

UPDATE

NEWS OF BETTER PACKAGING

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Multivac presents a new traysealer generation

At the start of the new year, Multivac will introduce a new generation of traysealers to the market. This new line represents an entirely new set of standards in terms of hygiene, flexibility and quality. The first model to be presented will be the T 700, which will debut at the Salon de l'Emballage, an international trade show for the packaging industry held in Paris from November 17 to 21. The machine is available for purchase beginning in 2009.

Scalability and modularity

"We have developed a completely new traysealer model series that can be scaled in terms of price and performance," explains Dr. Martin Drechsler, manager of the business unit for traysealers at Multivac. "The modular construction of the machines offers a maximum in flexibility. This way the series offers every customer a solution for his individual requirements in terms of performance and capacity. While delivering the most modern technology, the machines are also constructed very simply and are compact. And, of course, these new traysealers meet the very high safety and quality standards that our customers have come to expect from Multivac."

Consistent hygienic design

One of the most important factors in the development of the new series was sanitary design. All assemblies and components have been consistently designed according to hygienic requirements. The installation parts are set at as great a distance from each other as possible and slanted surfaces allow liquids to run off. This enables a simple and complete cleaning. The hygiene concept was also implemented on the machine's interior. Cables and hoses were reduced to a minimum and, if unavoidable, placed inside the frame or separated by spacers. Dead spaces and niches where contaminants might settle were eliminated – down to the bearings, rollers and interior assemblies. "These machines are constructed so they can be easily washed

down," Drechsler emphasizes, "and the detachable coverings and belts enable perfect cleaning. With a multitude of optimizations, our new generation of traysealers achieves a standard for hygienic design that is currently unrivalled in the traysealer market."

Application of the in-line principle

With the new generation of Multivac traysealers, the packaging process is now carried out "inline," which means that the sealing takes place in a straight line with the tray in-feed and removal. Pneumatics were increasingly reduced. "The most modern drives and control system technologies are being used in these machines," says Drechsler. "The advanced transport system moves the trays along in a very gentle fashion, making the machines suitable for a broad spectrum of applications, including very sensitive packaged items such as liquids or very light products." The machines use the smart belt principle, which means that the trays are positioned protectively at the just the right distance on the conveyor belt. With this precise coordination of speeds of both the infeed and conveyor belts, maximum productivity is achieved with the greatest possible safety.

Presentation at the Salon de l'Emballage

Multivac is launching the first model of its new traysealer generation, the fully automatic T 700. This will be presented to the market for the first time at the Salon de l'Emballage in Paris. The machine offers a capacity of 12 to 14 cycles per minutes with an atmosphere exchange – meaning an output of 24 to 42 MAP packages per minute for standard trays. If the trays are smaller, the output can be even higher. The machine is suitable for all applications including food, sterile medical, consumer and industrial products. The T 700 will be available as of the beginning of next year.

Dear Readers,

This Autumn we are pleased to present several product innovations to the market in all of our machine categories. The most comprehensive new development can be seen in our traysealer line: Multivac introduces a new generation of traysealers that is scalable in configuration and price, and offers a standard in hygienic design that is unique in the market to date.





In thermoformers, we complete our range with the compact R 105, our new entrance model. Multivac proudly introduces the B 310 conveyor belt chamber system, the world's first belted chamber machine with a tilting lid for improved ergonomics and sanitation. Also innovative: the H 100 and H 130 handling modules. You will find these and other product introductions on pp. 10 and 11.

Best regards,


Harald Teutenberg
Editor UPDATE

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
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


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MULTIVAC
BETTER PACKAGING

PrePack concept for food products: Fresh-packed quality

In Europe and North America, a new consumer trend is gaining momentum. People are increasingly seeking out products that have been traditionally manufactured – with higher quality, preferably from the local area, and without elaborate packaging. These customers are looking to buy things like meat, sausage and cheese at a local grocer or supermarket deli counter and see them wrapped at the point of sale. Alternatively, “freshly packed” items are bought from the open refrigerated case directly next to the deli counter, which doesn’t require standing in line.



Hygiene and environment

Some of these prepackaged products are packed manually by store personnel. Others are purchased from food processors in industrially prepared packages, using

considerably less packaging material than would likely be used at the retail site. This “PrePack appearance” positions the product favorably through the simple design of the package and the use of thin, soft films that remind the consumer of manual packages, with materials such as butcher paper, cellophane or wax paper. This look and feel is achieved with the same advantages of sanitation and increased shelf life that come with automated packaging.

“Food manufacturers are increasingly opting for the PrePack concept,” says Hans Mondry, key account sales director for Multivac in Germany. “Their products benefit from the look and feel of careful craftsmanship and quality, and there is a significant reduction of material usage with the relatively simple package designs that only serves to protect the product – for environmentally conscious consumers, this is an important aspect.”

Retailers, in turn, profit in several ways. PrePack products offer the logistical and hygienic advantages of industrial packaging. They require less retail space and eliminate the labor expense associated with traditional food service or deli counters. Appealing product packages can be strategically positioned to promote impulse buying, and selections can be easily adjusted to accommodate local and regional preferences.

New packaging variations

PrePack products are usually packaged industrially on a thermoforming machine. This type of technology unleashes the possibilities for entirely new packag-

ing ideas. One example is the multi-layer package: An interim film separates the package into two chambers that are filled with the product independently of each other, evacuated, re-filled with a modified atmosphere and sealed. This way, very different products – such as sausage and cheese – can be offered in the same package, but separate from each other to preserve their flavor. They can also be preserved in their respective compartments by means of an atmosphere customized for that product. Individual easy-open features for each compartment make the package especially consumer-friendly.

Potential for different markets

House and store brands can benefit greatly from PrePack packaging, according

to Mondry. “The PrePack concept represents relatively simple packages that do not require any special marketing efforts and can be manufactured inexpensively in a thermoform packaging process. This makes it easier for smaller producers to bring their own brands into the market without first having to invest in expensive and resource-intensive packaging techniques. Likewise, PrePack offers an affordable solution for producers in developing countries where the prospect of offering ‘freshly packaged’ products in the supermarket is not as far along, or where the funds for more elaborate packages cannot yet be raised.”



“Growth is easy when Multivac is your partner”

GOMBIT is a relatively young meat processing company in Belgrade, the capital of Serbia. In the 15 years since it was founded, company manager Tomislav Vilaret has turned the craftsmanlike enterprise into a mid-sized business with an annual production of about 2,000 tons. This growth required the company to significantly boost its packaging capacity. “We used a Multivac C 200 tabletop chamber machine for the manual packaging of products in vacuum pouches,” Vilaret recalls. “This machine is still being used – but after a certain period we could no longer handle the entire volume with that alone. We needed a more productive solution, one that would offer a great deal of reliability and service we could count on.”

GOMBIT decided on a Multivac C 500 dual chamber machine, which was installed in 2003. The model has two spacious vacuum chambers and a stainless steel lid with swing mechanism, which can

be moved easily between the chambers without pressure or force. While product is being sealed in one chamber, the other chamber can be loaded at the same time for maximum efficiency. This versatility gave GOMBIT the capacity it needed to package all of its output.

After some time, GOMBIT supplemented the machine with a Multivac SE 60 shrink tank, a semi-automatic, mobile model. “Of course, we also wanted to present our premium products such as ham and prosciutto in a very high-quality manner”, says Vilaret. “Shrink bag is ideally suited for this when it works just right and envelops the product without wrinkles or folds. The Multivac shrink tank does a superb job every time.”

With an ever-increasing production volume, GOMBIT made an additional investment in a fully automatic packaging solution. The company purchased and in-

stalled a compact Multivac thermoforming machine in 2004 and is planning on further growth. “We are currently building a completely new company structure near Belgrade in order to expand our capacities even further,” says Vilaret. “At the same time we will expand our machine park with a second thermoforming machine in order to produce skin packages.” GOMBIT selected an R 275 CD, a model from the new generation of Multivac



thermoforming machines to process Cryovac Darfresh skin packages (also see page 11).

