



Turbulent development of Piqo

Everkinetiq International has launched an innovative micro wind turbine during the Energy 2009 Fair at the beginning of October. With this small and tautly shaped wind turbine anyone can harvest their own energy from their own roof. In close cooperation with Everkinetiq BPO has engineered the construction of the Piqo wind turbine to a ready for production design.

BPO was approached when the concept was already set in its main features. The challenge for BPO was to engineer the construction in the very short time available before the introduction of the turbine at the Energy 2009 Fair. One of the main points of the design was the connection of the rotor and generator with the aerodynamically styled mantle. Eventually it was chosen to connect the polyethylene outer mantle, which has two stainless steel rings to increase its stiffness, with six individually tightened spokes to the main body of the turbine. Every other spoke is connected to the front or the back of the generator housing to be able to create sufficient stability.

Much attention was given to the feature that the turbine automatically turns when the wind direction changes. This was especially a challenge because it had to be combined with an attractive styling of the product. By giving the mast a stepped design the turning point of the turbine could be placed forward so no

separate wind vanes were necessary. An elegant design was made possible.

To prevent the turbine from desintegrating at stormy conditions, the rotor is braked from a certain maximum velocity and the overflow of energy is converted to heat. Of course, the construction as a whole needs to survive these extreme weather conditions. This is why simulations have been carried out in which the construction was subjected to high wind velocities. Based on these simulations the material choice and geometry have been improved wherever necessary.

In the end BPO was able to engineer the complete construction in a very short amount of time, so Everkinetiq could successfully introduce Piqo at the fair. Richard Kleefman, director of Everkinetiq International is very proud of the product launch: "Piqo is the micro wind turbine for decentralised and durable energy generation. We hope to have an important Dutch export product with Piqo, which will help to create a leading position in the durable and green international energy market for the Netherlands."

For more information: www.piqo.nl



Euromold 2009

Again this year BPO is present at the Euromold Fair from December 2 to 5 in Frankfurt am Main. You can find us in hall 8.0 at stand number B163.

While enjoying a drink from the Turnpack cup, You can see a working demonstration of Villeroy & Boch's pop up jet and look at the new version of the Ahrend A250 office chair.

For more information:
www.euromold.com

Strawberry crate

In cooperation with a group of strawberry growers Beekenkamp Verpakkingen has developed a new storage crate for strawberry plants. The crate is going to replace the current wooden crates and can be nested as well as stacked. This results in an enormous space saving during storage and further savings on transport costs. BPO has analysed the stacking strength of the crate.

Geometrically different corners are used to make the crate nestable as well as stackable. A consequence of this solution is that each long side wall has a different strength and stiffness. Of course, this is not good for the stacking strength. BPO has pointed out which side wall needs to be strengthened, how much it needs to be strengthened and how this can best be done using the results of optimisation analyses. On the basis of these results Beekenkamp Verpakkingen has improved the design of the crate, so it now has the required stacking strength and stability.

For more information:
www.beekenkamp.nl

Revolutionary concept for cups

Over a year ago Turnpack introduced an innovative concept for cups. The unique feature of this concept is that it combines the packaging function with a drinking function. It is a packaging that can be used to drink out of as if it were a normal drinking glass. After a large scale test it was recently announced that Subway, the world's largest sandwich franchise chain, is including the cup in its assortment. BPO has played an essential role during the development of the leaktight closure.

The new packaging concept is based on a patented solution in which the screw thread is placed on the inside of the cup. This is the opposite of currently used drinking cups, where the lid is placed around the outside of the cup. The advantages of the new solution are numerous. There is no need for a seal, the contents stay fresh for a longer time and it is not necessary to pour the contents over into a glass or other cup.

A prototype already existed when Turnpack contacted BPO. The seal between cup and lid was found not to be functioning satisfactorily when it was tested. At a relatively low pressure on the cup it started to leak. The explanation for this, as was found from analyses, was that one of the two designed seals was released of tension by the turning of the lid. The other seal was mainly subjected to pretension, but the seal was not compressed. This also did not help the leak characteristics.

The solution for a better closure was to be found in the creation of a positive connection between both seals. When the lid is turned both seals need to be stressed and compressed. Via a smart design BPO was able to improve the product, without having to resort to very drastic changes in the design. The reliability of the closure was further improved by having both seals deform more during the turning of the lid.

At Subway in the Netherlands a large scale test has been wrapped up successfully and the cup will be added to the assortment. The cups are filled at the spot with orange juice or a smoothie. Further worldwide operating parties have already expressed interest in the Turnpack concept.



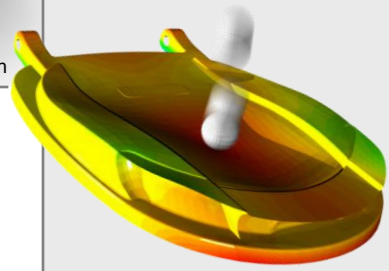
For more information: www.turnpack.com

Possibilities with strength analyses

BPO enjoys a great reputation in the field of moldflow and structural analyses, especially in the field of plastic and combined products. In strength and stiffness analyses effects as buckling and creep are essential for the reliability of analyses. The material usage and thus the product costs can be reduced oftentimes using these FEM-analyses. In a lot of cases static analyses are conducted. Crates and pallets are good examples for such analyses. Next to these analyses BPO also performs more advanced analyses, like:

Vibrations: determination of eigenfrequencies, vibrational modes and maximum deformations under the influence of a frequency spectrum. For instance, BPO has assisted D&M Premium Sound Systems with the development of audio systems using these analyses.

Impact: simulation of dynamic behaviour under the influence of a crash, a drop or an impact with another part or product. These simulations have been used to optimise the behaviour of a carbage can lid for a steel ball drop test.

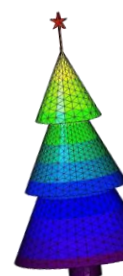


Heat: simulation of mechanical behaviour under the influence of a thermal load. This for instance has been used to optimise the design of an armature.

BPO offers a wide range of possibilities. Furthermore, these analyses can be combined with moldflow analyses and also with CFD analyses.

Instead of sending Christmas cards BPO donates to charity every year.

Merry Christmas and a Happy 2010!



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