

The design of a logistic concept

This assignment describes the design of an industrial package. It aims to create a more sustainable and customer-friendly way of logistics.

The assignment was carried out at Themans, a company located in Deventer that sells hinges and locks for the industry.

It is a packaging used in business to business transport and is meant for the industry of door accessories. The packaging is intended as a competitive advantage. Since all products are

already searched together per door, the workload for the customer is reduced. For the customers, it would be a lot easier to have those products packed per door.

Currently, products sent from the client, Themans, to their customers, are sent in bulk packages. Therefore cardboard boxes and wooden pallets are used. Both are seen as a loss; they never return to the company. Therefore a packaging that could be used at least 20 times is designed. This will save both costs and time.

This packaging has multiple stakeholders, such as the people working at the warehouses of Themans and their customers, the people working at the sales department, the product designers and the director of Themans. These all have an influence on the final design. The most important stakeholder is the people at warehouses of Themans. They will work with the packages daily.

The products that are involved in the packaging are hinges, door closers, door furniture, single-point mortise locks, multi-point mortise locks and contra-espagnolettes. Each door either contains a single-point mortise lock, multi-point mortise lock or contra-espagnolette. The sizes of a single-point mortise lock and multi-point mortise lock differ a lot. The maximum height of a single-point mortise lock is 235 mm, where multi-point mortise locks are up to 1988 mm and the longest contra-espagnolette included, has a length of 2510 mm. Therefore a distinction was made between a small packaging and a big packaging.



Figure 1: cabinet with packages

The final design consists of two packages, one for doors with a single-point mortise lock and one for doors with a multi-point mortise lock. These packages will be made by vacuum forming. Since vacuum forming follows the exact outline of all the packages, this will prevent the products from sliding and getting damaged.

Both packages can be slid into a big cabinet, see figure 1. The cabinet is built up out of different extrusion profiles, which can be seen in figure 2. These extrusion profiles have slots that are a few millimetres on top of each other. In that way, a small overlap prevents that the cabinet would become very wide. Together all extrusion profiles have 84 slots. Since two small packages fit in one slot, the amount of packages that can be put in the cabinet is 99.

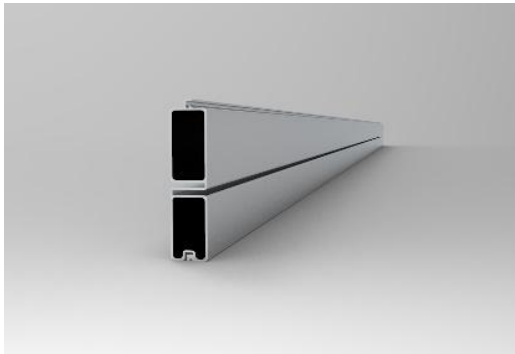


Figure 2: Extrusion profile

In conclusion, extended research is needed to find out if the concept is profitable. Advised is to look further into the big packaging. If the width can be reduced to under 160 millimetres, there fit five packages next to each other. In that way, more products can be sent at the same time.