“Multivac helped us find the right solution for every packaging requirement and production demand. All of our Multivac machines have demonstrated great reliability and functionality, from the first manually operated chamber machine we purchased to the fully automatic model. Our investment in a manual chamber machine led directly to automation with Multivac. It is easy for a company to grow when it has a machine supplier like Multivac as a partner.”

Tomislav Vilaret, company director of GOMBIT.

Cooking sous vide in a renowned New York restaurant A vacuum chamber for exceptional cuisine

Wylie Dufresne, chef at the restaurant wd~50 in New York, is among the most admired craftsmen in his industry. In 2000 he was nominated for the James Beard Award as "Rising Star Chef" of the year; in 2004, wd~50 was nominated in the category of best new restaurant by the James Beard Foundation. And in 2005, the renowned British trade publication *Restaurant* ranked wd~50 number 34 on its list of the best restaurants in the world. With his growing list of distinctions, we are especially proud that Chef Dufresne considers his Multivac C 200 vacuum chamber machine to be one of the most important tools in his kitchen.

Vacuum for protective cooking

"I'm very impressed with the Multivac," says Dufresne. "We use it for so many different functions in the kitchen that I can't even imagine working without it anymore." Of course, the chef uses the machine primarily for cooking sous vide. In this process, menu components are first sealed into special pouches under vacuum and then cooked at defined temperatures over a set period of time. With this protective method, dishes retain their own aromas and textures; natural juices are retained, rendering a uniquely succulent and flavorful product. Sous vide is also conducive to a very rational kitchen organization: Dishes can be prepared and safely stored in advance, and then cooked to completion when ordered.

The staff at wd~50 makes additional use of the versatile Multivac C 200. The machine is deployed to compress fresh fruits and vegetables for distinct and unusual presentations. Flash pickling of vegetables is also made easy with the powerful chamber system. Many professional kitchens also use Multivac chamber systems to speed marinades into proteins, eliminating the need for hours of advanced planning.

Large chamber, versatile use

The C 200 is a tabletop machine with compact dimensions – an important factor for a kitchen where space is often limited. At the same time, the machine has an interior chamber of surprisingly large capacity and a powerful vacuum pump. This chamber capacity also has a practical use when wd~50 receives bulk shipments of product such as nuts or other staples. The larger quantities can be broken down into smaller packages and sealed for freshness during storage and/or refrigeration. Reliable hermetic seals guarantee these products will be protected throughout the storage period.

"The C 200 is an excellent device that I can recommend to any chef," says Chef Dufresne. "The Multivac staff was incredibly helpful and supported us from day one. I appreciate their understanding of the unique requirements we have in the restaurant business."

Star Chefs Congress in New York City

Wylie Dufresne also participated in the third annual Star Chefs Congress in New York in mid-September. Every year, this three-day meeting offers top chefs from around the world the opportunity to explore diverse culinary topics and see the latest advancements in professional kitchen products in workshops, seminars and exhibits. There are also multiple networking opportunities for chefs, managers and students. Sous vide cooking was

a key focus of this year's congress, with Multivac as the exclusive sponsor and supplier of vacuum chamber systems over the course of the event.



Traysealer for fresh meat packaging Multivac automation assures line efficiency



This year, the Turkish supermarket chain Kiler Hipermarketler celebrated the 25th anniversary of its first store opening. From this beginning grew a retail giant. Today the Kiler Group includes 22 different companies under the umbrella of one holding company and employs 5,260 people throughout Turkey.

Each branch receives inventory from different logistical centers. Fresh meat is delivered from the headquarters in Istanbul.

"Especially in the supply of distant branches and for longer transport times overall, the shelf life of the products becomes a challenge," says Nihat Özdemir, managing director of Kiler. "Therefore we were looking for an efficient packaging solution, where cost effectiveness and attractive presentation of the products were a priority."

Kiler researched his options and asked his suppliers for recommendations. Here,

one name was mentioned with noticeable frequency.

"A number of our suppliers use Multivac machines and have had good experiences with them," says Özdemir. "They clearly recommended this manufacturer." Kiler contacted the Turkish branch of Multivac in Istanbul. This resulted in a precise analysis of the requirements, an intensive consultation – and ultimately a decision to purchase a Multivac T 400 traysealer.

This model is an efficient, fully automated machine with a tray conveyor system. Kiler uses the machine to package fresh meat with a modified atmosphere, which doubles the shelf life of the products. With 10 to 12 sealing cycles per minute, the traysealer reaches a very high output that more than satisfies the demands of Kiler in respect to efficiency.

To prevent the high speed from being slowed down by missing trays, Multivac designed an automatic stack unloader with denester and tray infeed. The genuine Multivac system with exchangeable denester heads offers a capacity of six tray stacks and a maximum tray format of 275 x 175 x 100 mm. The trays are placed

on a tracking belt that describes a space-saving curve and traverses a free infeed section with a length of 1.20 m. On this section, the trays are filled automatically through an adjustable inclined conveyor where light barriers regulate the cycling of the portions being filled into the trays.

And this is very precise: "The unloading, filling and sealing all function completely without any problems since the installation," Özdemir confirms. "And by packaging with a modified atmosphere, we could nearly double the shelf life of our fresh meat products. Investing in this system was the right decision."



Alternative packaging solutions: Triple protection for organic meat

Organic products are currently experiencing very high growth rates. From meat and sausage products to fruits and vegetables to dairy items, consumers appreciate knowing the food they're buying comes from controlled organic breeding and cultivation. The Packlhof butcher shop in the upper Bavarian town of Eurasburg is a pioneer in this area. Josef Urban decided 26 years ago to convert his farm to organic agriculture. Five years later, an organic butcher shop was added. "Meat is a matter of trust," Urban believes. "We only process meat from animals from organic agriculture that are butchered in an organically certified slaughterhouse. High quality in respect to taste and processing are an important concern to our family company."

Multiple awards

This quality focus combined with the steady growth of the organic sector helped the Packlhof butcher shop grow into a

company with 25 employees to date. In addition to the EU organic certification, the products are also certified as originating from "organic agriculture" by the Bioland association. Packlhof products have been awarded the golden seal of approval by this association numerous times.

With unrelenting growth, the company moved into a new, larger production and separation building in 2006. Every week, about 10 tons of beef and pork are processed here. Packlhof sells some of this in its own associated shop, where customers can also buy other organic products. But most items are distributed by the company through organic retail. Among other stores, the Packlhof butcher's shop supplies the branches of Germany's Alnatura supermarket chain.

Up to three weeks fresh shelf life

Packaging plays a crucial role in this distri-

bution. Modified Atmosphere Packaging (MAP) or the use of a simple vacuum pack keeps the meat fresh until it reaches the consumer. In addition, many organic supermarkets and grocers do not have a meat counter, so the items are sold exclusively on the refrigerated shelf as prepackaged products. Therefore, Urban acquired a Multivac C 450 vacuum chamber machine a few years ago to package in vacuum pouches. The machine has two chambers with an easily movable swing lid. While one chamber is sealing the product pouch, the other one can be loaded to prepare for the next sealing cycle. "The machine has always operated very reliably," says Urban. "We're still using it to package pieces of various sizes in pouches. But our constantly increasing output could no longer be covered with this semi-automatic solution alone."

For that reason, Packlhof invested in a second Multivac in 2005. This time it was an R 140 thermoforming system. "This machine is compact and uses relatively little space," Urban explains, "but it works fully automatically and with great reliability. We mainly use it to vacuum pack meat and sausage products for the prepackaged shelf." The Multivac machine achieves an extremely tight seal with a very low amount of remaining oxygen. That way the shelf life of the products extends to up to 21 days – ideal for sale on the prepackaged shelf.

Reliable operation

Last year Packlhof installed a third type of Multivac machine: a T 350 automatic traysealer. The company uses this to package products including goulash and chopped meat under a modified atmosphere. This machine also works fully automatically – and here, too, reliability is decisive. "When the truck rolls up to the building, the packages have to be ready," Urban says. "We can always rely on the Multivac machines



for this. We pack around 10,000 trays per week and even with a very high flow rate, every package is always sealed tightly and cleanly." The traysealer is equipped with an online cutting device, permitting the sealing film to be perfectly cut along the perimeter of the tray flange for a cleaner, more visually attractive appearance. "With the introduction of the tray packages, sales of our products have nearly doubled at Alnatura", Urban reports.



