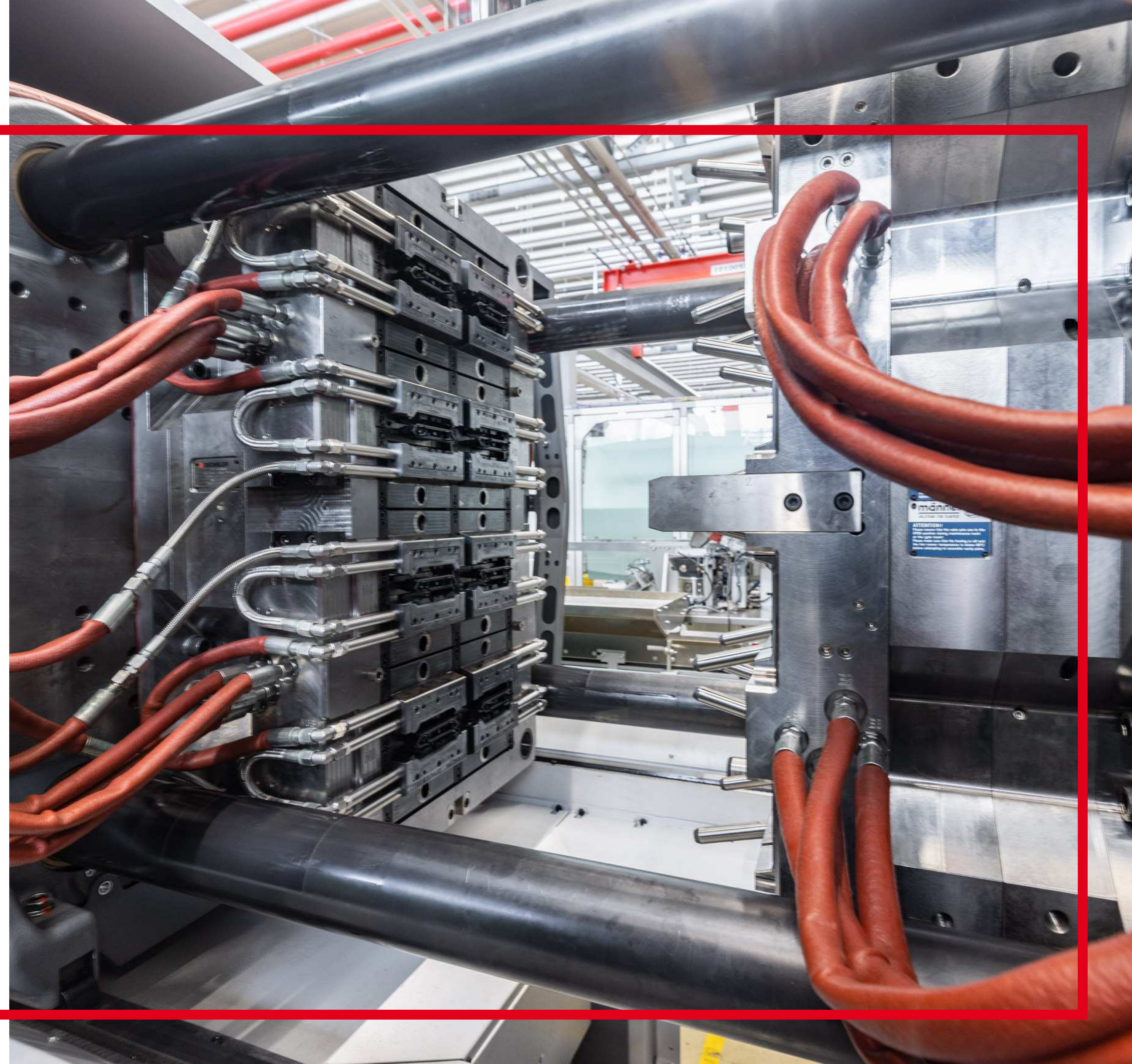


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In 1997 OECHSLER reinvented automotive parking systems. With 180 million systems produced over lifetime OECHSLER continues to be the global market leader for the EPB application.

