

Quieter braking with a system: Otto Zimmermann optimizes noise characteristics with targeted supplemental measures

Sinsheim-Dühren, 06.05.2025 Brake noise is one of the most common reasons for complaints in everyday workshop operations. Otto Zimmermann GmbH, a renowned manufacturer of brake components, addresses this issue with various supplemental measures, individually tailored to sustainably improve the noise behavior of brake pads. The aim: maximum performance - with a high level of driving comfort at the same time.

Supplemental measures: Silent heroes for a more quiet braking system

Noise development during braking is the result of vibrations caused by friction. In order to effectively prevent these vibrations, Otto Zimmermann relies on so-called supplemental measures - detailed technical solutions that have proven themselves in practice many times over.

These include, among other things:

- **Damping plates and adhesive layers** attached to the back of the brake pad act as vibration absorbers or serve to decouple noise.
- **Intermediate layers** between the backing plate and friction material, which influence the vibrations and heat transfer. The shear strength is also increased by these intermediate layers.
- Different **bevels** in the friction material that suppress the development of vibrations in critical frequency ranges and at the same time enable a smoother response.

The different bevels influence the pressure point of the pad onto the disc by determining how the pad edges interact with the surface of the brake disc.

- **Grooves** in the friction material that influence the natural frequency of the lining.
- **Additional damper weights (tilger weights)** that specifically eliminate vibrations by lowering the resonant frequency
- **Pads with a specific direction of rotation**, where the installation position is aligned with the direction of rotation of the brake disc - a key factor for smooth running and even wear.

The direction of rotation can be specified, for example, due to the above-mentioned run-in chamfers. There are also so-called “**crescents**” (curved cut-outs) in the backing plate, which influence the pressure point of the piston and thus have an influence on the minimum bending of the entire pad.

Comfort meets control: the interplay is crucial

“Supplemental measures alone do not provide optimum braking performance - Advance tuning of the friction material mixture is essential,” as explained by the development department at Otto Zimmermann. This is why all pad designs are extensively tested on the company's own test benches and in collaboration with motorsport partners - even under extreme conditions.

In addition, the interaction between the pad compound mixture and the casting material specification of the brake disc is crucial. Zimmermann brake pads and brake

discs are adapted to the best possible specifications as early as the start of the development phase.

Another factor that is often underestimated is correct installation. Observing the direction of rotation, using the damping elements correctly, removing all protective films and using metal-free lubricant at the contact points with the guide and the piston are essential to avoid disturbing noises.

Know-how for workshops: quality down to the last detail

Workshops benefit from the comprehensive quality standards of Otto Zimmermann GmbH. In addition to the pad friction mixture and detailed production solutions, the company provides practical tips for installation - presented in an easy-to-understand manner in technical sheets and practical videos. The aim is not only to provide workshops with excellent products, but also to support them with know-how to avoid complaints in the long term.

About Otto Zimmermann GmbH

For more than six decades, Otto Zimmermann GmbH has been developing, producing and distributing high-quality automotive components for car manufacturers and the independent aftermarket. In addition to standard spare parts, the product portfolio also includes sports and premium brake discs as well as high-performance brake pads and discs for motorsport and demanding road use. The company currently sells more than 4,000 different brake components in over 60 countries worldwide and is listed as a TecDoc "Premium Data Supplier". Further information can be found at: <https://www.otto-zimmermann.de>.

Pictures:



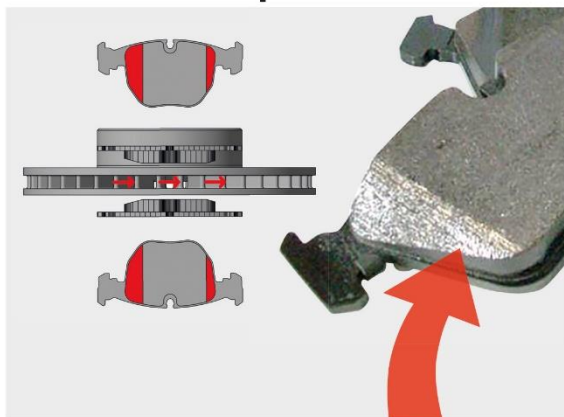
Caption 1: Arrows on the backing plate, which indicate the direction of rotation of the brake disc, serve as an aid for the correct installation of Zimmermann brake pads.

 Zimmermann
Partner for pad know-how



Caption 2: The curved cut-out on the backing plate is an indication of a directional brake pad.

 Zimmermann
Partner for pad know-how



Caption 3: Chamfers and grooves in the friction material reduce frequency peaks during the braking process.

 Zimmermann
Partner for pad know-how



Caption 4: Additional damper weights (tilger weights) serve to reduce oscillations and vibrations by lowering the resonance frequency of the caliper.

Image material for free use in editorial reporting, with reference to the image source:
© Otto Zimmermann.