A chamber machine with daily operations for 32 years

Kousuke Kitajima from Japan is a swimmer – and a very successful one at that. At the 2004 Olympic Games in Athens as well as in Beijing in 2008, he won gold medals for the 100 and 200 m breast stroke and also the respective bronze medals for the relay. While the Japanese are obviously quite proud of their swimming star, the one who enjoys the most bragging rights is his father who operates a butchery in Tokyo, together with his other son. Kitajima sees a connection between his career and his father's profession: "I grew up with meat products," he says, "and I also really like to eat meat. Before every great competition, I eat a steak from my father's butchery to absorb proteins. That is one of my secret recipes for success."

Kitajima also grew up with a Multivac product, an AG-800 double chamber machine. The machine was purchased by his grandfather 32 years ago to package fresh meat in pouches under vacuum. Since then, it has been used almost daily – and still functions at full capacity without any problems, just as always.

"Although it's not extremely common that a Multivac machine would be used continuously by a single business for such a long period of time, it certainly does happen frequently," says Tuyoshi Imanishi (left in the picture) of Tokyo Foods Machinery, the Japanese subsidiary of Multivac. "The lifespan of the machines is just incredibly high, which



is a direct result of the high manufacturing quality. Multivac thermoforming machines are also sometimes used 30 years and longer – and replacement parts for them are still available!"

Two Starpack awards for technical innovation and resource conservation

The Starpack Award is one of Great Britain's most desired prizes for packaging design and technology. This year, two silver awards were given to a FormShrink package for whole chicken, which Multivac developed in collaboration with Tesco and the 2 Sisters Food Group. Starpack jurors honored the team for their environmental contribution as well as technical innovation.

68 % less packaging materials

"A technically innovative package that very effectively reduces the consumption of packaging materials": So stated the Starpack Award 2008 jury in its decision to honor the FormShrink package no less than twice. The British 2 Sisters Food Group chose Multivac to provide this solution for packaging fresh whole chicken for the Tesco retail chain. These products had previously been packaged in a plastic tray of PP and a stretch film. Tesco and the 2 Sisters Food Group mainly expected three things from the new solution: an extension of fresh shelf life by several days in order to be more flexible in production, layout and sales; a clear increase of the resilience and reliability of the package; and a clear reduction in the volume of packaging material.

These development goals were more than satisfied by the FormShrink system. The new package requires 68% less material than the traditional package. FormShrink is a shrink package produced on a specially engineered Multivac thermoforming machine. After sealing the formed bottom web with the top web, the special film is shrunk around the product without any

wrinkles or folds, delivering improved aesthetics and stability. The tray that is ordinarily used to package whole chicken has been eliminated. Despite the film width of only 40 µm, the packaging material has very good mechanical and barrier properties. This makes the significant material reduction possible.

Less packaging waste, fewer emissions

The FormShrink chicken package has eliminated around 100 tons of packaging waste per year. Environmentally conscious consumers appreciate this, and can see it directly manifested with far less packaging waste to dispose of at home.

The Starpack jury recognizes other environmental benefits in the new packaging solution as well. The elimination of the tray also saves the transportation of the tray to the processor and the emissions associated with that. In addition, the packages are smaller than before, and can therefore be accommodated in few shipping cartons – another reduction of the transport volume and associated emissions.

In addition to the environmental aspect, dispensing with the tray has two other positive effects for the 2 Sisters Food Group. The material costs associated with the tray and the immense need for storage space for those trays could be reduced significantly. In addition, printed top and bottom films eliminate the need for labels, further reducing material and process costs.

Keeps fresh four more days

FormShrink proved successful in every

area of the project. The enormously puncture-proof and tear-proof film ensures that the package is reliable during storage and transportation. At the same time, the shelf life of the product could be extended by four days. This confirms the barrier properties of the highly transparent shrink films. The Dutch manufacturer Krehalon developed the shrinkable films

used in the FormShrink process in cooperation with Multivac.

The packaging at 2 Sisters Food Group is produced on a Multivac R 550 FormShrink thermoforming machine.



"The FormShrink Project has been a win-win for everyone. It has helped 2 Sisters deliver a truly innovative chicken pack for Tesco that not only offers significant environmental benefits in packaging waste reduction but also critically offers additional key advantages to us as packers, to Tesco as the retailer and to you at home as the consumer." **Steve Rooke**, packaging development manager, 2 Sisters Food Group

"Another piece of thinking outside the box led to this great environmental initiative which offers a significant 68% reduction in packaging weight." – Excerpted from comments of **Starpack Awards jurors**.

"Tesco is committed to packaging reduction wherever possible, we are therefore delighted that the FormShrink™ chicken pack has delivered a 68% reduction in packaging, significantly reduced in-store waste and, most importantly, enabled us to offer an even better quality product with a longer shelf life to our customers." **Max Tooley**, technical manager poultry, Tesco

Food supplements for pets: A daily dose for healthy dogs

Another Multivac packaging solution receiving a Starpack Award this year was the package for "Joint Care Daily Treat Sticks for Dogs" by Pedigree, one of the leading manufacturers of pet foods worldwide. The package received the silver „Starpack Award for Technical Innovation“.

Here, the product is as innovative as the package: nutritional supplements for dogs with joint problems. Special dog treats contain a combination of ingredients to help the bones, joints and ligaments improve and stay healthy. These nutraceutical dog supplements represent an entry by Pedigree into a relatively new market niche. With regular doses, owners of dogs with age-related joint problems should notice the difference in their pooches after only six weeks.

To provide a simple overview of the weekly doses, a special portion pack with seven cavities was developed. These are sealed

individually with a pre-perforated aluminum foil. The name of one of the seven weekdays is printed above each cavity – in 11 different languages. Easy-open features make it possible to easily remove one dose while the other cavities remain sealed. The package can be folded in the middle and slipped into the cardboard enclosure that makes up its exterior packaging.

"A pleasing solution for pet owners," is how the Starpack jury explains its award. "The thorough design solution provides a compact design to portion and easy to open pack. The ease of opening is exceptional and sets a standard for blister packs of all types."

To produce the packaging with the special seal and easy-open feature, Pedigree uses two Multivac T 400 traysealers. Multivac UK has previously developed successful packaging solutions together with Pedigree. When the company began looking for an

innovative portion pack for its new product line, Multivac was approached as the first development partner – and, in terms of output and cost efficiency, could offer the

ideal packaging solution to enable Pedigree to introduce the new product line all across Europe on schedule.



Nonfood packaging

Packaging company RatioPac from Sweden: Professional packaging of adhesives and silicone

The RatioPac company on the Swedish island of Öland specializes in filling and packaging tubes. Since 1998 it has been owned by Keith and Kia Bengtsson, a married couple, who run it as a real family business. Five of the seven employees are family members. RatioPac serves the entire Scandinavian market.

RatioPac functions as a contract packager for smaller companies that do not have the resources or volume justification to acquire their own filling and packaging machines. For these companies, RatioPac is a qualified partner who fills the tubes with their product content and packages them for sale. "There

Kalmar, a global market leader for tube filling systems. In 1998 Norden Machinery entered the stock market, and RatioPac was spun off. The Bengtssons made their move – although the purchase did not correspond to their original life plans at all. "Back then we had an accounting firm in Kalmar and really wanted to go into retirement soon. Instead, we suddenly had two companies and twice as much work," Kia remembers with a smile. "It was really a challenge and at the same time it was exciting to do something completely different. As an accountant you are buried beneath paperwork the entire time. But with RatioPac we can immediately see a direct result: The order comes in and we deliver it."

their very own R 240 installed last winter. RatioPac uses the Multivac to pack the filled tubes in special blister packs. The machine forms a cavity from rigid film, which is filled with the tube and then sealed with a covering film of plastic. "We used to package the tubes in the usual sales packs consisting of plastic blisters with a cardboard backing. But this had disadvantages," says Keith. "For one, the cardboard quickly gets torn in the store if it is taken off the hook too carelessly – and then no one wants to buy these damaged packages any longer. For another, it is very important for many of our customers to print the product information in many languages. But the cardboard only

all European languages," explains Keith. "That way the customer can operate in different countries with the same packaging – and this with lower production costs. In addition, we could greatly increase the output of our production with the R 240 from Multivac."