With the sixth generation of the Electric Parking Brake in production today, OECHSLER is writing the next chapter in the success story of a technological advanced mechatronic system.

Injection Molding has been one of OECHSLER's core competencies for more than 70 years and paved the way to being a global automotive supplier. The Electric Parking Brake is one of OECHSLER's most sophisticated products and has been an integral part of various braking systems for more than 20 years.





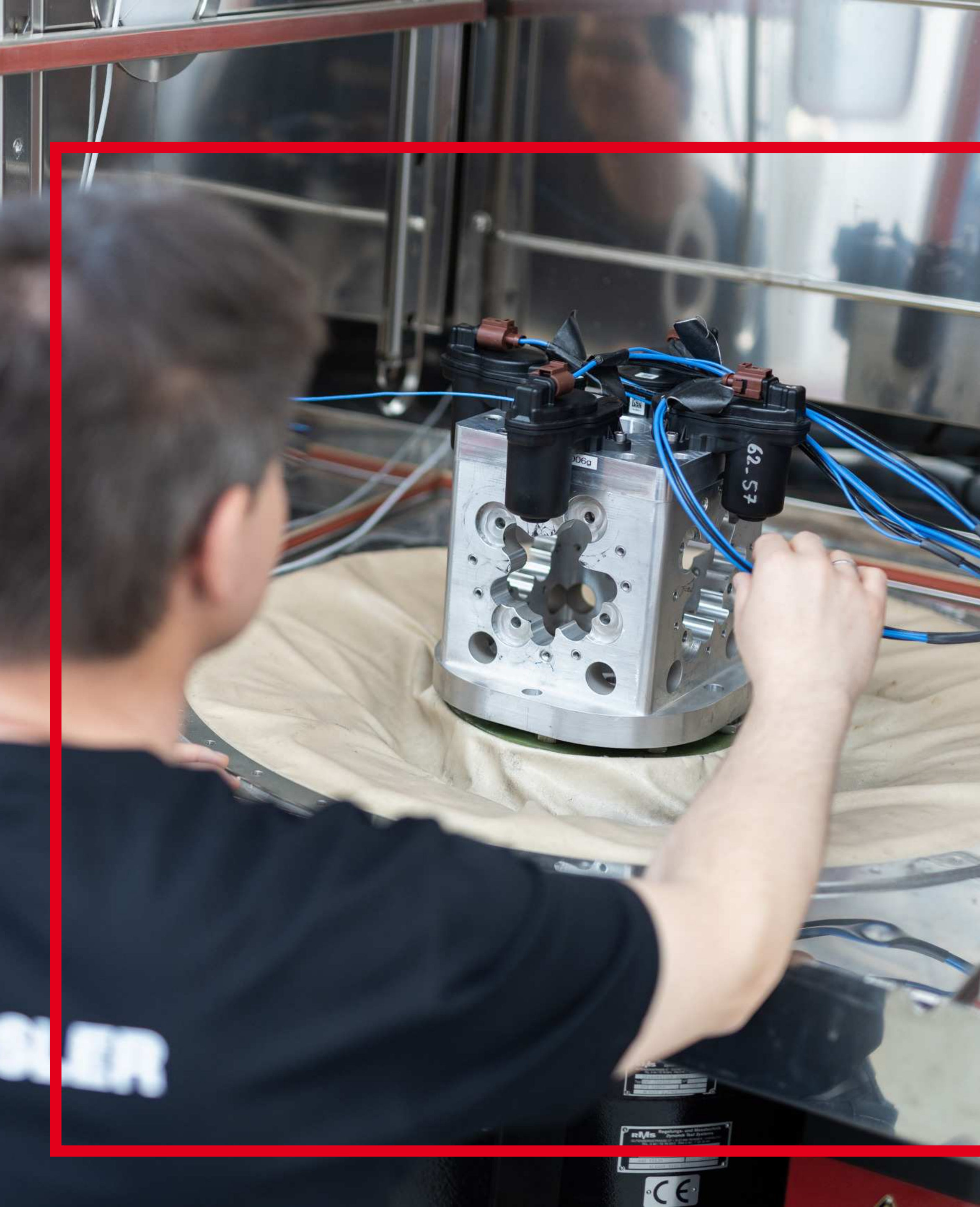
## ACTUATORS AT OECHSLER

OECHSLER started developing in the field of actuator technology as early as 1995. The EPB itself was developed from 1997 together with a leading supplier for braking systems. Only four years later the first EPB was installed in a Lancia Thesis and has been a key innovation in the automotive braking market ever since.

