

*business case*

# Medication box demonstrates full potential of Pekago

*"We are extremely proud of our first self-developed product, the medication box. It is a world-first and it shows where we as a company can add value in the medical market", said Sven Klement, Project Manager at Alpatron Medical Innovations.*

The dispensing of medicines is an important part of the daily routine in hospitals. The safety of this dispensing, in particular, is frequently discussed on the wards. It's about the right patient getting the right medication, in the right quantity and at the right time... and that's where it often goes wrong. Alpatron, a supplier of medical solutions, such as the AMiS (Alpatron Mobile intelligent careStation) medical trolley, noticed that a good, lockable, electronically-protected medication module was high on the wish list of nursing staff.

To satisfy this need in the market, Promea Industrial Design was asked to deliver a design that made the maximum use of the relatively small space that is available on this mobile solution.

The medication box had to perfectly complement the design of the AMiS trolley and, at the same time, be "nurse-proof", safe and user-friendly. Motivation for getting the design ready for manufacture came from, among other things, the approving responses received during the presentation of a working prototype at Medica 2011 (the most important trade fair in the field of medical systems).

The partner for the plastic components was found in Pekago. Pekago had worked before with both Alpatron and Promea and was familiar with the high requirements stipulated in the medical equipment industry. It was also no surprise that a decision was quickly taken to



*The AMiS medication box. Developed by Alpatron Medical Innovations.*

take on the developments together, with the objective of manufacturing the first production batch as soon as possible.

## Feasibility

### ***Translation of the design into a makeable product***

"One of the first actions that we performed was to analyse the producibility based on the available product drawings and the prototype. At the moment that a design is ready, the functionality is known. The translation into products, which can be injection moulded, was a necessary step on which we intentionally spent a lot of time", said Koen Bayens, Engineering Manager at Pekago. He continued: "Before the injection moulds are made, the 3D data of the products must be correct. You cannot avoid everything, but one wants to avoid expensive changes later as much as possible. Both Alpatron and Promea were fortunately also very conscious of this."

The producibility analysis phase, as it is called, appears to take a lot of time. Nonetheless, this is a necessary step that often prevents a lot of misery later. Pekago has reduced the risks of errors later even further by performing various other analyses (such as filling studies, warpage analysis and wall-thickness analysis). The decision was also taken not to make a number of handles as injection-mould components, but as coated [structural foam moulded](#) products. This improved both the robustness and the appearance of these components.

## Moulds

### ***Complex tools for an advanced product***

The complete package of plastic components optimized by Pekago ultimately resulted in the development and creation of seventeen different moulds. They were all made entirely to specification and under the supervision of Pekago at the same toolmaker. Koen Bayens: "The process of making the moulds is always experienced as fairly long. Moulds are costly and complex. The choice of the right partner, the specifications of the mould design and the assessment of the construction are very important and occur beforehand. To keep the time-to-market as short as possible, the decision was taken to also perform the assembly at Pekago. The component list of the medication box is very long: metal parts, electronics, coating, packaging, etc. During the mould construction a start could already be made on listing the required components and processes.

## The first products

### ***Being able to switch between tasks quickly means quicker delivery***

The first batch of plastic components was made by the toolmaker in China in the presence of Alpatron, Promea and Pekago. The components were transported by air to the Netherlands to be used for the immediate [assembly](#) of the first batch for delivery. In this way, the first customers could be supplied with the required medication boxes on time.

Jeroen van Dijk, Account Manager at Pekago, said: "We did have the advantage that we already knew each other well. There are often a number of teething problems with the first batch that must be rectified as well as a number of unexpected



*The first production batch completed.*

issues that must be solved. This could be done very quickly, as we could, after consulting, immediately mill or otherwise work parts that required modification at Pekago. Parallel to this, the moulds could be modified in China to avoid the same problems with the next batch."

An important part of the assembly process was (and still is) the comprehensive testing of each medication box. Each box was placed on a trolley and connected to a PC. To guarantee the correct functioning of each box, each box did undergo a complete test cycle. "We even decided to mark each box with a unique OR- code, so that we can determine precisely when a certain box was built and delivered to the customer, and what servicing it has had at the customer", explained Sven Klement.



*Sven Klement, Project Manager at Alpatron Medical Innovations*

According to Sven, the medication box is, in combination with the AMiS trolley, a great success: "Hospitals finally have a correctly functioning and user-friendly medication dispensing device that can be locked electronically and also looks good."

### **About Alpatron Medical Innovations**

[Alpatron Medical Innovations](#) (AMI), based in the Netherlands, is a subsidiary of Alpatron Medical Group. Alpatron Medical Innovations develops, manufactures and distributes medical equipment. They find solutions using hardware, software and technologies that maximally optimise the work of health care providers. The unceasing motivation for improvement comes from the daily routine of the health care providers. This makes Alpatron Medical Innovations a remarkable company where the emphasis of solutions lies in personal effectiveness rather than technology.

### **About Promea Industrial Design**

[Promea Industrial Design](#) is an all-round design bureau that designs products under the instructions of its customers. Promea designs innovative products on a full-service basis, from analysis and brainstorming to technical drawing and production start-up.

### **About Pekago**

[Pekago Covering Technology](#) is since 1983, as process supplier, specialised in development, engineering, mould construction and the production and assembly of plastic housings and technical components for industrial apparatus construction. Successful integration of design, function and manufacturability and the realisation of cost targets are the specialism par excellence.

### **More information**

You can obtain more information at [www.pekago.com](http://www.pekago.com)