

# Newsletter



**In this issue:** Wanzl Super carts for supermarkets, LPR: Lightweight, flat and not to be missed! & BPO reflects on 2020

## Super carts for supermarkets - Wanzl

Wanzl of Leipheim, Germany, is the world's largest manufacturer of shopping carts and many other types of carts and retail store equipment, as well as other products for airports and hotels. Wanzl produces more than two million shopping carts every year and has commissioned BPO to perform strength calculations for the new Evo-Grip and Evo-Seat products.

Shopping carts are used in supermarkets all over the world. They represent one of the most brutally used products in the world: regularly loaded up to the rim with all kinds of products, a child sitting and moving in the child seat, extra products on the tray below and then moved over irregular laid pavement. The loads that are placed on these carts are enormous!

In order to make sure that the carts survive the most critical loads in all kinds of environments (near the sea or in desert areas, from temperatures well below zero up to 50 degrees Celsius) they are engineered up to a very high standard.



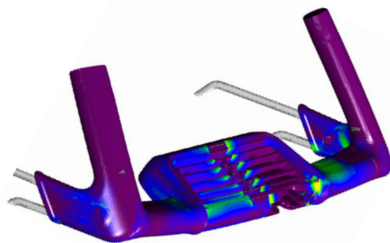
Plastic parts shopping cart

Wanzl's new Evo-Grip and Evo-Seat products are prime examples of this approach for product development. The

Evo-Grip system is a new handlebar system including a central promobox unit where the locks and promotional space are integrated. The system has innovative handlebars, that can be used as a traditional horizontal push bar but also has "horns" that allow for an alternative grip of the shopping cart. The Evo-Seat is a new generation child seat that can be used while shopping with toddlers.

BPO has analysed the concept design of these systems for the high loads that may occur during use. Forces acting from different directions, torsional loads as well as impact loads on different areas where analysed, while considering the properties of the 2K overmoulding of the parts (as can be seen from the different colour schemes). Using the results of these analyses the design was improved in critical areas, without the need for expensive mould changes in a later stage.

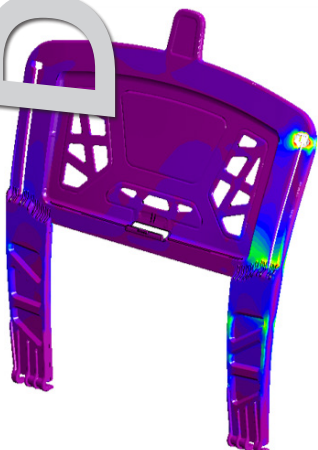
Using the power of BPO's simulations of product behaviour Wanzl has improved their engineering, product reliability and time to market for their new Evo-System. More information can be found on: [www.wanzl.com](http://www.wanzl.com).



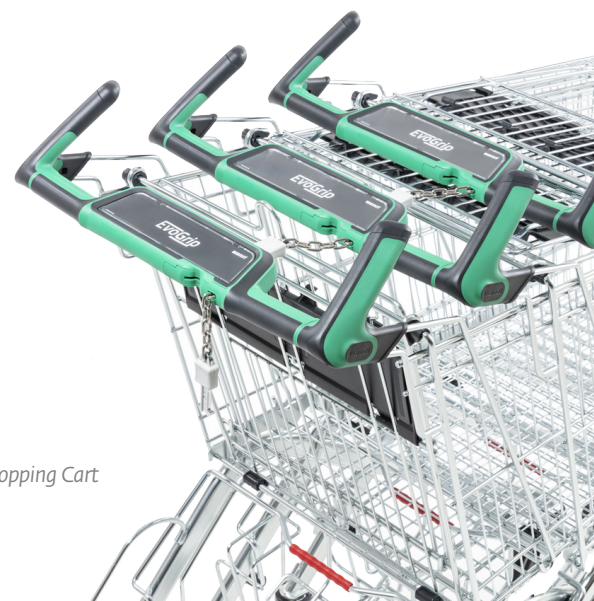
Stress loaded handle

Countless physical tests are conducted on new designs before they are ready to be put on the market. Now, to make the engineering process more efficient and the products more reliable, Wanzl uses the expertise of BPO in the development of plastic parts for their shopping carts.