High flexibility

As a service provider, RatioPac has to adapt quickly to a wide range of product formats, so their equipment must keep pace. "The Multivac is designed in such a way that we can exchange the tools very easily," says Keith. "This means that we can adjust the machine very quickly to new products from different customers."

Reliable customer service

The Bengtssons are particularly satisfied with the service they've received. "When there are new installations, there are a lot of new settings and adjustments at first," states Keith. "The most important thing is that the service and support from the machine manufacturer functions well. And here I think that Multivac is a very good example. If there were ever any problems, or if we had questions, they reacted immediately and solved the problem at once."



are a few companies in Sweden like ours," explains Keith. "But we have created a niche for ourselves. We concentrate on the filling and packaging of adhesives, silicone and other materials that require a specific know-how in terms of handling."

Packaging as a new challenge

Originally, the company was a subsidiary of the Swedish Norden Machinery AB in

"In the beginning we had to work very hard and put in a lot of overtime," Keith adds. "But since the start ten years ago, we have invested about ten million crowns in top-grade machines and systems. Today we are very efficient and deliver in a shorter time."

New machines provide more flexibility

The Bengtsson's machine arsenal includes a Multivac packaging line, with

offers enough space for a few different languages. Then one has to work with different supplements in the packaging machine, which increases the complexity and manufacturing costs."

The R 240 eliminated this disadvantage. "Now we completely pack the tubes in plastic and add a folder that contains the product information in



A semi-automated link in a fully automatic packaging line

Can a semi-automatic tray sealer be used in a fully automatic packaging line? Not usually – unless it is the Multivac T 250. This model has a tray drawer that can be extended and retracted automatically, along with an equally automatic extractor for the sealed trays. In this way, the handling is simplified for the operator in a semi-automatic process – but at the same time the mechanism also permits integration into a fully automatic packaging line.

One example of this is an application by a leading manufacturer of printer systems in the Netherlands. The company pack-

ages cartridges for professional inkjet printers. The procedure is as follows: an industrial robot takes an empty tray from a stack and places it into the open drawer of the T 250. The robot then takes a cartridge from the automatic filling system on the other side and places it into the tray. The tray drawer of the T 250 is now automatically closed through a contact and the tray is sealed with a top film. Product information is printed on the film – the T 250 can process spot-printed top film. After the sealing procedure, the drawer automatically opens again, the robot takes out the sealed tray and deposits it into a transport box. Then the proce-

dures starts again from the beginning. The entire sequence is controlled centrally from a control room.

Multivac partnered with Manders Automation from Venray in the Netherlands for the development of this packaging solution. "We were looking for an economical and functional solution that can be optimally integrated into our fully automatic filling system," says Bert Tabor, Project Manager at Manders Automation. "The T 250 offered the desired combination of the required properties." With up to five sealing processes per minute, the machine approaches the output of fully

automatic introductory systems – at significantly lower costs. In the application described here, the T 250 was adapted to the system speed of about two cycles per minute. The variably divisible basic tray format of 435 x 365 mm is designed for a single tray.

Flexibly packaging sterile medical products

Assurance of sterility and a means to easily open the package are key factors for the development of packaging solutions for sterile medical products. A special technology by Multivac makes it possible to insert a window with another material into the covering film of a thermoform package. A key application of this technology is SterileVent: a package is made from a peelable film, and a window of gas-permeable Tyvek is integrated. This combines the requirements for a simple opening of the package with those for gas permeability, as a prerequisite for ethylene oxide sterilization.

Less consumption of high-grade material
On the whole, medical products are sterilized after the packaging process. For sterilization with ethylene oxide, a sterilization paper or polyethylene sleeve such as Tyvek* by DuPont is typically used as packaging material. Tyvek is completely permeable to ethylene oxide but impermeable to micro-organisms. The material is also extremely resistant to puncture and tearing.

In all packaging processes where the material is fed by a roll – for thermoforming as well as for flow wrapping machines or traysealers – Tyvek is usually used as the top web. This means that the entire top of the package consists of this very high-grade material.

But this is not required for thorough sterilization of the packaged product. The necessary ethylene oxide sterilizability is also guaranteed if only a small strip of Tyvek is applied in the top web of the thermoformed package. The remainder of the top web can be comprised of standard web composites with the desired opening characteristics.

Application of the window
Multivac developed SterileVent packaging for just these types of applications. The combination of synthetic film and Tyvek here is carried out fully automatically on a packaging line with a specially developed applicator. First the thermoforming machine forms a cavity in a rigid or flexible bottom web, into which the medical device or sterile product is loaded (1). At the same time, the SterileVent applicator cuts a window of a predefined size into the flexible top web – usually a multilayered film, e.g. a PA/PE composite (2). The size and position of the window depend on the product and the application. A small piece of another material – usually Tyvek for ethylene oxide sterilization – is then applied over the window and its edges are sealed with the top web (3). Sensors test the exact positioning of the Tyvek strip on the top web while deviations are corrected through the alignment of the strip as well as the window position. The package cavity is then hermetically sealed with the now-modified top web (4). A hermetic seal protects the product securely during transport and storage.

This solution satisfies all requirements for sterilization while using only a fraction of

the expensive Tyvek material, and enables a broader selection of opening characteristics for the package. Customers can choose from a wide range of films with a different peeling traits in order to achieve the desired opening experience for the end user. In respect to the material costs, the savings potential is considerable, and will vary depending on the package specifics.

Inexpensive alternative to packaging in pouches

SterileVent technology is also an alternative to packaging in a prefabricated pouch with Tyvek insert. These inserts usually consist of large, round Tyvek pieces where up to 30 percent of the original pouch material remains unused. During the sealing process, the pouch neck also has to be cut off and discarded.

A thermoform package, in contrast, uses the packaging material much more efficiently, since the cavity is formed precisely from the PA/PE film. The packages can be cut to nearly any product shape, lowering material consumption and increasing stability for the packaged product.

The gain in productivity is significant. Packaging in pouches requires several time-intensive steps with different machines. The manual filling of the pouches is also labor-intensive. With a thermoforming machine, however, the cavity is loaded from the top in a manual or automatic fashion. The subsequent steps are performed fully automatic on the same machine. That way a much higher output is achieved with less operating personnel.

Quick amortization

Another important factor is the reduced requirements for storage and production. The storage costs for prefabricated pouches are significant. By comparison, rolls of film used in thermoforming require little storage space and can usu-

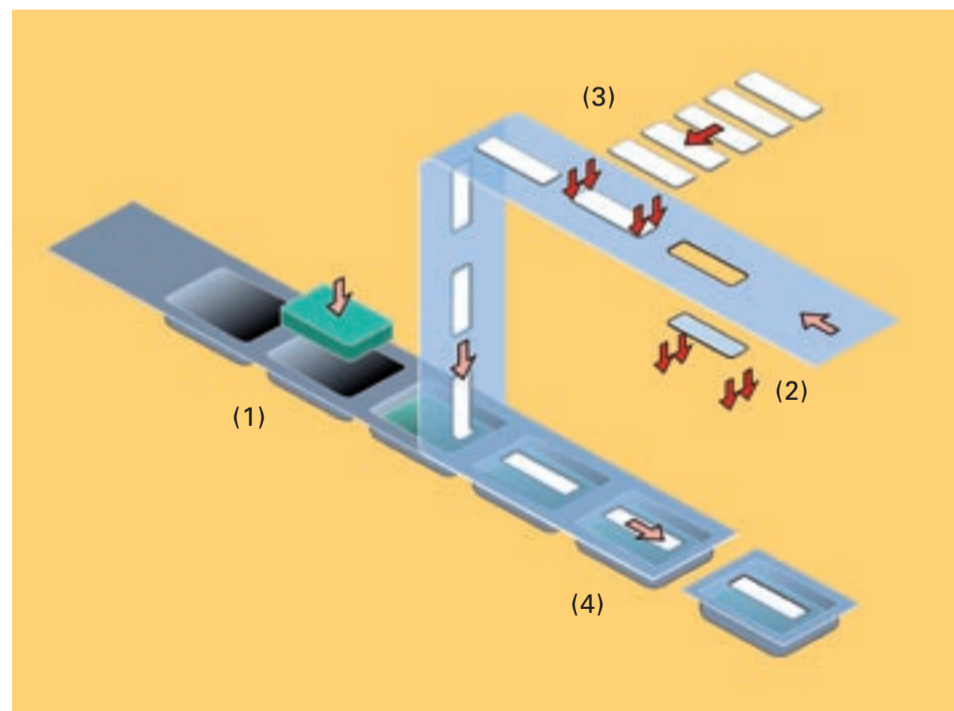
ally be used for a multitude of products. These advantages quickly add up, as has been demonstrated in several applications at large global manufacturers. The US company Cardinal Health, for example, had previously packaged surgical gowns in pouches with a Tyvek application. The investment in a SterileVent thermoforming machine to package the same products amortized in less than 12 months.

