Thermoforming packaging machines
Food
MULTIVAC is the leading manufacturer worldwide of thermoforming packaging machines for food. We deliver over 1,000 thermoforming packaging machines every year throughout the world. Each of these machines is individually designed to the customer’s requirements in terms of pack design, output and efficient use of resources. Reliability, durability and comprehensive service make MULTIVAC a resilient link in your production chain.
Better packaging with MULTIVAC thermoforming packaging machines

Reliable discharge and converging systems

Precise cutting systems for individual pack shapes

High seal seam quality for maximum pack security

Maximum operator safety thanks to far-reaching protective devices

Easily removable cladding
Simple operation and production data acquisition

Variable loading area

Options for optimised film change

Quick format change

Durable, high-performance lifting units

**MULTIVAC benefits**

- High production output and pack quality
- Individually tailored solutions
- Maximum output with the minimum footprint
- Process reliability
- Long service life
- MULTIVAC Hygienic Design™
- Innovative technologies to reduce the consumption of packaging materials and energy
- Wide range of configurations and enhancements
- Complete supply for packaging lines
Thermoforming packaging is a recipe for success

In 1966 MULTIVAC built the first thermoforming packaging machine for food packs. Today, machines of this type can produce many multiples of the production output of that first machine, and they can be cleaned particularly reliably thanks to their stainless steel construction, as well as being able to produce very individual pack shapes. But the basic principle of its function remains the same now as before.
1 **Forming station**
The lower web is made formable in the forming station by the effect of heat, and it is then thermoformed by means of compressed air and vacuum. If required, this process can be aided by the use of forming plugs.

2 **Loading area**
The thermoformed pack cavities can be filled manually or automatically in the loading area.

3 **Sealing station**
The upper web is applied to the filled pack cavities in the sealing die. The upper and lower webs are sealed hermetically to each other by means of a seal seam.

4 **Cross cutting units and longitudinal cutters**
The cross cutting units and longitudinal cutters sever the individual packs from the strip of packs in the web. In addition to these, there is an extensive range of other cutting systems for making individual pack shapes.
# Machine classes

What are your requirements of a thermoforming packaging machine? Small footprint? Quick format change? Special pack shapes? Maximum output? Highest level of efficiency? MULTIVAC offers a uniquely wide range of machines to meet your ideal requirements.

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<td>250, 285, 320, 355, 420, 459</td>
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<td>285, 320, 355, 420, 459, (470), (520), 560</td>
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<td>With automated die changing drawer system</td>
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<td>Standard, preheating, plug assist, Posiform, aluminium, polypropylene, upper web, explosive</td>
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- Fresh meat (R 515)
- Flexible film application (R 215)
- New development of customised thermoforming packaging machines
Large range of packs

The diversity of food and its forms of presentation are continually increasing on the supermarket shelves. Running parallel with this is the wide range of pack types and materials. This wide range of packs can be produced reliably and efficiently on MULTIVAC thermoforming packaging machines. We design your machine individually to your requirements.
All conventional films made of plastics or other materials can be run on MULTIVAC thermoforming packaging machines. We cultivate an intensive exchange of experience with all the leading film manufacturers. We also make our Innovation Center available to them for carrying out tests on materials.

- Mono and multi-layer films
- Flexible and rigid films
- Unprinted and printed films
- Skin films
- PaperBoard

- Aluminium multi-layer film
- Films made of fibre composite materials
- Films made of renewable raw materials
- Temperature-resistant films
Cooking and baking packs

MultiCook™

Thermoformed packs made from MultiCook™ films can be used within a temperature range of –60 to +220 °C. This means packed food can be stored chilled or frozen, and it can be cooked in the oven or in the microwave.

The moisture and aromas in the food are retained during the cooking in the sealed pack. After the pack has opened automatically in the oven when a defined pressure is reached, the browning process then starts.

MultiCook™ films are optimised for protein-containing food, and they are also suitable for the cooking of bakery products. They are available exclusively from MULTIVAC.

Chicken in a cook-in pouch: Thanks to MultiCook™ film, the product is successfully cooked with minimum effort and maximum aroma.
Skin packs, shrink-wrap packs

MultiFresh™
MultiFresh™ vacuum skin packaging uses a special skin film, which encloses the product without tension like a second skin and seals to the entire surface of the lower web. The upper web passes through a heating station to activate the film properties, and it is then pre-stretched in the sealing die.

MultiSkin™
In the case of the MultiSkin™ process, the upper web encloses the product tightly like a skin and is sealed to the lower web with perimeter sealing.