In an early stage of the development the feasibility of the designs is assessed, later the concept design is fully analysed for strength and stiffness. This way, the designs are improved before even the first tools for production are made and the engineering and testing phase can be shortened significantly.



Stress backrest children's seat



Wanzl Shopping Cart

December 2020

volume 27, number 3



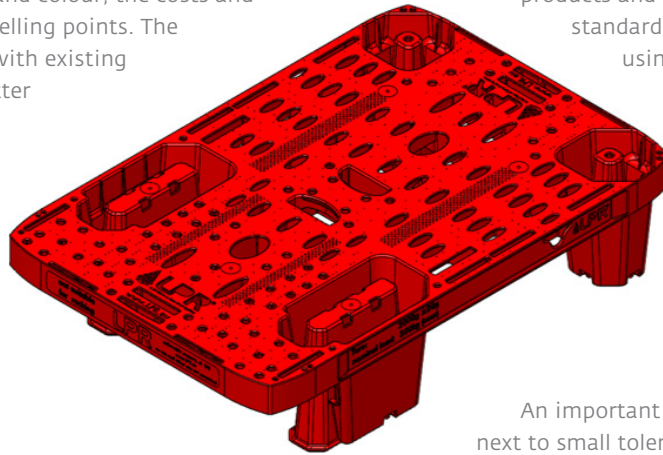
*we know how*

### **Lightweight, flat and not to be missed! - LPR**

LPR (la Palette Rouge) assigned BPO to develop their new "quarter pallet", a logistics solution for the transport and display of goods. The pallets are used widely and, next to the possibilities for transport it also offers a displaying function.

There are multiple suppliers of pallets active on the market and next to design and colour, the costs and performance are the main selling points. The pallet must be compatible with existing products and it must be better regarding price and quality to be successful in this competitive market.

The pallet performs comparable to the competitor products and it meets all norms and standard, although it is made using less material and has a lower unit price.



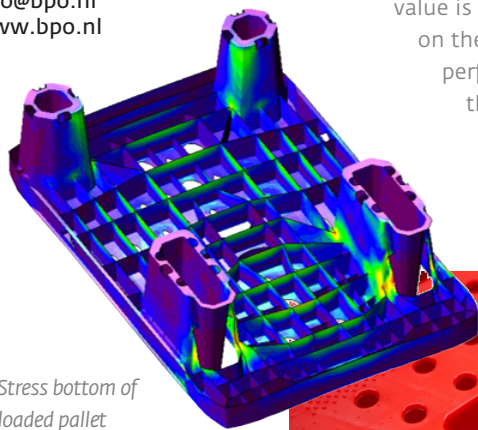
LPR Quarterpallet

An important quality requirement, next to small tolerances, is a high degree of flatness of the product. This was worked on using moldflow studies, making sure that the product can be

produced straight as an arrow. Also, the newest hot runner nozzle technology of Haidlmair was used, the so called FDU nozzle system. This rectangular nozzle has as an advantage that it can be used on ribs as well as on surfaces, creating less pressure drop and less shear at the injection point, and thereby better and faster packing properties.

The result is a lightweight, flat, and recognizable product that will certainly carve out its place in the logistics market. More information about LPR can be found at [www.lpr.eu](http://www.lpr.eu).

BPO has made a beautiful new design, even though the room to play with here is small. Next to the colour of the product, the upper surface is suitable to make a product that looks different than competitor products. Of course, much added value is created by executing FEM-analyses on the product to balance the complete performance. Thanks to our analyses, the upper surface, the standing feet, and details have an optimal shape compatible with existing systems.



Stress bottom of loaded pallet



Detail injection point



LPR Quarterpallet

### **BPO reflects on 2020**

The year 2020 started very well for BPO. We had just ended the 30th anniversary year in a festive way and started with a good number of projects and fresh courage!

Unfortunately, COVID-19 came into play and from March onwards we mostly worked from home. Despite this adjustment, we are very busy, but of course we miss the fun in the office with our colleagues!

We would also like to welcome our customers and relations back to our location in Delft with a cup of freshly ground bean coffee.

That is why we wish all our relations all the best for them and their loved ones for 2021!

**On behalf of the BPO team;  
Happy Holidays and best  
wishes for**

**2021!**