ckages for medical products require increased seal tightness in order to reliably prevent a rupture of the package due to changing atmospheric pressure. With the applicator, it is now possible to seal a window with easy-open features to the top web, which in turn is hermetically sealed to the formed bottom web. The result is the best of both worlds: an extremely robust and resilient package that is easy for the end user to open.



The possibilities of this new applicator technology go well beyond the examples mentioned here. Many pa-

* Tyvek and DuPont are registered trademarks of E. I. du Pont de Nemours and Comp.



New systems business unit at Multivac: Professional automation solutions

Project management from a partial project to turn-key

Packaging processes and systems in industrial applications are getting increasingly complex. The complete integration of all components in a comprehensive system – from the portioner or slicer and packaging machine to the package separation and the control and weighing systems – requires professional project management to achieve project goals in respect to costs, schedules and quality. This is a task that is assumed by the systems business unit at Multivac.

"Multivac has long-term experience in the realization of complex packaging tasks," says Michael Lang, manager of the systems business unit. "We draw on this same experience in project management for automation solutions in the packaging area, resulting in a much smoother and more efficient execution of project goals."

The project management can include all phases from the planning and conception, development, installation, activation, operation and maintenance all the way to modernization. Upon request of the client, Multivac can also assume the overall responsibility for the project and offers a turn-key solution. Michael Lang emphasizes: "Whether partial projects or turn-key," says Lang, "the goal is to implement customer projects in a way that is appropriate regarding cost, time and quality."

Innovative products for line automation

In addition to project management, the business unit also works on innovative products for automation. One area includes handling modules (see page 10) - a second one is the Multivac Line Control, a superior control unit for line automation. It makes it possible to fulfill complex networking and control tasks such as coordination of functional elements, product tracing, product conversion, connection to ERP systems for order management as well as to systems for the recording of machine and operating data.

The third portfolio element is the Multivac Vision System for object detection in pick-and-place applications and for demanding quality inspection tasks even at high processing speeds and in raw industrial environments. The Multivac Vision System captures the natural surfaces of the products as well as the homogeneous surfaces of films and paper, along with color-printed surfaces with spot or continuous printing. The processed data can then be relayed to the Multivac Line Control for the regulation of subsequent processes.

Lang is confident the solutions offered by his department will only gain in importance. "Today, automation and complex systems are already at a level that makes professional project management indispensable for the customer. With our service offerings and system components, we can build complete automation solu-

tions for customers that deliver optimal efficiency with the flexibility to evolve with their businesses."



New application center

In October, Multivac opened a new packaging applications center at its headquarters in Wolfertschwenden, Germany. The goal of the center is to further expand customer consultations and facilitate the development of innovative packaging solutions. The new application center is managed by food technologist Dr. Tobias Thiele.

"What is important when developing a food package is the ideal coordination of three factors: the requirements of the product, the characteristics of the film and the technical implementation on the machine," says Dr. Thiele. "At the application center, we collect important knowledge about this coordination and communicate our experiences to our customers. That way we can effectively support them in making a packaging decision, and work out the best solution together with them."

Two core competencies are bundled at the application center. First, packaging proto-

types for customers are created here. This starts with the package design, which is created together with the projecting department and application technology according to the customer's wishes. Then, the actual samples with the customers' original products are created. This helps our clients make decisions regarding marketing to their end consumers, determine product shelf life, conduct market tests, etc. Multivac's Stefan Löffler and his team provide expert consultation to customers in these areas.

Second, customers visiting the application center receive expert advice and support regarding choices in packaging materials and concepts. Marketers of fresh fruits and vegetables, for example, can use the application center to explore the benefits of FreshSAFE packaging. Matthias Maisel, a food scientist who heads up Multivac's work in produce packaging, is enthusiastic about the value the application center offers customers. "Specialists in the areas of food products, films

and machinery are able to coordinate their efforts under one roof at the new Multivac application center. This creates synergies that help advance the development of new packaging solutions like FreshSAFE that help drive growth and profitability for food marketers."

"The challenge is to determine the right type of package for every food product," says Dr. Thiele. "In this process, I provide the objective perspective of a food technologist, keeping the focus on the product. We are already conducting storage tests with a wide range of food products – some for specific clients, but also for our own research purposes. Our ongoing analyses will enable us to continually improve and refine our knowledge about the ideal film selections, choices of atmosphere and extension of product shelf life to benefit our clients in the future."

New business area focuses on medicine, cosmetics, consumer and industrial products

Packaging solutions for healthcare and non-food products

The packaging requirements for medical and healthcare products as well as pharmaceuticals and cosmetics are changing. Increasingly complex products, new technologies and the existential subject of brand protection require highly developed packaging solutions on a global basis. In order to support the manufacturers of such products as comprehensively as possible, Multivac has launched a special business unit. It concentrates on packaging solutions for "MCI": for medicine and pharmacy ("M"), cosmetic products ("C"), and consumer and industrial products ("I").

"This is about generating added value for our customers on a global level, with optimal reliability, capacity and safety in the packaging process," says Luc van de Vel, manager of the MCI business unit. "For this purpose we make the most modern technologies available - and our decades of worldwide experience in the development of innovative packaging solutions. We have a great concentration of expertise in this area, so our customers can re-

ceive an extremely valuable consultation - with Multivac employees who speak their language."

One focus is on the health sector. "The changing environment in the healthcare market is accompanied by a reinforced demand for original packaging solutions," says van de Vel. "Pharmaceutical products, biotechnology and the diagnostic industry are fields in which a fundamental knowledge of the guidelines and norms is indispensable and where we can add our expertise. We are available to our customers as a central source of knowledge on medical and pharmaceutical packaging. This also includes the furnishing of a clean room in which we can package customer products under realistic conditions."

Other tasks are just as critical, according to van de Vel. "For many manufacturers, protecting their brands from piracy has existential significance. We are currently trying to develop new advanced print technologies that offer the customers

more security and also provide advantages in terms of process reliability and flexibility. Multivac can even assume responsibility for total project management - something we are already doing for a variety of international customers."

The many solutions offered by Multivac's "MCI" division will also be presented at

upcoming trade shows. The group will exhibit in November at Compamed in Düsseldorf, in March 2009 at Medtec in Stuttgart and in May 2009 at Achema in Frankfurt.



Multivac goes where our customers need us

One of the greatest strengths of Multivac is our presence in local and regional markets all over the world. In many markets, we have our own employees who are specially selected and trained to help customers onsite with the best packaging consultation and service.

A few years after Multivac was founded, our first foreign distribution companies were already in development. Today, Multivac operates on all continents with more than 55 branches and sales offices, offering localized customer service and support.

In the last few months, Multivac has founded subsidiaries in several additional countries/regions including Ireland, Greece, Romania, Bulgaria, Russia, China, Korea, Brazil, Argentina and North Africa. We have also recently opened subsidiaries in Columbia, Iceland, Uzbekistan and Kazakhstan.

Other subsidiaries are in development. For example, beginning January 1, 2009, Multivac will be operating in the important Spanish market with its own subsidiary company and a strong distribution and service team.

