



Invisible jet

In cooperation with Villeroy & Boch, BPO developed a jet that is flush with the inside wall of the bath when not active, and therefore practically invisible.

The invisible jet of Villeroy & Boch is a feature for the "ultimate fitness" system. Until 2007 the jets used to be mounted through a hole with a flange on the inside and a nut on the back side of the bath. On request of Villeroy & Boch, BPO developed a jet that is flush with the inside wall of the bath when not active, and therefore practically invisible. When the system is activated the jets pop out of the wall and the user can adjust the jet over an angle of about 270 degrees. By making use of the venturi-effect the water jet is expanded with air improving the massage effect.



The system is designed for use with the Quarryl bath tubs of Villeroy & Boch. The housing is mounted over a hole from the back side of the bath, and then the jet is placed from the inside of the bath. This way both the jet and the inside of the housing can be cleaned anytime by removing the jet. The new jet has created a real boost for the sales of the "ultimate fitness" system.



For more information go to: www.villeroy-boch.com

Yepp Maxi wins Bicycle Innovation Award 2009

Four products have been decorated with a Bicycle Innovation Award 2009 at the FietsVAK 2009 fair at the end of January this year. Among the winners was the child seat Yepp Maxi. The seat has been developed by GMG in cooperation with Van der Veer designers. BPO has optimised the adapter and the frame for strength and stiffness.

The GMG Yepp Maxi is a child seat that can be mounted and dismounted on the bicycle with one simple movement. To make this possible an adapter that can be placed with a frame on most bicycles is used. BPO conducted simulations and optimisations on this part. Based on the results of the analyses the frame and adapter were optimised to carry children up to 6 years old.

For more information go to: www.fietskinderzitje.com



BPO is the engineering office that develops, engineers and optimises products with use of advanced computer simulations

DirectSpare

The DirectSpare project has been started in February 2009 in connection with the Framework Programme 7. BPO is the leader of this innovation project in which approximately 20 partners from all over Europe are working together for three years towards a common goal: to produce spare and replacement parts using Rapid Manufacturing (RM).

Modern products are increasingly complex: they contain many possibilities to "customise" (think of the options list of the average midsize car). The production and storage of parts is very expensive, a reason why RM seems an attractive alternative. Another point of interest is the replacement of parts that are no longer available. Companies that participate in the project include BMW, Siemens and Eurocopter. Case studies are being set up in the coming months to create the necessary technology for these companies.

Scheepmakerij 11-12
2628 AA Delft
Postbus 3350
2601 DJ Delft
Nederland

+31(0)15 3620000
+31(0)15 3620011
info@bpo.nl
www.bpo.nl

Optimal sound experience

D&M Premium Sound Systems has an unparalleled reputation as worldwide developer of audio systems. Among its customers are BMW, Ford, General Motors, PSA Peugeot Citroën, Toyota and Volkswagen. BPO has assisted D&M PSS with the development of the speaker boxes in which these audio systems function. An example can be found in the design of a subwoofer box for the Citroën C5.

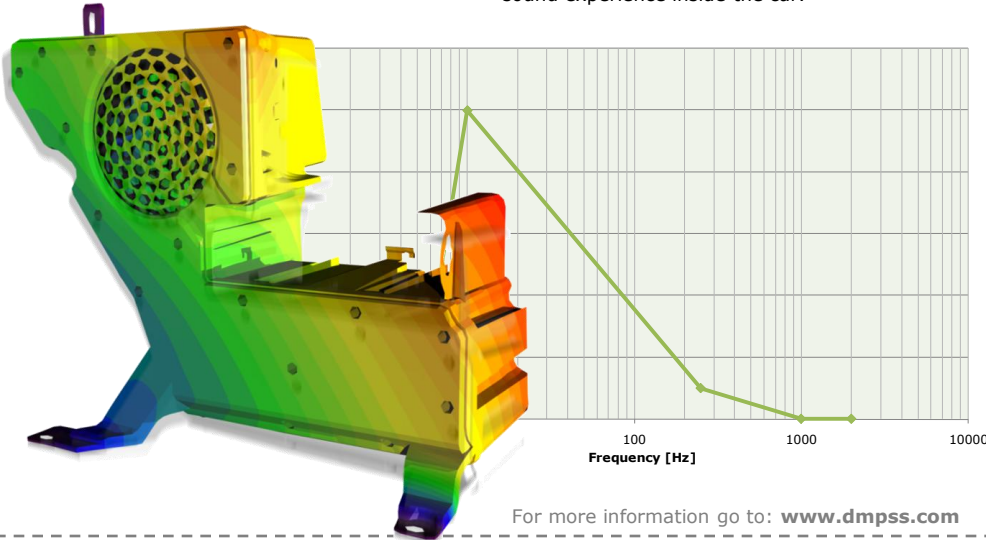
During the development of a new car a lot of time and energy is used to prevent unwanted noise and vibrations from getting into the car's interior. Within the interior also a lot of attention is given to vibrations. It is unwanted that a part is rattling during a drive. This is especially important for speaker and subwoofer boxes. The vibrational behaviour of these kinds of speaker housings and the interaction with

their environment therefore has top priority.

The random vibrations that occur during driving can be described with a frequency spectrum. BPO has calculated the maximum displacement of the subwoofer box using a norm-based spectrum. To be able to do that all natural frequencies and their vibration modes up to 300 Hertz were simulated.

Out of the simulations a couple of areas of concern were distilled, for instance the connection between the two main parts of the box. Also the connections of the subwoofer, the CD changer and the box as a whole required reinforcement. The vibrational behaviour has been improved significantly by adding wall thickness and ribs on very specific spots. Next to that, BPO advised on the material choice.

In combination with high end audio systems the speaker housing contributes to an optimal sound experience inside the car.



For more information go to: www.dmpss.com

Application form

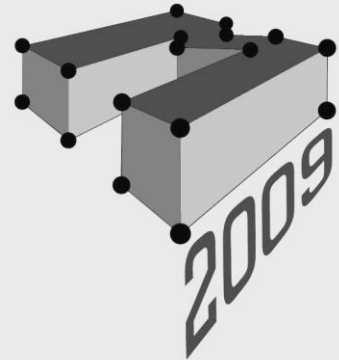
Company _____
 Contact _____
 Address _____
 Code/City _____
 Telephone _____ Fax _____
 Email _____

- I would like to receive the **new** BPO brochure.
- Update* was addressed incorrectly, please send it to the address above.
- I would like to receive *Update* by e-mail.
- I do not wish to receive another issue of *Update*.

Please fax this to BPO b.v. : +31 (0)15 - 362 00 11
 or by email: info@bpo.nl

Materials Engineering

Again this year BPO is present at the Materials Engineering fair on May 13 and 14 in the Beursgebouw in Eindhoven, The Netherlands. BPO can be found at stand number 067.



Opportunities in times of crisis

A lot of companies are going through an uncertain period caused by the economic recession: less orders and higher costs. The crisis forces companies, even more than before, to increase their efficiency and cost control. BPO can play an important role in these areas. We are leading in product optimisation and cost reduction. This can be achieved by:

- Less material usage by using FEM optimisations
- Shorter cycle times by using moldflow simulations
- The integration of functions or the combination of parts
- Saving on expensive and time consuming test by using FEM analyses

Of course the costs of optimisation must be less than the savings. This is a balancing act that BPO has mastered for 22 years. Especially now companies should give more attention to product optimisation and innovation, not only for economic but also for ecological reasons. BPO is your partner in cost reduction and increased efficiency.

