



DIVIDELLA

KÖRBER SOLUTIONS

PACKAGING & MACHINERY ENGINEERED TO GO HAND-IN-HAND

At its production units in Grabs, Switzerland, Dividella exclusively manufactures machines for packaging pharmaceutical products. The focus is totally on the packaging of parenteral pharmaceuticals in Top-Load boxes. These sensitive products demand well thought-out packaging solutions. Together with customers, Dividella's specialists develop the ideal packaging for these particular products. Here, Christoph Hammer, Chief Executive Officer, Dividella, explains.

Swiss packaging company Dividella is generally known for its first-class Top-Load cartoning machines. But very few people are aware that pack design plays a key role from the very beginning. Both depend on the specialists at Dividella – the packaging and the machine.

THE TOP-LOAD / TOP-OPENING CONCEPT

Usually, packaging has to be developed for new pharmaceutical products, but also, every now and then, for existing products. In most cases they are parenteral drugs, i.e. liquid pharmaceuticals which are packaged in syringes, cartridges, vials, auto-injectors and the like. On Dividella machines, these products are packaged in Top-Load/Top-Opening boxes (Figure 1).

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The medicines are inserted from above and can then be removed very easily by the consumer from the top of the pack.

Since Dividella sees itself first and foremost as a provider of solutions, and in particular as a machine constructor, packaging design is a very high priority. Even though no purchasing decision in the classic sense usually takes place for prescription medicines – patients get what the doctor prescribes for them – the appearance and the packaging are nonetheless of great importance for pharmaceutical manufacturers.

DEVELOPMENT IS TEAMWORK

The pharmaceutical manufacturer's project team is closely involved in the entire development process right from the start, in particular the marketing departments, which generally have a significant impact on the design of the pack. All products which are to be packaged are therefore defined precisely at the beginning of each project. The aim is to package as many medicines as possible using the same design and therefore on the same machine. To make the packaging process as efficient as possible, Dividella's packaging specialists will make proposals on harmonisation of the customer's portfolio, if requested.

After that, the products for which new packs are required are clarified, and the packaging designers create initial concepts. The form of these concepts can vary:



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Figure 1: Top-Load/Top-Opening boxes. Medicines are inserted from above and are readily removed by the consumer from the top.

on some projects samples are produced at the very beginning which are designed and erected manually. On other projects, various possible packaging solutions are put forward in the form of 3D presentations. On the basis of these presentations, the customer indicates a general direction and a sample is then produced. The blanks for the samples are made by Rondo AG in Allschwil (Switzerland), one of Dividella's sister companies. Erection and testing of the samples for correct functioning then takes place, again at Dividella.

The joint production of the samples is logical: Rondo is not just Dividella's sister company but also one of the leading folding-box manufacturers in Europe for the pharmaceutical industry. Involving Rondo in Dividella projects at an early stage ensures that the designs not only meet the customer's needs and can be produced on the machine, but also that they meet the requirements of the folding-box manufacturer. Particular attention is given to the grades of paperboard which are used, the perforations and a number of other stamping details. Dividella's senior management attach great importance to designing packaging solutions from the outset so as to ensure that production subsequently functions smoothly.

FROM THE SAMPLE TO THE PACK

Once the pharma producer receives the selected samples, they generally carry out various tests before opting for a packaging solution. One of these tests is the so-called handling test: this checks how the end user handles the pack. Does he or she open the pack correctly intuitively? Is any tamper-evident protection handled correctly, for example? In the event that the pack contains products for people with motor disabilities, how easily can they open this pack and remove the drug?

Another test, which is also frequently applied, is the transport test. This verifies that the boxes and packaged products can be transported safely. There are companies which dispatch entire cartons and pallets

around the world for this purpose. Others carry out vibration and drop tests in the laboratory to check whether the medicines remain undamaged.

THE 'FLUTE' CONCEPT

Dividella's special design concept (Figure 2) ensures that products can be transported safely and that space is saved in the packaging. Since the whole box is made of cardboard, customised "flutes", specially adapted to the products, are easily glued inside the box. The product is usually placed crosswise in relation to these flutes. In the case of a syringe pack, for example, the syringes are inserted in front of and behind the barrel of a syringe in such a way that the product itself virtually "floats" and is connected to the actual box only by the two flutes. In this way multiple products can be packaged close to each other without touching.