This international distribution presence - which is rather unusual for a larger

mid-range company -- with our own subsidiaries and branches presents significant advantages for our customers according to Hans-Joachim Boekstegers, Multivac's speaker of the board: All over the world, our customers can find a comprehensive network of sales consultants and service

technicians that belong to the Multivac Group, offering a high degree of technical expertise and knowledge that is unrivalled in our industry.

Multivac customers profit from our global presence in the planning and development

of their packaging solutions. Throughout the entire life cycle of a Multivac machine, which can certainly reach decades, our customers continue to benefit from locally available technical service, spare parts and supplies.



New B 310 conveyor belt chamber machine: Tilttable lid for comfort and hygiene

With the new B 310, Multivac presents the world's first conveyor belt chamber machine with a tilttable lid. The first model of Multivac's new generation belted chamber line, this patent-pending innovation offers distinct advantages in both ergonomics and hygiene. Setting the seal height and cleaning the interior of the lid are simplified and accelerated. With an output of more than three cycles per minute, the B 310 is one of the quickest machines in its class.

Simple and ergonomic operation

"Increasing the convenience of the operation, an improved hygienic design and easy integration into the line were the items that had priority in the development of the new generation," says Dr. Ingo Renner, manager of the chamber machines business unit at Multivac. "One example of the innovation we've built into this model for even better operation and hygiene is the tilttable lid. The new design makes it possible to tilt the lid of the chamber in one step - for example, to exchange the alternating tracks for the seal height adjustment or to clean the inside of the lid. These activities can now be done while the operator is comfortably standing up straight and working in good light. That's an important ergonomic benefit."

"Faster and Easier" is also the main thought behind the new Multivac MC08 control system.

It has a logically arranged menu structure and uses pictograms that are self-explanatory and understandable worldwide. Even untrained users can operate the machine without difficulty. And, speaking of "fast", short hoses to the vacuum pump, simultaneous processes and quicker ventilation via separated valves enable an output of more than three cycles per minute. In addition, the electronic lid drive reduces the machine's consumption of compressed air.

Completely new hygienic design

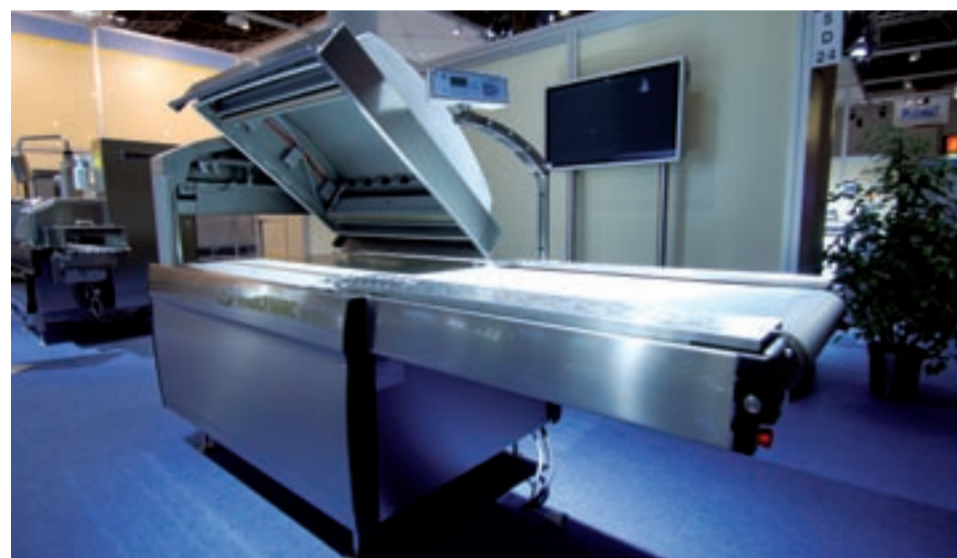
The machines were also completely redesigned for even easier sanitation. The machines can be washed down completely on the inside and outside, and liquids easily run off the slanted surfaces. "Dead spaces" and inaccessible niches have been meticulously avoided - even on the interior of the machines - to keep contaminants from collecting. "The hygiene-optimized design of the new chamber conveyor belt machine follows the same principles that we introduced very successfully with the new thermoforming machine generation," Renner explains. "The machine design and the innovative tilttable lid make it possible for the user to ensure compliance with the various hygiene standards in the food processing industry with little effort."

Renner also points out another new option. "The seal height can be set semi-automatically

at four different levels. This makes the use of the chamber conveyor belt machines even more flexible when it comes to different package sizes. The alternating tracks can remain in the machine without the risk of misplacing them."

The chamber conveyor belt machines can be integrated into complete packaging lines, including combinations with Multivac

SE 115 shrink tunnels and TE 115 dryers for shrink packaging. Such integrated solutions can also be equipped with a central control system upon request to deliver the highest possible process reliability.



Handling modules: H 100 and H 130 Multivac does robotics



Automation components have taken their place among the high-quality packaging technologies offered by Multivac. The company has developed a new product range of handling modules, which can perform automatable handling tasks at every stage of your Multivac packaging line. The handling modules, consisting of a portal, robot, and control correspond to the hygiene-optimized design of our new machine generation.

Highly flexible application

"Multivac handling modules automate

manual tasks in packaging processes in a cost-efficient and hygienic manner," explains Michael Lang, manager of the systems business unit at Multivac. "They have a consistently modular construction, including an interchangeable gripper system. This ensures an especially high level of flexibility during the application, enabling adjustment to various types of products and packages. The handling modules can be used for a wide range of tasks including automatic insertion of products into cavities, sorting out flawed packages, unloading and

separating packages, orienting finished packages and other tasks all the way to the boxing/cartoning process. Additional uses include direct placement of products and packages onto scales and weighing belts - which can save a great deal of space compared to conventional belt solutions."

Hygiene-oriented design

The patent-pending, FDA compliant stainless steel portal is designed for thorough sanitation, and can be completely washed down if desired. The open, easily accessible frame profile is designed without indentations or interior corners for especially quick and easy cleaning. Its framework design with welded seams perfectly deflects all generated forces, giving the portal great stability with relatively low material use.

Multivac presented the H 100 module with the two-axis HR 250 robot at the 2008 Interpack show. The HR 250 brings products with a weight of up to 5 kg quickly and precisely into the desired position. For this purpose it can be outfitted with mechanical grips or suction grips. Its workspace of 1000 x 300 mm and a speed

of more than 50 standard cycles per minute make it a highly productive automation component. Due to its hygienic construction and the usage of high-grade stainless steel components, it is easy to clean and suitable even for wet areas.

New development: The four-axis robot

The H 130 is a new, state-of-the-art development with a four-axis robot. It has three standard levels of movement as well as a fourth additional rotation axis as an option. This versatility makes the H 130 a useful component in a wide variety of applications. The H 130 can be seen at the PackExpo in Chicago together with the H 100 in one line to package candies.

Both modules have their own control system, with a user-friendly operating interface controlled at the packaging machine terminal. This guarantees quick and safe handling along with optimal operating comfort.

Multivac rounds off its program of thermoforming machines: Thermoform packaging automatically and economically

Multivac's thermoforming machine program is comprised of models to suit virtually all requirements in terms of performance and capacity. The new compact R 105 now rounds off the portfolio at the entry level, making fully automatic thermoform packaging available to more customers than ever before.

Multivac's R 105 thermoformer is the new introductory model from the market leader. Occupying less than three square meters of floor space and technically optimized for these very compact dimensions, it is ideally suited for deployment in tight areas. "The new model makes the advantages of the fully automatic thermoforming process accessible to completely new customer groups," explains Winfried Wolf, product manager thermoforming machines. "The R 105 is designed for the manufacture of packages with smaller dimensions as well as for the fabrication of smaller batch sizes and offers the same reliability and longevity as the larger thermoform packaging machines by Multivac."

The conception of the R 105 deliberately presupposes a limited selection of tools

and equipment options. This means that shorter delivery times and a more attractive price point are possible. The R 105 is also based on the mature and tested technology of the Multivac thermoform-

ing machine portfolio. This includes equipment with a highly modern control system technology, such as direct drive, and the PC-based control system IPC01, which enables a high degree of user

friendliness and flexibility in its use (also see page 13). Of course, the R 105 is also built with the same hygiene-oriented design engineered into Multivac's new thermoforming machine generation. (Also see page 12.)



