Newsletter

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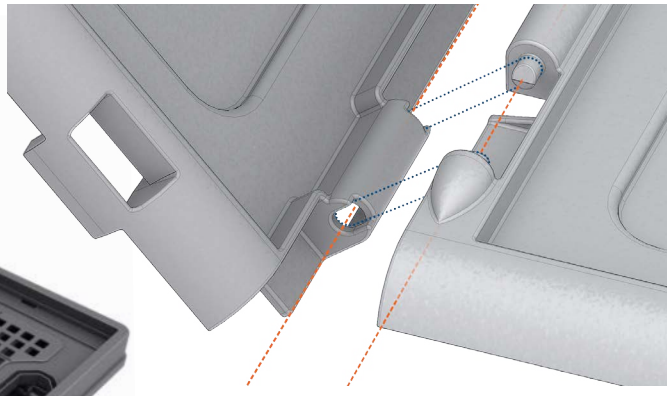
BPO
we know how

In this issue: Concept design of a full plastic folding crate for WALTHER Faltsysteme - Innovation in the world of roof safety systems - Best wishes for 2018!

Foldable container for WALTHER Faltsysteme

The hinge is designed for robot assembly

WALTHER Faltsysteme GmbH develops and produces foldable multi-trip containers. The company is recognised as being the most experienced in foldable plastic boxes in today's market. The company has all production steps, from construction and technical drawings to series production, under one roof. Injection moulding machines with clamping forces of 1,300 tons enable the production of small containers to highly stable plastic boxes or pallets for demanding transport tasks.



A full-plastic folding hinge solution connects the long walls

For a new line of foldable containers, WALTHER has asked BPO to develop a concept for the new container, in which a new design is combined with robustness, comfortable (un)folding and optimal solutions for all functional elements. Important features of a foldable crate obviously are the hinges, handles and overall construction to create stiffness. Furthermore, details such as assembly guidance edges and fixation details, strongly determine the quality of the container.

BPO has taken a systematic approach: first current solutions were analysed for existing containers. The observed solutions were reviewed and used to generate optimised versions of proven principles and completely new solutions. All the ideas were clustered in a morphological chart, which was used to make combinations into multiple concepts. The concepts were fine-tuned in consultation with WALTHER and delivered as 3D CAD data. From this point, WALTHER further detailed the product, based on BPO's input.

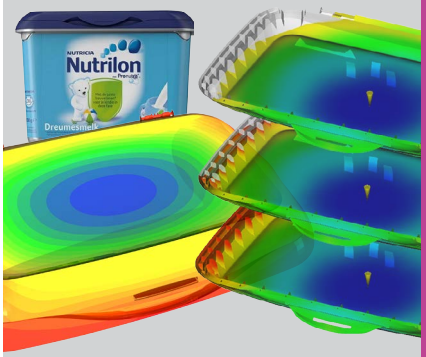
Rendering of the final design

Hinges are engineered without an additional (steel axis) and are constructed in such a way that they are suitable for automated assembly. The container is overall stable and stiff due to the profiled shapes in the corner areas and secure connections (catch noses) between the parts in the unfolded situation. Grips are constructed and proportioned in such a way that they are comfortable and crushing of fingers when folding is avoided.

The final design was recently introduced on the market. It is robust, yet lightweight: the 40 liter version weighs approximately 1400 gram (perforated). The outer dimensions are 530 x 350 x 280 mm and the container can be folded to only 50 mm high, which allows 224 empty containers to be stacked on a pallet. All parts are made of polypropylene and are produced and automatically assembled from one mould. For more information see: www.boxline.com.

This autumn, BPO can again be found at the "Thin Wall packaging" conference (**4-6 December**, Cologne, Germany).

The Thin wall packaging conference is an international conference on market trends and developments in plastics tubs, cups and tray packaging.



Oscar Brocades Zaalberg, managing director of BPO, will give a lecture on the topic: **"Product design, development, optimisation and future trends of thin walled packaging".** The lecture is scheduled for Tuesday morning. For more information about the fair and/or the lecture, please visit: www.ami.international/events.

THIN WALL PACKAGING 2017

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Gravel sealing ring around Kedge Anchorage point

"Kedge Safety Systems has been delivering the product "Kedge" for more than a decade. The "Kedge" is a robust anchorage point for fall protection on flat roofs.

The solidly and cleverly designed anchorage point grips on to a rosette of roofing material. This rosette is fixed to the surface of the roof using a blow torch or hot-air gun. This creates a reliable, durable and watertight seal between the anchorage point and the underlying roofing material. When the Kedge anchorage point is loaded, several things happen. First, the crumple zone in the Kedge anchorage point is deformed. This absorbs part of the energy that is released during a fall. The remaining energy is transferred and absorbed via the roofing. For ballasted roofs a gravel sealing ring is placed around the kedge anchorage point, so that it will remain clearly visible. Currently a gravel sealing ring made of concrete is used.

Assigned by Kedge Safety Systems, BPO designed a gravel sealing ring made of plastic. The plastic version is, of course, much lighter than the concrete version and on top of that it can be nested. The product is thus much easier handled by the roofer and it is more efficient in transport and storage. The geometry of the plastic gravel sealing ring has been optimised for use around the anchorage point. Four indentations are made for an optimal guidance of the mobile lifelines and the top edge has been chamfered so as not to interfere with the working lines. Of course, the plastic variant has, like its concrete counterpart, draining holes. The sealing ring is fixed by gravel on top of its flange and/or by sealant under the flange. For roofs with a large amount of gravel, two sealing rings can be placed on top of each other: if placed in one direction they will nest, if turned 90 degrees they will stack. The product is made in a bright signal colour red for optimal visibility.

BPO developed the sealing ring from first sketch up to and including its release for tooling. First, different scenarios (usage, installing, logistics) were analysed thoroughly and translated to a list of requirements. Next, different concepts were developed and conflicting requirements were weighed against each other. For instance, the requirement "as large as possible visible surface" conflicts with "as small as possible nesting pitch". In consultation with Kedge Safety Systems the optimal balance was chosen. The selected concept design was then optimised by BPO for production using a simple open-close mould. Finally, BPO helped Kedge Safety Systems with the selection of a cost efficient, UV-resistant material (ASA red) and with the selection of a producer.

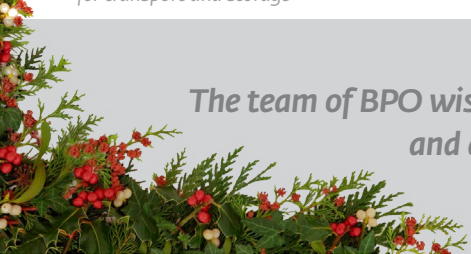
Plastic gravel sealing ring with indentations the mobile lifelines

Two gravel sealing rings stacked (90° rotated)

Gravel sealing rings nested for transport and storage

Sealing ring on gravel ballasted roof

The market launch of the plastic gravel sealing ring is expected soon. For more information on Kedge Safety Systems, please go to: www.kedge.nu.



The team of BPO wishes you happy Holidays and a successful & healthy 2018!