FormShrink
The FormShrink process uses special, extremely shrinkable thermoforming films. The finished packs pass through a shrink unit. The shrink properties of the film are activated by the heat effect of the hot water, and the film then lies tightly around the product.
Types of pack atmosphere

**Natural atmosphere**
The technically simplest solution is packing without modified atmosphere. These packs protect the product, but do not have any properties which extend shelf life.

**Modified atmosphere (MAP)**
In the case of packs with modified atmosphere, the atmosphere in the pack is replaced with a gas mixture, which is matched to the product. This usually consists of carbon dioxide, nitrogen, or oxygen.

**Vacuum**
Packaging under vacuum extends the shelf life of products since the product’s biochemical degradation is slowed down by removing the atmosphere. Since the products are compressed during the process, vacuum packs are only suitable for foods, which are not sensitive to pressure.

**Equilibrium atmosphere (EMAP)**
The permeability of the upper web is matched to the respiration rate of the product by means of microperforation. This enables an equilibrium atmosphere to be established, which extends the shelf life of sensitive, respiring products such as fruit, vegetables, salads and herbs.
Pack shapes

- Rectangular
- Multi-sided
- Round, oval
- Freely selectable shape
- Multiple pack
- Folded pack
Pack presentation

We can offer you different types of product presentation: the standard type is the horizontal pack. But there are also tailor-made solutions available, if you require packs that are to be presented in a stand-up or hanging format.

Horizontal  Stand-up

Hanging  Hanger slots and hanger holes as required
Opening aids

Peel corner
The seal seam at the peel corner is set back slightly with a larger radius. The loose upper web tab, which is created in this way, is lifted up by a raised bump in the lower web. This enables the tab to be gripped easily and the pack to be opened.

Lower web corner cut
When the pack is opened, the corner piece of the lower web is pulled off with the upper web. This means the corner is easy to grasp. This opening aid is produced by making a cut in the lower web.

Tear flap
A tear flap is an unsealed area, which extends across the whole width of the pack, enabling the tear flap to be conveniently gripped.

Thumb hole
The thumb hole is a variant of the tear flap, in which a thumb-sized semi-circle is punched out of the upper web.

Tear slit
A small cut in the edge of the pack, which extends up to the seal seam. To open the pack, one tears it open at the slit.

Serrated cut
The notched serrations work as predetermined breaking points, where one can tear open the pack.
Reclosure systems

**Peel-Reseal film**
The peel layer, which is embedded in the upper web, enables the pack to be peeled open easily. After the product has been removed, the pack is sealed again by stroking the upper web over the seal seam. An adhesive layer in the upper web provides this reseal feature.

**Reclosure lid which is formed in-line**
A longitudinal groove is formed in the lower section of the pack, and an identical but raised version is made in the lid, which is formed downwards to sit inside the pack. This ensures both profiles fit into each other perfectly and hold together after the pack has been reclosed.

**Zip seal**
The zip seal is either closed by pressing and locking it in, or pulled closed by means of an integrated zipper slider. A perforation and an additional seal seam provide the primary seal of authenticity. The zip seal is applied to the pack on the machine.

**Hinged reclosure lid**
The lid can be peeled open, but it remains adhered to the trailing edge of the pack by means of a permanent seal. An indentation – to give a hinge effect – enables the lid to be easily opened for unrestricted and repeated removal of the product. To ensure the pack recloses properly, a longitudinal groove is formed in the side wall of the pack, and a matching raised version formed in the lid.
Higher output, less consumption

MULTIVAC machines are designed for an efficient packaging process. In addition to this however, we offer options for further increasing efficiency and for maximum packaging performance, as well as for minimum consumption of film, energy and water.

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Options for quicker format change

The greater the number of different pack formats which are produced on one machine, the more critical quick format changes become. We would be very pleased to give you expert advice so that you can find the ideal solution.

**Standard format change**
Manual change of the forming and sealing dies as well as cutting tools. Access from above.

**Format change with drawer system**
The forming and sealing stations are equipped with a drawer for a faster format change.

Time saving:
75 percent

**Automatic forming plate change**
A second forming plate can be put in at the press of a button.

Time saving:
80 percent
Multi-format layout
Forming and sealing dies, as well as cutting tools, are designed in tandem format and can be activated as required.

Changeover at the press of a button.

Vario dies
The proven MULTIVAC vario dies with variable format divisions make it very simple to convert to other pack sizes and forming depths.
Options for quicker film change

**Tandem film unwind for film change without stopping the machine**

Downtime is avoided with a tandem film unwind. The system holds two web rolls. When the active web roll is used up, there is a short period of buffering at the very end of the web roll, so the film on the second roll can be spliced. The packaging process can continue to run in this way without any downtime. The roll, which has been used up, can then be exchanged at leisure for a new one.