For its sixth generation of EPB currently in production, OECHSLER thus was able to draw on more than 25 years of expertise in development and production.

In 2019, more than 35 percent of newly registered cars worldwide, equipped with a parking brake, featured an EPB made by OECHSLER - ranking OECHSLER the uncontested global market leader.





With over 20 million produced components per year, actuator technology – and especially EPB – presents OECHSLER's top-selling product group, including mirror-adjustment actuators, tailgate drives, and seat belt tensioners. Actuators always transform an electrical power into a mechanical power.

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## EPB AT A GLANCE

Over time, the EPB has increasingly substituted the handbrake, which most of us still know from drifting in winter. In addition, the EPB is also essential for the implementation of assistance systems such as the hill start and hill-descent assistants. The brake lever inside the cockpit can be replaced by a button that allows both driver and front passenger to initiate emergency braking.

In 1997 when we first started thinking about the EPB, our focus was to improve driving comfort. Today, parking brakes are a generic feature in most cars.

After 20 years, our engineers still seek perfection everyday to offer our customers the most sophisticated solution. Even though previous generations of our EPB were already highly sophisticated products, well developed and successful, there was still room for optimization. In particular, the installation space, weight, and lifetime were to be improved.

The challenge: Despite a reduction of installation space and weight, however, the lifetime of the component should not be impaired but rather extended.





## EPB GEN 6

The main improvement of EPB Gen 6 is a reduction of installation space and adaptation of connector. With little effort, these can now be changed to the vehicle specifications, which means that almost any vehicle can be equipped seamless with the EPB. OECHSLER produces more than 70 variations in its highly automated production lines across relevant markets: Europe, APAC, NAFTA. Also, we were able to improve the following features:

### Lifetime

The required expansion of lifetime left no margin for further extension. Implementing polymer components, which generally have shorter service life cycles than metals (e.g., lower strength), whilst being more sustainable, created the greatest challenge in the development of our sixth generation. Nonetheless, OECHSLER's products now have a proven durability of up to 200,000 - a multiple compared to the first generation at that time.





