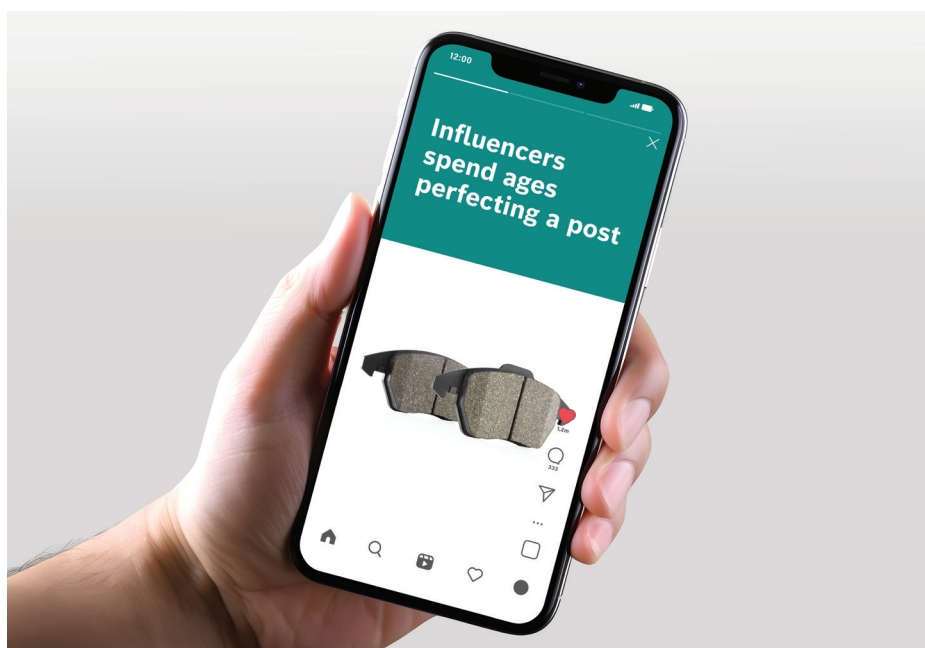


Automotive Insiders: Brake pads – safety that goes beyond the standard.



In a world of ‘influencers’ – people who use social media to appear as if they’re knowledgeable on a certain subject – Bosch are the real deal. We’re genuine automotive influencers because our in-depth automotive knowledge has been built over 100 years, our innovations have shaped the automotive landscape, and our products and services are trusted by millions of customers around the world today.

In our Automotive Insider series, we find out more about Bosch’s best-known products and services, by talking to the people behind them. From chassis and spark plugs to training solutions and ESI[tronic], our experts lift the bonnet to share how these parts and solutions work – their history, how they’ve developed over the years, and how they’re equipping vehicle mechanics and owners to face the future with confidence.

Today we’re talking to Kay Langrock – the expert behind Bosch’s brake pads.

Bosch has almost a century of experience in braking technology – how do brake pads fit into this?

We tend to look at braking technology as a whole, but one of the key areas of focus for our workshops and the end consumer is safety – and that’s where the brake pads come in. The requirements placed on the braking system are high, because drivers must feel confident in their brakes, should they need to stop in an emergency.

Alongside that fundamental safety and reliability requirement is driver comfort. Brake pads need to provide a good pedal feel, regardless of what vehicle in being driven, and they must be quiet and smooth for the driver. So there’s a lot to be included in such a small product!

Where do you start?

Firstly, we look at the raw materials used to create the brake pads, the characteristics and quality of which are essential. Not only that, but the combination of these materials, the way they behave with each other, and their measured values, all need to be considered. Why do we do this? Because the formulation of the mixture will have an impact on such things as the amount of heat released, or the mass lost during heating.

During the whole process, we will develop our friction material. We will continuously test, improve and adjust it, so it is optimized for driving use.

How does the brake pad design achieve this safety and comfort?

A Bosch brake pad is designed to answer the high criteria of safety, reliability and comfort, as well as how it interacts with other parts of the brake system. If you look at each pad in detail, you can see the technology and innovation in each layer.

“Influencers spend ages perfecting a post. We’ve spent decades advancing brake pad safety. Our brake pads undergo rigorous tests that exceed legal standards like ECE R90.”

Invented for life



Our pad carrier is coated with a high-grade varnish to reduce corrosion and ensure the brake caliper and brake piston function well together. The inner adhesive ensures that the friction material stays connected to the pad, even under extreme conditions. Many pads have additional anti-vibration material on their back, which improves the comfort features.

What happens next?

We move onto the creation of prototypes. Safe brake pads need to have both a high shear strength and a high stability of their friction coefficient. For reliability and longevity (and economic efficiency), we minimize the wear of both brake pads and brake discs. And for the driver's comfort, we factor in low noise levels, minimum vibration and a safe feeling at the brake pedal.

It is vital to be meticulous and specific in our product development, because each vehicle model requires individual solutions. For this reason, we mainly produce and develop our brake pads in our own laboratories. Our pads are developed in line with OE equipment specifications, as well as country-specific ones.

So is testing the next step of the process?

Absolutely, and it's fundamental to ensure the high quality of every one of our brake pads. It can take up to

two years of development before we release a new friction material – the testing is an integral part of this. Only if the prototypes pass this rigorous testing, can they go into series production.

While the tests required for the ECE R90 standard for Europe cover shearing strength, pressure sensitivity, speed sensitivity and temperature resistance, we cover seven more testing areas – including brake fading, thermal conductivity and the simulation of extreme braking situations. At Bosch, we know that top braking performance is backed up with quality materials, as well as testing the pads in a variety of situations.

What sets Bosch brake pads apart from the rest?

Our automotive heritage and overall knowledge of the braking system. We've been doing this for nearly a hundred years, and we use that expertise to enhance the product at every stage of the development process. It's this research, testing and production in state-of-the-art plants that means people trust Bosch brake pads.

The result is a huge portfolio of over 1,500 brake pads, that covers nearly every make and model of car on the European market.

Are there any developments in the pipeline?

We always stay ahead of new regulations. There is one that will soon come into force soon that only allows for a certain percentage of fine particle emissions. Our Euro 7 pads are currently in development to match these criteria.



What's covered in a Bosch brake pad test?

ECE R90 standard criteria

- Shearing strength
- Pressure sensitivity
- Speed sensitivity
- Temperature resistance

Bosch test criteria

- Shearing strength
- Pressure sensitivity
- Speed sensitivity
- Temperature resistance
- Temperature sensitivity
- Brake fading
- Thermal conductivity
- Brake judder
- Noise
- Wear

Did you know?

"Up to 25 different raw materials are used in the composition of a Bosch brake pad mixture."

- **Kay Langrock**,
Bosch Brake Pad
Product Manager

About our expert: Kay Langrock

Kay Langrock has recently celebrated 15 years with Bosch. With almost ten years' experience as a braking specialist, Kay has been in his latest position as Brake Pad Product Manager for five years.



Choose a product with influence.

For more information on Bosch's high-quality brake pads, please visit us at: [\[Bosch Aftermarket URL\]](#)