

Analysis and (re-)design of the current transport carrier used between the decentral bakery and the stores of HEMA.

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HEMA is an international store-chain. It is a strong brand in the consumer-products market, originated in 1926 in the Netherlands. The strength of the company HEMA originates from the multiple suppliers. Together these create the complete assortment of food and non-food consumer products for the approximately 545 HEMA stores in the Netherlands.

One of these suppliers is HEMA Bakery. HEMA Bakery is responsible for the production and delivery of the assortment of daily fresh pastries to approximately 330 HEMA stores in the Netherlands. Most of the pastries at HEMA stores are sold during the weekend. This makes that the quantity of daily ordered pastries differs between weekdays and weekend days. The currently used transport carrier at the HEMA decentral bakeries is a rigid large roll-container unit, which allows a fixed amount of pastries to be transported from the decentral bakery to its stores. The transport of a batch of pastries smaller than the transport carriers capacity creates transportation of air. This inefficiency costs HEMA Bakery money due to the empty weight characteristics of the current transport carrier. To reduce the transportation costs HEMA searches for opportunities to switch to a more efficient form of transportation. For HEMA Bakery the increase in efficiency results from a better adaptation to the fluctuating amounts of ordered pastries and a reduced weight of transported goods in the trucks. The assignment executed for HEMA consist therefor out of an analysis of the current transport carrier and a design of a new transport carrier, which increases adaptation to the fluctuating amounts of ordered pastries and reduces the weight. Additionally the ease of use should be maintained or increased for the primary users.

The market analysis provided multiple solutions for the transportation of pastries. The result of this secondary research showed several reducible in size container systems and roll-container systems in combination with an enclosing primary packaging. These solution can however not be used in the context of HEMA for example due to the decision of HEMA to transports it's pastries without enclosing primary packaging.

Additional literature research on the subject food safe transport, showed an expected required transition of the protective function (provide protection against the external environment) from the enclosing primary packaging to the transport carrier. This translated into a completely enclosed tertiary packaging requirement.

The analysis of the HEMA Bakery process, conducted from open interviews and observations, showed adaptations to the long-time use of the current transport carrier. The adaptations increase the speed and efficient use of the current transport carrier. But restrict the design freedom of the new transport carrier.

The most important finding from the observed interactions with the current transport carrier and the stakeholder analysis was the potential bottleneck at the store department. The search actions required to unload the transport carrier into the display of the stores are executed under a high time pressure. For the new design this translated into required accessibility, overview of the pastries inside the transport carrier at all time and clustered transport.

The functional requirements from the analysis provided input for the morphologic scheme. Here multiple options were generated and combinations were made to diverge the design process. SWOT-analysis converged the process to two concept directions (figure 1). Due to the time limitations it was not possible to test the ergonomic use of a container system within the context of HEMA. For this reason the vertical split in half transport carrier was further elaborated. The container system however showed more potential since it reduced the weight more then the other option and allows more precise adaptation to the fluctuating demands. It's therefor highly advised to test a *BROBAN* (The Netherlands Patent No. EP0553932B1, 1993) container system in combination with a side door and a pastry tray in the context of HEMA.

concept direction transport carrier

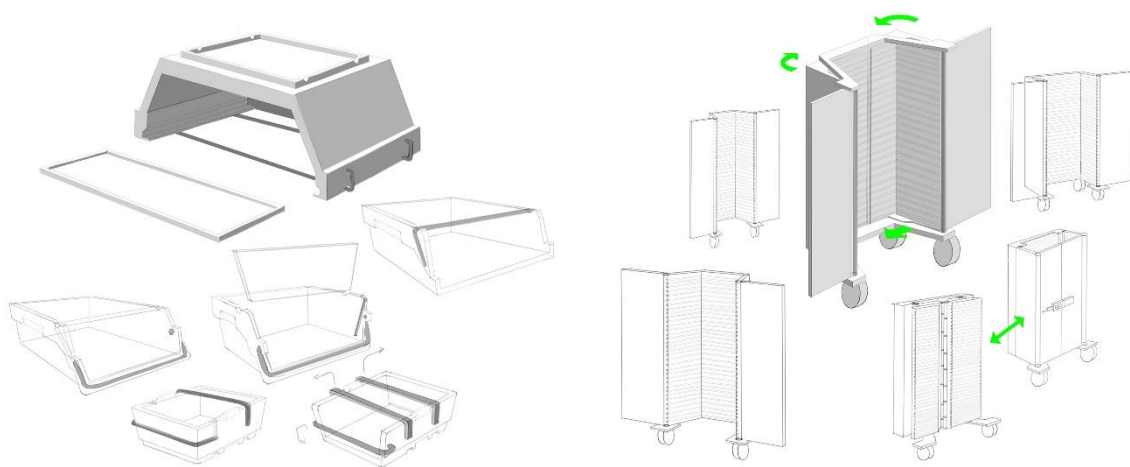


Figure 1) two concept directions, on the left the nestable container system, on the right the vertically split in half transport carrier

References

Benraad, C. J.B.M. (1993). *The Netherlands Patent No. EP0553932B1*. Retrieved 12 20, 2019