Figure 2: The variable "flute" concept. Syringe, vial and adapter are packaged securely in the shatter-proof combi pack.

Since the products do not touch the base or the lid of the box, they are highly impact-resistant and the firmly anchored products cannot break even if they are dropped onto the floor. This "flute" concept is highly versatile, so the layout within a box can easily be adapted to individual customers' needs. In so-called combi packs, not only the syringes but also the accompanying vials

and accessories, such as needles, filters and the like can be inserted at fixed points.

MEETING THE REQUIREMENTS OF THE PACKAGE

All packages must safeguard the product throughout its route from manufacture to final point of use. The package must also convey sufficient information to ensure that the product is used correctly. Each package provides the vital link between manufacturer and consumer; it is an essential component of the product itself.

The prefilled syringe and injection device are examples of a high-value product that must be safeguarded throughout a long shelf-life and yet be able to be readily and accurately used whenever required. The proper selection of the package and the attention to its design will promote

"...what good is the most elegant design if the packaging solution does not then work properly in industrial production?"

the benefits of the product in addition to fulfilling these fundamental functions. The syringe or device is not viable without a primary package.

The package must enable rapid access to each of the products it contains, and must remain intact until the last of the syringes or devices have been removed, if that last product is to be safeguarded. The printing of the package should clearly present essential product information. Further features may confirm that the syringe or device is untouched until required for use.

A re-closable package can be retained for subsequent use without difficulty. If the package contains a course of treatment for a single patient, features to assist dosage

compliance are important. If the contents are to be used over an extended period, opening features that release only one product at a time can assist the user.

VOLUME SAVINGS OF UP TO 50%

Dividella folding boxes are pure mono-material packaging, i.e. the folding box is made from 100% recyclable cardboard material. This distinguishes it from other conventional Top-Load packs. For customers in the pharmaceutical industry, this means that by using only one packaging material the space required and the transport costs can be significantly reduced (Figure 3). Dividella reports volume savings of 25-50% compared with traditional blister packs.

These figures are important in that many highly sensitive drugs are cold-chain products. In other words, they must be cooled continuously from production until they are used by the patient. The less space these products take up the better. This includes space in the refrigerator

where general practitioners keep products such as sensitive vaccines.

THE RECIPE FOR SUCCESS: DESIGN PLUS MACHINE

Dividella are machine constructors in their heart and soul – but with brains. Because what good is the most elegant design if the packaging solution does not then work properly in industrial production? The packaging specialists emphasise from the outset that the product is perfectly packaged in accordance with the requirements AND that a solution is provided which can be processed on a machine and which ensures reliable, trouble-free production.



Figure 3: Syringe examples. To achieve volume savings of up to 50% products are packed securely as closely as possible and can be removed individually from the TopLoad pack with its integrated tamper evidence.

ABOUT THE AUTHOR

Christoph Hammer CEO at Dividella in Grabs. He holds a lot of experience in the food and pharmaceutical packaging industry in the fields of engineering and consulting. His expertise covers the capital equipment industry, and through extensive sales activities he has an excellent knowledge of international markets. Christoph was educated as an electrical engineer with additional degrees in Business and Production Technology.

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PLUS TWO INTERACTIVE HALF-DAY
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Tuesday 25th April 2017

A: Successful incorporation of Human Factors in prefilled devices

08.30 – 12.30 Leader: **Melanie Turieo**, Director, Human Factors & Industrial Design, **Cambridge Consultants**

B: Navigating the Silicone layer; a training program, to measure and understand silicisation of syringes, cartridges and vials

13.30 – 17.30 Leaders: **Oliver Valet**, Vice President, **rap.ID**
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KEEP YOUR PRODUCT SAFE AND GO FOR THE RIGHT PACKAGING

..and profit from volume savings of up to 50 %

Dividella packaging solutions - 100% recyclable cardboard material. By using only one packaging material the space required and the transport costs can be significantly reduced. Dividella TOPLoading cartoners report volume savings of 25% to 50% compared with traditional blister packs. Customised partitions, specially adapted to the products, are easily glued inside the carton and multiple products can be packaged close to each other without touching. Since the products do not touch the base or the lid of the box, they are highly impact-resistant and the firmly anchored products cannot break even if they are dropped onto the floor.

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