Save on total cost of package

Sanofi Pasteur's 10 count syringe carton
for flu vaccine – the perfect packaging solution

KÖRBER

The benefits of the perfect package design, in combination with our innovative machines

The customer's requirements

Flu vaccines are a high volume commodity product, in which price, availability, and Time-to-Market are key factors for success. The entire production for the flu season takes place within a 3-4 month period. Production operates on a 24/7 basis. In addition, vaccines are shipped and stored in a cold-chain. This requires cold storage within the facility and the warehouses in the distribution channel. Refrigerated trucks are also required for intermediate transport. Dispensing pharmacies and clinics also need to store the vaccine in a refrigerator.

Furthermore, the entire flu vaccine industry is moving away from multiple doses, typically 10 per vial, to avoid preservatives by using pre-filled single dose syringes. This means there is a need to package 10 times the number of syringes than vials in the same timeframe. Altogether, the importance of machine output and efficiency has never been more critical.

The solution

Sanofi Pasteur invested in a Dividella NeoTOP 804 cartoner with the capability of packaging up to 800 syringes per minute. In addition to syringes, the machine was configured with the flexibility to package vials, needles, and combination packs as well.

> **"The goal was to meet the customer's requirements and, beyond that, to generate a packaging solution that adds true value for Sanofi."**
>
> **Armin Nef**
> **Team Leader Packaging Development**
> **Körber Pharma Packaging AG**

The customer's benefits

The top-load carton is made from 100% recyclable paper-board material, and eliminates pre-made plastic trays and lid material, resulting in a savings in excess of $1,000,000 annually. A reduction in pack volume of 50% cut the expensive cold-chain shipping and storage costs in half. The NeoTOP 804 syringe cartoning system from Dividella provides four times the throughput of the previous system, with a capacity of 800 syringes per minute. The Overall Equipment Efficiency (OEE) doubled from 35% to over 70%.

About the customer

Sanofi is comprised of three core business units: Specialty Care, Vaccines and General Medicines. Consumer Healthcare will become a standalone business unit. Around the world, more than 100,000 people at Sanofi are dedicated to making a difference in patients' daily lives, wherever they live, and enabling them to enjoy a healthier life.

Headquartered in Bridgewater, New Jersey, Sanofi in the United States employs more than 12,500 professionals throughout the country.

Facts about Sanofi
- Present in around 100 countries
- Around 100,000 people all over the world
- Close to 70 manufacturing sites
- Close to 20 R&D sites

sanofi

www.sanofi.com

Dividella NeoTOP: machine performance technical data

Performance

Package Opening
The new package is based on a top-load design. The top lid is opened by pressing down a tamper evident tab in the front of the carton. Note: The previous design was a side-load carton that required a wafer seal on both ends to provide tamper protection. The lid is re-closeable (reverse tuck).

Machine Performance
Sanofi Pasteur invested in a Dividella NeoTOP 804 cartoner with the capability of packaging up to 800 syringes per minute. In addition to syringes, the machine was configured with the flexibility to package vials, needles, and combination packs. Integrated force sensors within the syringe placement tooling prevent damage during the loading process. Verification of the syringes and booklets within the cartons after each loading operation is achieved with vision technology (Cognex). This functionality eliminates the need for a checkweigher on the line. The Overall Equipment Efficiency of the cartoner is more than 70%. This is an increase on top of the 35% compared to the previous packaging system.

Integration
The packaging line includes upstream machines from Groninger for inserting the plunger rods into the syringes, syringe labeling machines with printing and OCV, as well as buffers and merging units to ensure high uptime resulting from minor disturbances and imbalances. An automatic case packer from PRB was integrated at the end of the Dividella NT804 machine.

Benefits for End-Users
The booklet and syringes are completely visible to the person performing the dosing of the vaccines, allowing instant recognition if the contents have been compromised. The cartons are typically stored in a small refrigerator within the pharmacy or clinic. Since the volume is over 50% less, the customer can store 50% more products in their refrigerators.

Syringe Infeed up to 800 syringes per minute

The overall package volume was reduced by more than 50%

Overall Equipment Efficiency (OEE) doubled from 35% to over 70%
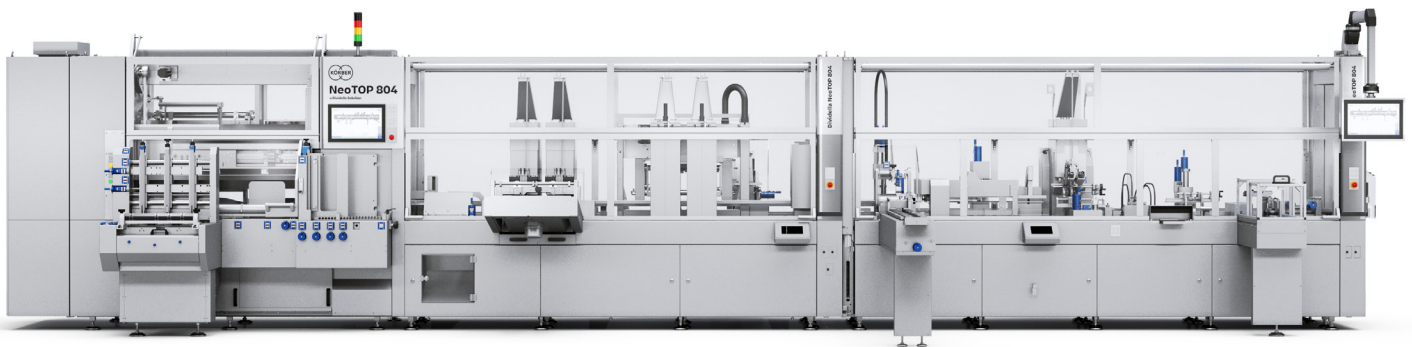
Dividella NeoTOP 804

