

Housing lighter and stiffer

Large industrial products, like this huge fan, are impressive. The fan housing is produced by roto-molding. The product is used for industrial cooling exhaust pipes. By using computer simulations, BPO made this product lighter and stiffer, and increased the production efficiency.

The housing is built from 26 segments and has a diameter of 8 meter. During operation, the blades of the fan nearly touch the segments as they pass them 8 times per second at a velocity of 180 [km] per hour. The resulting air flow causes a significant dynamic load. Before starting production, the stability of the construction had to be assured.

In cooperation with our client, Howden BV, and producer Pentas BV, BPO analyzed and improved a previous generation of the product. The pattern of tag offs in the walls is now horizontal. The number of connections between the segments is decreased and the connection itself has been simplified. These subtle modifications have seriously increased the stiffness without adding extra weight. Also the moldability has been improved.

The segments material is LDPE with each weighing 30 [kg]. The weight and handling outclasses competitive systems that are made of steel and polyester. The advantage of easy assembly is something that should not be underestimated for a product that is normally installed on top of high buildings.

Lecture at congress

At the anniversary congress of the magazine 'Kunststof en Rubber' ('Plastic and Rubber') BPO's managing director, Oscar Brocades Zaalberg, was invited to give a lecture on developing products for clients that are new to plastics and product development.

The time schedule and investments for building production means could sometimes lead to unpleasant surprises. To be ahead of that, BPO takes a serious interest in the transfer of knowledge about plastics and product development during the design process. This assures that the expectations are correct. Communication and coordination lead to success, for clients as well as for product developers.

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

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Links

At www.ptc.com the 3D-CAD application 'Pro/Desktop' can be downloaded. It is a conceptual modeler for simple parts and assemblies. Native Pro/Engineer files can be imported.

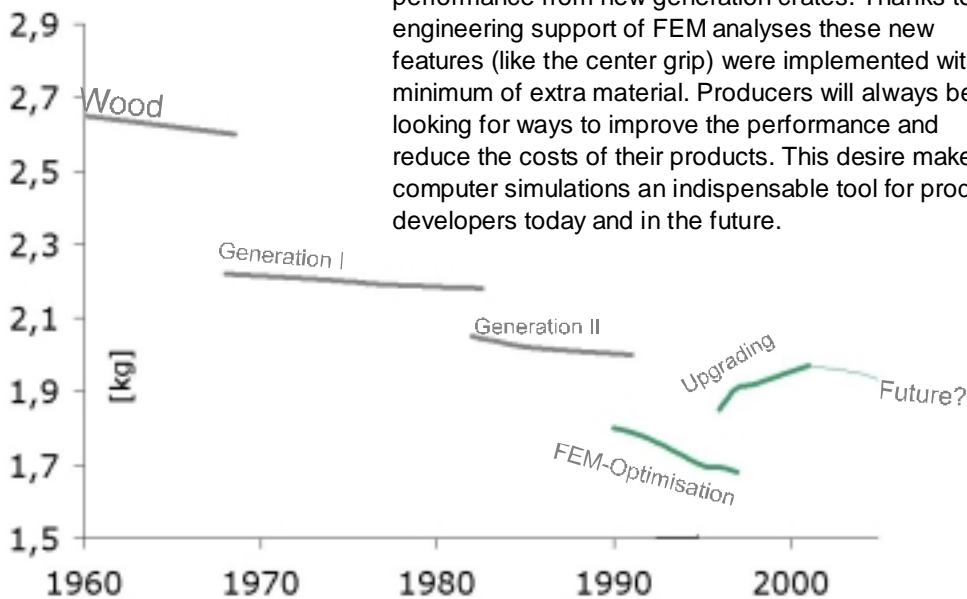
How does it work? Everyone with some technical skills probably recognizes this question. The answer can be found at: www.howstuffworks.com. From sunglasses to pin ball, explanations are given for all kinds of machines. It's certainly worth a look.



15 years of optimisation

This year is BPO's 15th anniversary. Therefore, we would like to recognize a product BPO has been regularly working on, the beer bottle crate. Beer bottles used to be carried in wooden crates. At the end of the sixties, the first plastic crate was developed. Because of the huge production volumes, it is not only possible but also necessary to stay up to date with modern techniques. In the early eighties the second, improved, generation was introduced.

In 1987 BPO started making detailed computer simulations of plastic products. Soon, crate producer 'Schoeller Wavin Systems' asked for help in reducing the material consumption and the production cycle time of crates. Using detailed analyses and smart engineering solutions, thicknesses were reduced. During the nineties, 15% weight reduction and 30% cycle time reduction proved possible. By increasing the output of the molds, the capital involved for the total series was reduced. By the end of the nineties user comfort and automated logistics required a higher performance from new generation crates. Thanks to the engineering support of FEM analyses these new features (like the center grip) were implemented with a minimum of extra material. Producers will always be looking for ways to improve the performance and reduce the costs of their products. This desire makes computer simulations an indispensable tool for product developers today and in the future.



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