

New wide band resonator using DuPont™ Zytel® captures US automotive award



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Photo: DuPont

A wide-band resonator from Woco Motor Acoustic Systems USA Inc. won top honours in the Society of Plastics Engineers Automotive Division "Most Innovative Use of Plastics" Award's powertrain category. Made with DuPont™ Zytel® nylon 66 due to the material's unique combination of mechanical and thermal properties, the resonator silences "turbo-whine", eliminates insulation material and improves durability by integrating injection moulded high and low frequency parts into a single assembly.

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Stevenage, November 2006. The 2007 Dodge Nitro 2.8L Turbo Diesel sports a unique wide-band resonator from Woco Motor Acoustic Systems USA Inc. that captured top honours in the Society of Plastics Engineers Automotive Division "Most Innovative Use of Plastics" Award's powertrain category. Made with DuPont™ Zytel® nylon 66 due to the material's unique combination of mechanical and thermal properties, this breakthrough resonator silences "turbo-whine", eliminates insulation material and improves durability by integrating injection moulded high and low frequency parts into a single assembly. The integrated component is extendable to any charged or uncharged air induction system.

"Wide-band silencing technology increasingly is used to help eliminate induction noises in the engine compartment," said Udo Gaertner, vice president of Woco Motor Acoustics, Inc. "A wide-band silencer – which places several resonating chambers in a series to filter unwanted frequencies – is truly an innovative way for automakers to tune the sound they desire." The new resonator reduces both high and low frequency noise to help automakers meet those in Japan and Europe. Additionally, since the resonator attenuates noise at the source, additional insulation material becomes redundant, leading to significant cost savings.

Unlike conventional designs, the wide band resonator is not constrained by location and can therefore be used in multiple applications and positions in the engine. This allows the resonator to extend to a variety of applications both in automotive and non-automotive applications. Furthermore, the resonator reduces weight by about 30 percent compared to a traditional resonator set-up that reduces the noise at the same level as the Woco solution does.

Zytel® nylon 66 was selected for the application due to a unique combination of mechanical and thermal properties which enables the resonator to work in the demanding compressor side environment, high-pressure, high-temperature and oil mist. "Zytel® provides advantages in both the injection molding

process as well as during the ultrasonic welding assembling,” said Gianluigi Molteni, DuPont Automotive global powertrain segment manager. “Material characteristics, low creep and dimensional stability enable tight tolerances critical to the acoustic sensitiveness of the resonator.”

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