Format range	Length x Width x Hight (mm)
minimum	60 x 45 x 17
maximum	240 x 170 x 70
No. of partitions	4
Output packs/min.	80

The modular concept allows the machine to expand at any time. The NeoTOP concept is adaptable to accommodate extreme product changes and complex pack arrangements.

High flexibility

In addition to the Award Winning 10-count syringe format, Sanofi Pasteur is also running other formats on the same machine:

- 2x5 syringes (award pack)
- 1x5 syringes
- 5 vials + 5 syringes
- 5 vials + 5 vials

Innovation

Creative Application

Major benefits were obtained by replacing pre-made plastic trays & lid material with a 100% paperboard material, consisting of a carton and partition. We now have the most compact 10 count flu vaccine syringe package on the market. Thanks to the new design we achieve to provide two layers of 5 syringes cradled in a paperboard partition with no glass-to-glass contact. The overall package volume was reduced by more than 50% using a new top-load carton design jointly developed between Sanofi Pasteur and Dividella. The use of 100% paperboard material for the carton and partition, instead of pre-made plastic trays & lid material, offers a reduction in material cost, lower in-bound logistics costs, as well as a more environmentally friendly package.

Protection

Protection Required

The sterility of the flu vaccine is maintained by the integrity of the glass syringe barrel and plunger. Cracked glass or a large movement of the plunger would compromise the sterile barrier. Broken glass is clearly unacceptable. The new package uses a specially designed paper partition that precisely fixes each syringe in a nest. There is no glass-to-glass contact, thus preventing cracks and breakage. The plunger movement is limited by the tight tolerances between the syringe and inner walls of the pack. Sanofi Pasteur's internal testing lab follows industry standard protocols (e.g., ASTM 5276 and ISAT 1A). The package has met these test requirements. More importantly, there were no damaged syringes reported.

Economics

Material Cost Savings

The elimination of the pre-made blister trays & lid material, and 1 booklet, saved over 33 cents per pack. The reduction in package volume by ~ 50% cut the number of refrigerated trucks and internal cold-chain storage burden in half. Investment in additional cold-storage capacity was eliminated.

In-Bound Freight Savings

The carton and partition for the new pack arrive as flat blanks, which are much smaller than receiving pre-made plastic trays. Combined savings for the above changes are greater than $1 million annually.

Marketing

Key to the marketing process is minimizing the package size since practitioners have only limited refrigerated space available in their offices. The reduced package size helps conserve this space for health care providers and allowed them to stock more product than would otherwise have been physically possible.

Environmental impact

The 100% paperboard NeoTOP carton is completely recyclable, compared to the former plastic trays with Tyvek lid stock. As such, the disposal costs are lower and the sustainability is much higher.

Winner of Worldstar Packaging Awards

Our innovative packaging solutions are renowned worldwide: Not only did we win the coveted World Star award in the category "Pharmaceutical and Medical", but we also brought home the prestigious AmeriStar Award in the category "Drug & Pharmaceutical" from the Institute of Packaging Professionals.

New Design – 10 count Syringe Pack

- Top-load carton with paper partition
- Two layers of 5 syringes
- Pack volume: 323.9 cm³
- Volume reduction: 55%

"We are proud that our packaging development department makes a valuable contribution to the improvement of the global environment and that our packaging designs are innovative and sustainable."

Armin Nef
Team Leader Packaging Development
Körber Pharma Packaging AG

We have you covered, always and everywhere

With local pharma experts around the world we support you wherever your business is located.

About Körber

We are Körber – an international technology group with about 12,000 employees, more than 100 locations worldwide and a common goal: We turn entrepreneurial thinking into customer success and shape technological change. In our five Business Areas Digital, Pharma, Supply Chain, Tissue and Tobacco, we offer products, solutions and services that inspire. We respond quickly to customer needs, we implement ideas seamlessly, and our innovations create added value for our customers. We are increasingly building on ecosystems that solve the challenges of today and tomorrow. Körber AG is the holding company of the Körber Group. We are the home for entrepreneurs – and turn entrepreneurial thinking into success for our customers.

Delivering the difference in pharma

At the Körber Business Area Pharma, we deliver the difference along the entire pharmaceutical value chain by offering a unique portfolio of integrated solutions. Based on indepth experience spanning consulting, inspection, transport systems, packaging machines and materials, track and trace and software, we understand the challenges in pharmaceutical processes and regulation that our customers face day to day, from the beginning to the end of their production. For them, we deliver the difference to unlock the potential of global pharmaceutical and biotech manufacturing.

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