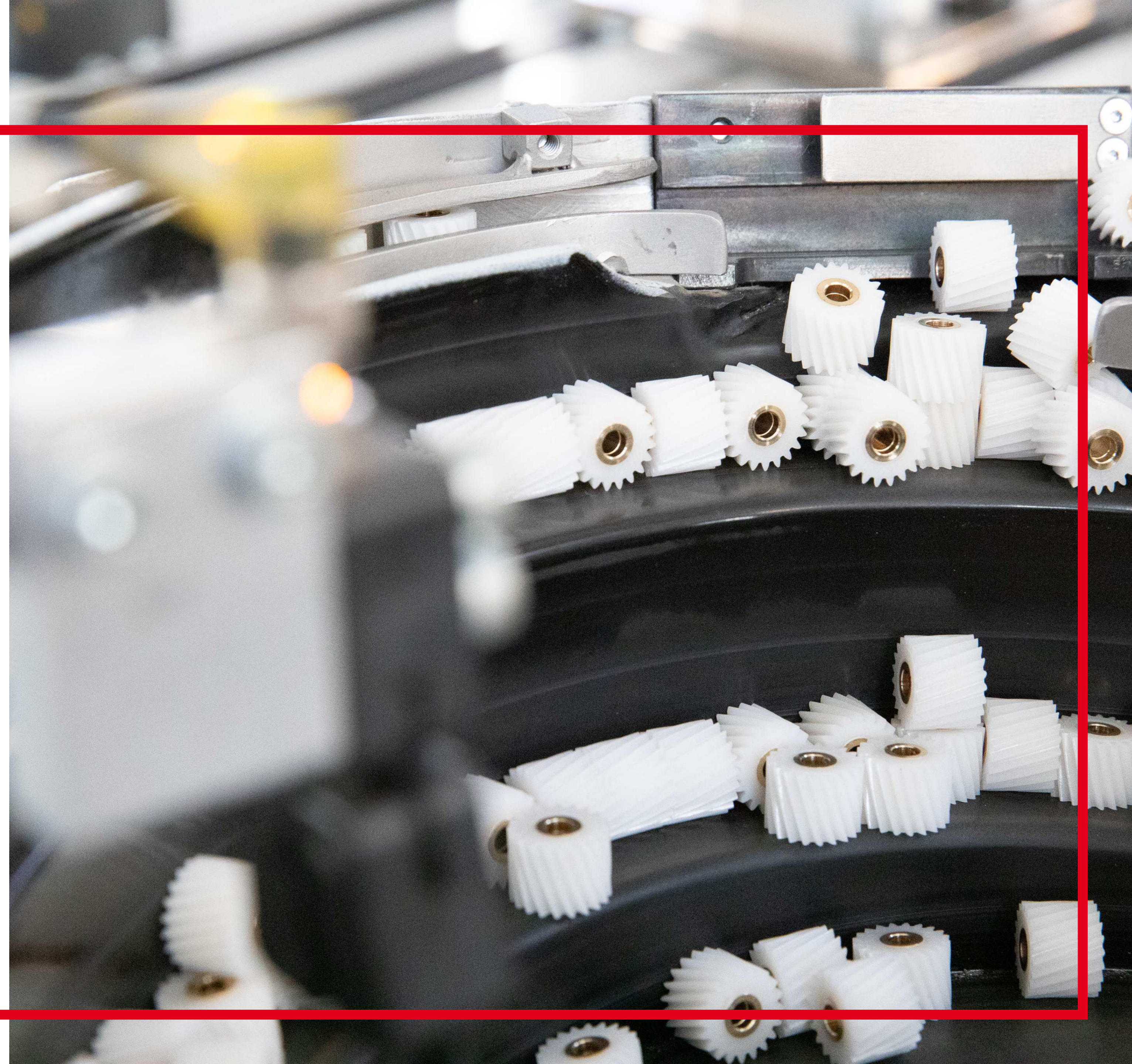
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## INSTALLATION SPACE

In order to reduce the installation space and height our engineering team has minimized the required components. The width of planetary gearbox and the number of cogs itself was reduced. Furthermore, the arrangement of the three gears has been optimized, so that the largest gear is located around the planetary gear and takes up less space itself. Thus, the required space has been reduced by five percent and the overall height by as much as 21 percent.

## WEIGHT REDUCTION

The reduction of weight presented a crucial target. The improved weight of Gen 6 has benefited from two drivers: Firstly, reduction of components. Secondly, previous generations of the EPB featured metal gears in the planetary gearbox and the connection to the motor pinion. For the latter OECHSLER was able to substitute metal with high-performance polymers, which are lighter and more cost-efficient. OECHSLER has always been a powerhouse in injection molding, including material and process development. In the case of our sixth generation EPB experience was essential to meet weight targets.





## OUTCOME

We are constantly improving and rethinking our products. In the segment of actuators OECHSLER draws on more than 25 years of experience in development, prototyping, manufacturing, and collaborating with OEMs. Therefore, we offer highly sophisticated solutions such as the Electric Parking Brake, that can be adapted to customers' requirements, regardless of size and drive of the vehicle.

Optimization of:

- Installation Space
- Weight
- Lifetime

The sixth generation is a perfect showcase illustrating the expertise and capabilities of OECHSLER's actuator business. The EPB system has already been implemented into 90 million cars meeting all the defined requirements over lifetime.





**ARE YOU INTERESTED IN OUR ACTUATORS-PRODUCTION?  
DO NOT HESITATE TO CONTACT US AT  
[ACTUATORS@OECHSLER.COM](mailto:ACTUATORS@OECHSLER.COM)**