The R 105 is primarily intended for customers that are looking for a rational solution for fully automatic packaging, such as for example enterprises with a workmanship structure and smaller companies with industrial fabrications. For them, the model is the ideal introduction to thermoform packaging technology. For processors requiring a higher capacity, Multivac offers the model R 145, for example, which is equally compact but with maximum flexibility in terms of tools and equipment options.

Darfresh skin packaging for any size of business

The new Multivac thermoformer program now also includes models for Darfresh skin packaging. With the compact R 175 CD, the flexible R 275 CD and the high performance R 575 CD machines, Multivac covers the complete range in terms of size and performance.

Skin packaging has already established itself as a desirable packaging alternative for several types of food products, and is

increasing its reach into new markets and applications every day. A very successful example of this is the Darfresh system for thermoform packages, an exclusive collaboration with Cryovac. The successful film manufacturer and the world market leader in horizontal thermoforming machines have continued to enhance the machines and the process for 20 years.

With a Darfresh skin package the top web aligns over the product totally free of tension and is then sealed completely over

the entire surface of the bottom web. This affixes the product to the packaging base and prevents stickiness or leaking of juices. The product is presented in an exceptionally prominent and appealing way and can be positioned at the point of sale in a hanging or standing format. With the special oxygen barrier property engineered into the film, this packaging technology extends the shelf life of the food product.

The Multivac thermoforming machines with top web chain guide and integrated pre-heating, especially designed to process Darfresh films, are now available for all requirements in output and capacity. The first model in the series, the R 175 CD, was introduced at the 2008 Interpack show. "This compact machine makes the manufacture of Darfresh vacuum skin

packages highly profitable even for small to medium-sized batches," says Helmut Sparakowski, Multivac's technical sales director. "With a footprint of only three square meters, the R 175 CD is ideally suited as an additional machine or for the production of smaller volumes inside larger industrial operations. At the same time, this affordable model makes it possible for smaller companies to give their products the competitive edge provided by Darfresh skin packaging."

For the medium output range the new model R 275 CD is now available. The highest output skin packaging machine, the R 575 CD, rounds out the product portfolio of these special machines.

All authentic Darfresh machines now correspond to the sanitary design of Multivac's latest generation of thermoforming machines. This eases compliance with hygiene standards in the food industry and expedites the cleaning process, especially around interior components such as the transport chain and chain guides.

Cryovac® and Darfresh® are registered trademarks of Cryovac Inc., a company by Sealed Air Corporation.



Certification for Multivac's new generation of thermoforming machines: Hygienic design satisfied DIN EN 1672-2

The hygiene-optimized design of the new thermoforming machine generation by Multivac simplifies the guarantee of a sanitary machine condition for food manufacturers and packagers – and this at a reduced cost. This was recently confirmed by independent experts: The German trade association Berufsgenossenschaft Nahrungsmittel und Gaststätten has certified the machines according to DIN 1672-2.

Requirements for hygienic design

The German industry standard DIN EN 1672-2:2005, "Food Processing Machinery – Basic Concepts – Part 2: Hygiene Requirements" provides recommendations in terms of the sanitary design that far exceed the legal regulations. Similar guidelines are also posed by ISO 14159 "Safety of Machinery – Hygiene Requirements for the Design of Machinery", the associated US standard NSF/ANSI/3-A 14159 "Hygiene requirements for the design of meat and poultry processing equipment" and the "10 Principles of Sanitary Design" by the American Meat Institute (AMI).

The variety of individual requirements from the stated norms can be summarized by five points:

- Ability to clean down to the microbiological level
- Easy accessibility for inspection, maintenance and cleaning
- Sealing of hollow spaces and avoidance of "dead" spaces
- Smooth surfaces in the product area, ability to clean all surfaces
- Prevention of liquid accumulation

The new generation of Multivac thermoform packaging machines has been engineered to conform with these requirements. "We had the goal of further simplifying and shortening the process of cleaning the machines as well as provide as much technical support as possible," says Tim Slomp, manager of Multivac's thermoforming machine business

unit. "For this purpose the design of the machines was completely revised – and not just on the exterior. A hygienically optimized design also has to include the interior elements in the exposed 'splash zone', such as the transport chain, the chain guide profile, the



lateral frames and the pumps." In the past, cleaning these areas thoroughly required a great deal of effort, depending on the design – sometimes even demanding time-intensive disassembly of individual components.

Prioritizing hygiene on the outside and inside
In the design of the new generation, critical

interior components were completely redesigned with the priority of making them simple to thoroughly clean. Perhaps most importantly, the combination of a new patented open chain guide profile for a newly designed transport chain with open spring

by smooth, slanted surfaces that are not at all conducive to the accumulation of cleaning fluids, contaminants or residues.. Dead spaces and inaccessible niches have consistently been avoided. The thermoforming machines are equipped exclusively with closed return shafts and height-adjustable feet without any exterior threads.

Cleaning without residues at a lower cost

The German trade association Berufsgenossenschaft Nahrungsmittel und Gaststätten has certified the models of the new thermoforming machine generation according to the strict requirements posed by DIN EN 1672-2 – making Multivac the first manufacturer of thermoforming machines to be certified in compliance with DIN EN 1672-2. This certification already refers to the basic equipment of the machines. The essential points named above were inspected – the condition of the materials and surfaces, the design of the connections, the liquid runoff and the accessibility for cleaning. The United States Department of Agriculture USDA has also certified the machines according to ANSI/NSF/3A 14159.

Automatic cleaning of the interior

For additional simplification and cost efficiency in the cleaning process, Multivac's R 535 and R 245 thermoformers can be optionally equipped with a "CIP System" (Clean in Place). CIP enables an automated chemical cleaning of the interior components, transport chain and chain guide profile. The control and documentation of the cleaning process is integrated into the machine control.

CIP guarantees the exact reproducibility and trackability of the cleaning process, thus increasing the assurance of having done everything required for consumer protection.

coils makes it possible to rinse away contaminants without any residue. This has eliminated the need to disassemble the transport chain for cleaning. A multitude of additional components has been designed according to this same principle.

The exterior machine areas are characterized

DocCert seal for technical documentation: Certified user-friendly

User manuals are an essential part of any technical product. The documentation makes a major contribution to the user-friendliness and safe operation of the product – assuming it is comprehensible, complete and reliable.

Multivac strives to ensure our user manuals measure up to this standard. And now, it's official. TÜV SÜD, an internationally leading service provider for technical inspections and safety, has recognized the manual for the Multivac T 250 traysealer with the DocCert seal for user-friendly documentations. The seal "Tested Documentation" certifies the quality of user

manuals in respect to three main points: Is the documentation easy to understand by the user? Does it completely describe the machine in all its functions? Does it guarantee a safe operation?

This certification comprises more than 300 individual tests of quality criteria such as general comprehensibility, safety for the user, employment of and compliance with laws, norms and guidelines, information about environmental protection, design and execution, material correctness and completion, and much more.

The documentation of the T 250 has

passed all of these tests. The final user test of the T 250 also had a positive result: Here the TÜV inspectors test whether the machine can be operated without problems in all functions based on the documentation.

"Of course, we are very pleased by this distinction," says Reinhard Lankes, manager of the technical documentation unit at Multivac. "It tells us that our user manuals meet the requirements of our customers. Additionally, the testing process has given us further important insights that we will apply going forward to en-

sure that we continue to meet our customers' documentation needs."



New PC-based control systems IPC05 and IPC01

Reliable, flexible, user-friendly

Performance and customer-orientation

In the development of Multivac's new thermoforming machine generation, the creation of a new control system was a key area of importance. "The thermoforming machines of the new generation are clearly more complex than the machines in the previous model series. This created new requirements for the control technology," says Alois Allgaier, manager of the business unit for control technology at Multivac. "We wanted to build a new control system to master this higher complexity and optimally support the integration of multiple machines in packaging lines." For that reason, requirements such as the ability to network, scalability, service friendliness, easy operation, open architecture and modularity – for a large variety of functionalities – were at the center of the development.

