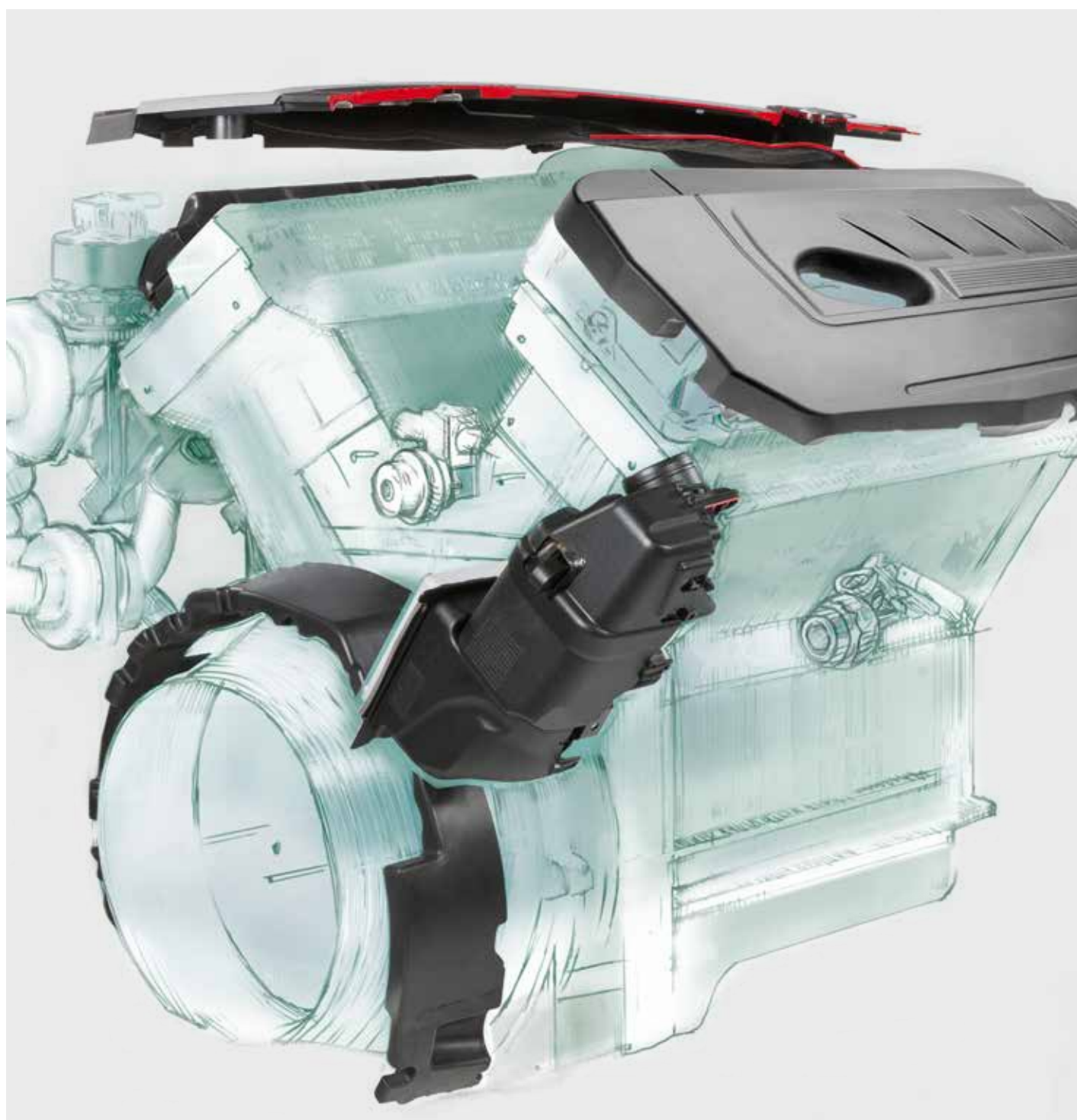


Noise Vibration Harshness

Reducing noise, vibration and harshness.



Noise Vibration Harshness

The reduction of noise, vibration and harshness has been a core competency of Woco for more than 20 years. A variety of specific solutions, coupled with innovative simulation and manufacturing technology, ensures the global availability of product and system solutions.

Isolation and attenuation of noise and vibration under the hood using special materials and combinations over a frequency range from 20 to 20,000 Hz is now realized in diverse Woco products.



Noise-Vibration-Harshness Products
in the Engine Environment



Design and Acoustic Covers

At Woco, the term Design / Acoustic Covers encompasses a combination of cover function, sound absorption technology, partial temperature shielding, cooling air duct, vibration isolation and attractive design. Innovative manufacturing technologies, especially in relation to the combination of different materials into so-called hybrid solutions, are further Woco-specific highlights of the product range.

Noise Reduction and Sound Design

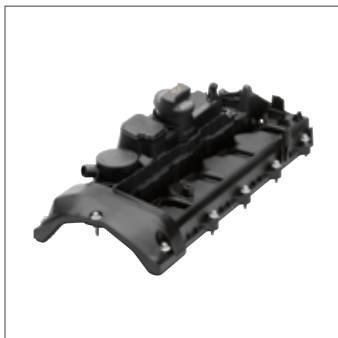
Noise reduction and sound design of combustion engines are hardly effective without the effective encapsulation of relevant noise sources. The technologies developed by Woco not only serve the reduction of the noise level, but also the subjective improvement of noise impact. Encapsulation

systems in the vicinity of the engine prevent rapid engine cooling and thus lead to less cold engine starts, which in turn has a positive effect on overall vehicle emissions.



Encapsulation

The encapsulation of noise close to the component is an effective and cost-effective measure. The prerequisites are flexible, undercut-suitable component technologies for demanding environmental conditions (temperature, fuels, oils etc.). Solutions for specific, complex installation spaces are achieved by means of integral foam (coated, media-tight surface). By using special heat protection technology integrated into the component, applications are also possible in the immediate vicinity of exhaust manifolds and turbochargers.



Cylinder-Head Covers

Better and better performance using less and less space. Functional requirements for this group of components include the reduction in engine oil consumption by employing complex oil separation systems and pressure management in the area of engine ventilation. Cylinder-head covers made of plastic can be integrated into systems and meet or even exceed current and future requirements.



Wide-Band Silencers

Woco wide-band silencers are used specifically in the field of turbochargers and compressors. Wide-band noise reductions in the air flow of up to 40 dB are typical for this type of silencer without additional open-pored materials.



Resonators

Woco resonators are used as so-called wide-band silencers in the area of the air duct before and after the turbocharger, both in the field of low frequency engine orders as well as in the frequency range from 1,000 to 10,000 Hz.

Woco Industrietechnik GmbH

Hanauer Landstrasse 16 | 63628 Bad Soden-Salmünster | Germany

Phone +49 6056 78-0 | Telefax +49 6056 78-7212

info@de.wocogroup.com | www.wocogroup.com



The Woco Group Worldwide

Woco is where the customer needs Woco to be.

Woco develops and produces future-oriented technologies based on innovative material, product and process solutions. We achieve our goals by continuously identifying and evaluating trends in markets and technology and through the consistent benchmarking of products, processes and materials. Through close cooperation with universities and research institutions and

continuous exchange and transfer of knowledge with our internal departments, the Woco Group develops market-oriented, future-proof functional solutions for automotive power train and vehicle body. The global presence of the Woco Group ensures proximity to our customers and markets and their specific requirements.