

CASE STUDY

BMW Noise Vibration Harshness Testing

Germany

Automotive

PULSE, Software, Transducers

Founded in Munich in 1972, since 1993 the company has carried the name BMW M GmbH, "Gesellschaft für individuelle Automobile". Although the name of the company has changed, the character of its cars hasn't – they link racing car technology with practical, sporty, exclusive cars for everyday use, and perfect comfort.

BMW chose an 8-channel Brüel & Kjær PULSE™ system to perform both in-car and chassis dyno test cell NVH analysis.



The BMW M3

Ever since its introduction at the end of 2000, the BMW M3 has been entirely devoted to redefining the sports driving experience. The new M3 provides levels of power that previously could only be found in racing cars and employs precision in its design and engineering. And it radiates quality – from its sculpted surface, its spacious interior through to its brilliant M engine. As BMW says, "There are sporting vehicles, and there are sports cars. Go a step further with us, to a third dimension – BMW high-performance automobiles."

Design and Development

During the design and development of the new M3, BMW searched for a portable NVH test and analysis system that could perform a wide range of multi-analysis tasks simultaneously, both in the vehicle (in-car tests) and in the chassis dyno test cell.

After the requirements were carefully evaluated and a system specification was drawn up, BMW thoroughly investigated the available systems.

BMW chose a Brüel & Kjær 8-channel PULSE system, application software and transducers for use with a laptop PC.

Brüel & Kjær 

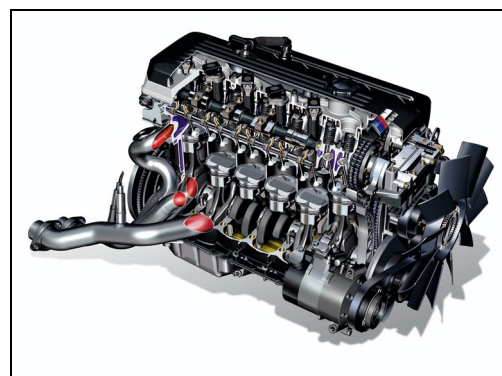
PULSE

Herr Hofstetter Dipl. Ing, Test Manager at BMW says, "There were a number of reasons why we decided to buy PULSE. We had previous good experience of Brüel & Kjær products, we like their reliability and robustness for use in the field and in the lab." He continues, "We also prefer to have a single source supplier who can provide us with everything from transducers right through to approving the PC and this removes any compatibility problems."

Time-saving

Herr Hofstetter continues, "Using PULSE has reduced our test set up and configuration time, and we can use our PULSE system for a number of different NVH analysis tasks, both on the test track and in the laboratory. Our staff were quickly trained by the Brüel & Kjær applications engineers and we get reliable on-site and after sales support from the local Brüel & Kjær office."

Fig. 1
Left: The famous M badge – exclusive, high performance engineering
Right: The 3246 cm³ 6-cylinder engine which produces 343 HP (252 kW)



Key Facts

- BMW Motorsport GmbH was founded in Munich in 1972. In 1993 the company name was changed to BMW M GmbH
- BMW has been a Brüel & Kjær customer for more than 20 years and uses a range of its products
- An 8-channel Brüel & Kjær PULSE system was chosen to perform NVH test and analysis in the development of the BMW M3
- Using PULSE, test hardware setup and configuration time for a range of tasks have been reduced
- All hardware, software, cables, transducers and other equipment used with the PULSE system are supplied by Brüel & Kjær – BMW prefers a single source of supply
- PULSE is used to perform multi-analysis in the chassis dyno test cell, and for in-car testing on the test track