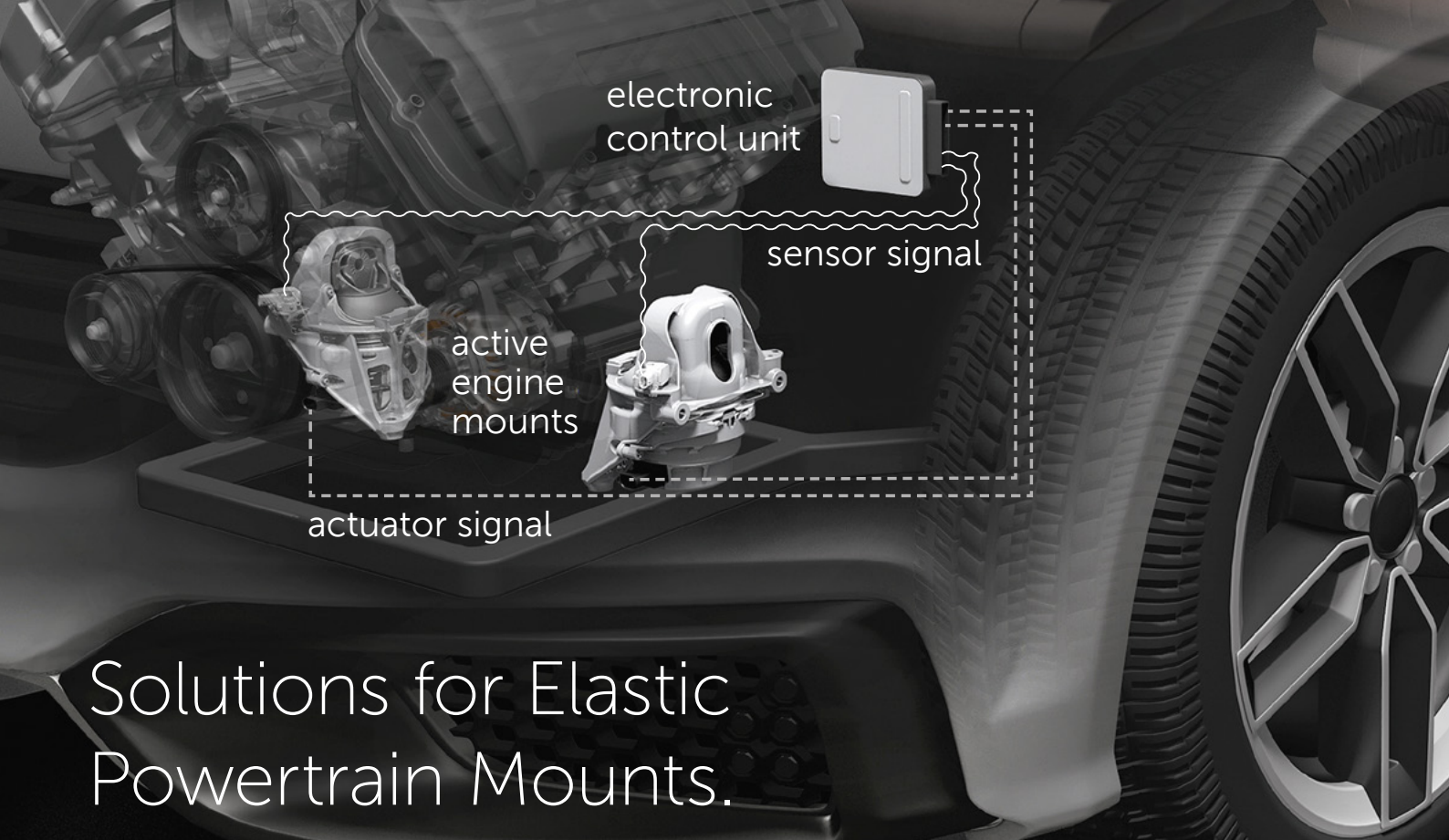


**INNOVATIVE TECHNOLOGIES**

# NVH Powertrain Solutions



# Solutions for Elastic Powertrain Mounts.

## Noise Vibration Harshness (NVH)

In close cooperation with the international OEMs, BOGE Rubber & Plastics develops and manufactures mounts for the vehicle powertrain.