The decision was finally made in favor of an embedded computer solution by the Beckhoff company. "PC-based technology has been established for years and has high distribution in the market – and Beckhoff is a leading technology provider for PC-based control technology," says Allgaier. "This empowers us to react early and quickly to new trends and increasing market requirements over the long term to best serve our customers."

At the end of 2005, the first prototypes of the R 535 were equipped with the new control system. In early 2007, the solution was developed for a major series. Today, the IPC control systems have become the standard for Multivac's automatic packaging machines – including all thermoforming machines as well as industrial tray sealers. So far, about 1,500 machines have been delivered with the advanced control system, which is available in two versions: IPC05, the extensive standard; and the more compact version IPC01 for the smaller automatic packaging

machines R 145, R 125 and R 105. The terminal of the control system corresponds to the sanitary design of the new machine generation and is waterproofed according to protection type IP 65. A color touch display with self-explanatory symbols enables quick and intuitive operation.

Embedded PCs are the core of the control system

The core of the packing machine control systems are embedded PCs by Beckhoff with the operating system Windows XP Embedded. "We use the embedded PC for the PLC (Programmable Logic Controller), the motion-control and additionally for the visualization of the processes at the terminal," explains Claus Botzenhardt, project leader for the new control systems. "Thanks to the PC control technology and the embedded operating system, we were able to dispense with an additional PC for the visualization."

Other advantages of the PC solution include the usability of Ethernet interfaces, such as for integration into the company network or for Internet access – which opens up the possibility of remote servicing. If the packaging systems are very complex, a decentralized control system with several embedded PCs is also possible.

The application of a quick, Ethernet-based field bus for industrial applications improves the reproducibility of the work processes along with the precision of the machines. The signals are captured more quickly and that way the cycle periods of the machines can be optimized. "This way we can better exhaust the potentials of the PC-based control system and its high-performance processors and control the axis modules of our systems more quickly and precisely. It makes our machines even more efficient and reliable," says Allgaier.

Networked for process reliability

A decisive point is the integration of the packaging machines in a complete packaging line, which means the networking of upstream and downstream components such as slicers and systems for in-feeds, dosages, weighing, labeling, testing, and removal. With the new control solution, these devices are registered by the control system as additional modules and integrated in the machine sequence. The IPC control system synchronizes all modules and takes over their cycles.

The embedded PC enables the implementation of a high-performance capture of the operational data (BDE) along with the display of the captured operating conditions and reasons for standstills. The data can be accessed via Internet for the remote servicing of the machines. The accessed data can be transferred between the machine controls and a central database through Ethernet and the optional

OPC interface, while the archiving, processing and visualization of the system productivity and any potential sources of errors are performed with the database. This makes it possible to quickly recognize deviations from the targeted condition and implement countermeasures. It guarantees a stable machine performance and at the same time a consistently high and reproducible package quality at operating costs that can be calculated.

"Even with a higher degree of complexity of the new machines, the new control system guarantees the reliability and process safety that our machines are known for," adds Botzenhardt. "The modularity of the control system also brings with it the benefit of scalability, allowing us to react swiftly and nimbly to future customer demands."



A new option:

FDA CFR21 Part 11

Regulation CFR21 Part 11 of the US Food & Drug Administration, abbreviated as FDA, determines the conditions for the recognition of batch-relevant electronic documents and electronic signatures. These conditions have to be adhered to in order to have electronic recordings and signatures be considered as trustworthy and reliable, and so that they can enjoy the same legal status as their hardcopy counterparts.

This set of rules is highly relevant for producers, for example, if the process sequence of a machine has to be reconstructed based on recorded operating

data. In order for these recordings to be recognized as reliable and tamper-proof, the machine's control system has to comply with the requirements of CFR21 Part 11 for closed systems and authentication.

Multivac therefore offers corresponding equipment as an option for the new IPC control system. One of the users, for example is B. Braun Melsungen AG, a leading manufacturer of medical products, which has implemented the package on its packaging machines.

"With the CFR21 Part 11 package, our control systems have been supplemented by

two essential characteristics," says Alois Allgaier, manager of the business area for control system technology at Multivac. "For one, an increased user administration that authenticates the user and limits the access to data and configurations to defined users. These data sets are protected by a user access system. The second crucial advantage is the audit trail system. The data sets contain all relevant data such as data and time stamps, variable names, user names, value before and after the change as well as a check sum, in order to make the data set tamper-proof. This way the entire process can be documented in a gapless and reliable way."

The package completely corresponds to the conditions of CFR21 Part 11. This is how Multivac is providing the best possible support to manufacturers in their efforts to comply with the requirements of these guidelines in their processes.

On the shelf

Reclosable dome package



With the "Serve Box," Multivac has developed a stable, reclosable package from both a top and bottom web of rigid film. The dome-shaped, transparent lid draws the eye and directs it to the packaged product. The package is formed with corresponding indentations and recesses that allow it to be repeatedly opened and snapped shut. Other indentations from the bottom allow the product to be held in place and easily removed by the consumer as desired. These recesses also allow the product to be easily stacked for transport as well as display at the POS. The bottom portion of the package is also formed with a "waffle" grid to facilitate circulation of protective gases around the product and extend freshness. The peel-

able sealing medium of the special films that are used offers a tight but also light seal that can be opened in a controlled process.

Serve Box packaging offers a premium look that is attractive and distinctive. It is suitable for products such as sausage and cheese slices, snacks, and for multiple types of consumer products. It is manufactured on a special R 535 thermoforming machine with a top web form station.

Skin pack with an aluminum tray



An exclusive cooperation between Multivac, Nicholl Foil and Bemis has resulted in an exciting and innovative new package: SkinFOIL – skin trays made of aluminum. These highly attractive packages are suitable for a high-grade presentation of various food items. From meat and sausage products to fish and seafood or ready-made meals – the product is secured to the bottom of the tray and can neither

slide nor release juices. This also makes a vertical presentation of the product possible. In addition to these aesthetic advantages, SkinFOIL offers up a great deal of practical convenience. The package is suitable for the oven and grill. SkinFOIL packaging is available exclusively on Multivac traysealers – on which skin-suitable aluminum trays by Nicholl Foil are sealed with skin films by Bemis.

Lightbulbs in a blister pack

Lightbulbs are usually sold in cardboard packages - with the disadvantage that the product cannot be seen. Customers, therefore, often open the box to look at the threading or the shape, and then return a damaged package to the shelf. The widespread use of ordinary blister packaging with a cardboard backing is also susceptible to damages.

Not so with the original blister pack Multivac has developed for a customer selling energy efficient bulbs. Inherently stable cavities are created from a rigid bottom web on a thermoform packaging machine and sealed with a second web after the product has been loaded. In addition, a printed card with product information is inserted. The thermoform process enables the individual design of each cavity, adjusted

precisely to the product shape. The stable package is damage-resistant and the product can be seen just as well as the contents of the inserted cardboard. The high-strength



seal secures the package during transport and on the retail shelf. An easy-tear corner simplifies the opening for the consumer in the home.

Cheese slices packed ready to serve



For the Polish dairy company Mlekpól, Multivac has developed a reclosable package for cheese slices that is impressive in both form and function. It has a three-dimensional lid that protrudes into the

packaging mould and is easy to open with a peelable corner. The product can be taken out, then the lid is pressed back into the package and snaps back through longitudinal notches in the lid. This keeps the product fresh much longer. A grating on the bottom prevents sliding of the cheese slices while a deep finger indentation facilitates easy removal. In addition, the manufacturer's logo is embossed on the bottom. This package is manufactured on a Multivac R 530 thermoforming machine with a top web form.

Packaged for the microwave



Nestlé has introduced a ready-made fish dish to the French market under the brand "Maggi," and it has already become quite popular. Its success is likely due to its taste, as well as the convenient preparation involved. The frozen dish can be heated in its package in the microwave. During the cooking, the top skin web detaches from

the product and can be removed easily at the peelable corner. The dish can be served immediately in the tray. Preparation of individual servings is possible without disturbing the remaining portions. The package offers optimal protection for the ready-made meal and also supports differentiation at the point of sale.

The package is produced on a Multivac R 570 thermoforming machine. To process the microwave-ready top web, the machine was equipped with a special tool with several preheat cycles.