

# MADE IN GERMANY

# pinion

**Pinion – the promise of quality.**

## "Made in Germany" quality

Every Pinion gearbox is 100% "Made in Germany". This applies to all stages of the gearbox development process: From the initial concept to production through to final assembly – every single step takes place in Germany.

It all starts with new ideas and the internal construction. And at Pinion this is a continuous process: Every day we re-think and scrutinise our processes, products, materials and routines. Our aim is to get better each and every day. That is why we work continually on optimising the Pinion drive technology. All our engineers and designers are committed to developing components that are tailored precisely to the specific application.

When it comes to the production of the components designed exclusively by us, we rely on our strong regional network. Our partners are traditional, medium-sized companies that have been working to the standards of the automotive industry for decades. They provide us with high-end material, such as our outstanding gear tooth components. And our partners' capacities are scalable, ensuring that all components required for assembly are always readily available – even for large-scale orders.

The different elements are then assembled by a team of experienced, specially trained mechanics. And every device has to pass the performance test. Up to 144 individual pieces that are put together like the workings of a clock. And then finally, after twelve assembly steps the gearbox body is ready for the "marriage" with the housing.

## Quality at the test bench

Every single one of our gearboxes must pass an extensive test procedure. Only when we can guarantee quality and function does the shift gearbox become a genuine Pinion.

We strive for continuous improvement on all levels: from development to production through to quality assurance. In May 2015 we started working with our new fully automatic series test rig. In addition to our thorough manual tests conducted by the team of chief engineer Christoph Höfer, every individual gearbox now also has to pass the special test on the new machine.

It only takes two minutes to check all gears, measure and evaluate their tooth quality and accuracy. The log further documents the measurement of idle resistance, the efficiency for every gear, as well as the torque of shifting under load.

The new series test rig is equipped with high-resolution rotation and torque sensors which ensure fully digital, real-time data measurement. The control and monitoring software was created by Pinion founder Michael Schmitz and has been continuously updated and refined since 2009. The qualified industrial engineer already laid the foundation for this in 2005 during his time in the Transmission Development Center at the sports car maker Porsche.