Mounts are rubber-metal or plastic components in the form of supporting connection elements between the powertrain and the vehicle body. They ensure that engine and transmission are separated from the body to minimize the transfer of noise and vibrations.

With the development of each new model we take on the challenge of increasing the functions and the service life of the engine and transmission mounts. We are proud of having proven our competence in this field over a million times already.

Long-standing know-how, excellent partnerships and recognized competence form the basis of our joint success – from the initial idea to the complete mount system ready for series production. BOGE Rubber & Plastics sets worldwide standards for development and design, manufacturing and quality assurance. We ensure that mobility comfortably remains at a maximum level throughout the entire service life of the vehicle.

Prior to series production release, the mounts are subjected to numerous tests on computer-controlled test benches to record the realistic reliability with regard to function and long-term durability and to ensure it for the entire vehicle service life.

## High-Performance Rubber Compounds

BOGE Rubber & Plastics uses state-of-the-art testing and analysis technology to develop high-performance elastomer compounds and to produce these in our own mixing plants, meeting all quality and environmental requirements. Based on all relevant polymer types and chemicals, the compound formulations undergo continuous further development with regard to the increasing requirements.

Even under extreme climate conditions, our products retain their excellent dynamic properties, low settling behavior and resistance to oil and ozone throughout the entire service life.

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# Durable. Comfortable. Lightweight.

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# Customized Solutions.

Due to the global requirement for saving CO<sub>2</sub>, the market increasingly offers different powertrains in one vehicle platform.

Many current concepts include engine downsizing (e.g. fewer cylinders or omission of balance shafts), engines with cylinder shut-off, hybrid engines or electric engines. These modern, very different drive concepts in combination with weight-reduced vehicle structures generate stronger vibration excitations and require existing NVH concepts to be developed further.

With switchable and active mounts with hydraulic damping which automatically adapt their functions to the current driving situation, the customized solutions from BOGE Rubber & Plastics provide an essential contribution to improving the comfort of vehicle passengers.

## Your Advantage

- Distinct system understanding
- High power of innovation to drive new developments and market trends to readiness for series production
- Extensive material know-how, including new, weight-optimized materials and production processes
- High-frequency balancing (e.g. for electric drives)
- Aftersales service for the products throughout the entire product life cycle

## Our Objective

Our objective is the continuous improvement of driving comfort and noise comfort without compromising on agility and driving dynamics.

- Fast reaction to customer requirements
- Development of new technological standards and trends (lightweight design, active systems)

## OUR DEVELOPMENT FOCUS IS ON THE FOLLOWING APPLICATIONS:

### Longitudinal Installation of Powertrain



#### Switchable Mass Damper Engine Mounts

- Optimizes idle running behavior
- Maximizes vibration damping while driving



#### Cross Members with Transmission Mount

- Supplied as modules
- Integration of product and functions
- Maximizes safety and comfort



#### Differential Mounts

- Isolates vibrations in the powertrain
- Keeps unwanted noise and roughness away from the driver

### Transversal Installation of Powertrain



#### Plastic Engine Mounts

- Compact design
- Lightweight and robust
- Combination of different materials (rubber/plastic competence)



#### Transmission Mounts

- Highest functionality in a small space
- Isolates vibrations in the powertrain
- More comfort – best driving dynamics



#### Plastic Torque Roll Restrictor

- Ensures torque support
- Weight reduction while highly robust
- Optimized noise insulation

# Innovative. International. Experienced.

Top NVH and lightweight products for the automotive industry – that is what BOGE Rubber & Plastics stands for all over the world. As a longstanding partner of international OEMs, we develop innovative solutions for the markets of tomorrow.

## BOGE Rubber & Plastics at a Glance:

- Leading international player in the field of rubber-metal and plastics technology
- Established development partner of the global OEMs
- More than 80 years of experience in the automotive industry
- Innovations and complete solutions that set new standards in vibration control technology and lightweight construction
- Unrivalled dedication to service and customer support
- Global operation with eleven locations and around 4,200 employees on four continents

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