The use of a splicing table simplifies this procedure, particularly in the case of thin films and register-printed films.

**Jumbo film unwind**

Jumbo film unwinds for upper and lower webs can take web rolls with a larger diameter, enabling running time of the web roll to be up to four times longer. The result: less downtime, higher productivity.
Options for a reduction in the film surface area

**Reduction of the partitions between the packs**
The new design geometry of the strip punch with its segmented cutting tool enables the partitions between the individual packs to be narrower. The use of a servomotor-operated positioning unit at the sealing station also contributes to a reduction of the partitions between the packs.

**Reduction of the sealing flange**
The use of innovative die geometry enables the sealing flange to be reduced.
Reduction of the edge trim width
The edge trim width can be minimised thanks to a new solution for evacuation and gas flushing in conjunction with new die geometry.
Options for a reduction in the film thickness

Reduced film thickness by means of explosive forming or plug forming
The volume of packaging material can be significantly reduced by the use of thinner films. The challenge lies in maintaining the integrity of the pack. Using alternative forming processes, such as explosive forming and plug forming, allows thinner films to run while preserving the same pack result.

Explosive forming
In the case of explosive forming, a faster pressure build-up and larger airflow volumes are used. The film is distributed evenly in the thermoforming die and achieves a better formed shape. Films, which are up to 15 % thinner, can be run in this way without any reduction in quality.

Plug forming
In the case of plug forming, a mechanical plug aids the thermoforming process. This enables film to be used, which is up to 25 % thinner than that used with standard forming.
Small film thickness thanks to a stabilising pack design
A modified pack design with stabilising ribs increases the rigidity and robustness of the pack, and this enables thinner films to be used, which means savings in film.

• The ribbed structure gives the pack more stability
Options for reduced energy consumption

80 % energy saving through efficient servo drives
The lifting units in a thermoforming packaging machine for the forming, sealing and cutting stations are significant energy consumers. If one uses energy-efficient servo motors here instead of pneumatic drives, the energy consumption in this area can be reduced by up to 80 %.

Forming process with reduced compressed air consumption
Measures such as preheating without compressed air, using a servo-motorised plug, and reduced compressed air usage during forming enable compressed air consumption to be reduced by up to 25 %.

Stand-by mode
The stand-by function enables the energy consumption of the packaging machine to be significantly reduced during pause times. By entering the planned pause time, the machine is ready for operation immediately after the pause time has finished.

MULTIVAC e-concept
Thermoforming packaging machines equipped with the e-concept are operated solely by electricity. They do not require any compressed air or cooling water connection and therefore operate particularly efficiently in terms of resources.

The stand-by mode saves energy during pauses in production

![Energy consumption chart](image-url)
Options for reduced water consumption

**Cooling water flow control**
A sensor measures the water temperature in the cooling water circuit. A valve for the cooling water flow is opened or closed depending on the cooling requirement. This reduces the water consumption by up to 50%.

**Closed cooling water circuit with water chilling unit**
A water chilling unit enables a closed cooling water circuit to be used. The machine does not require any fresh water for cooling.
Upgrades and options

Labelling and marking systems, as well as inspection systems and the majority of the accessories for your packaging machine, are developed and manufactured by MULTIVAC itself. In this way we can guarantee first-class quality for each component, and also ensure these modules fit organically into the overall system. We have illustrated our comprehensive retrofitting range in a separate brochure.
Labelling and marking systems

MULTIVAC Marking & Inspection, our Center of Excellence for labelling, marking and inspection, offers a large selection of labelling and printing systems for in-line and stand-alone applications. Our specialists work together with you to develop the ideal solution for your requirements.

- Cross web labellers
- Direct web printers
- Conveyor belt labellers

Inspection systems

MULTIVAC Marking & Inspection also offers a comprehensive range of systems for the quality inspection of products and packs. These ensure your products meet the highest quality and safety standards.

- Metal detectors
- Checkweighers
- X-ray inspection systems
- Visual inspection systems
MULTIVAC Track & Trace™

In order to provide seamless traceability of products, MULTIVAC Track & Trace™ ensures there is batch-specific or individual marking of packs within the packaging process.

Here the data on product origin and processing is loaded via a scanner, and this data is fed to a labeller during the packaging process for each specific machine cycle. The labeller marks every single pack with an individually printed label, which contains the desired information in the form of clear text, barcode or data matrix code.
Accessories for greater ergonomics

So that your packaging processes can be designed even more ergonomically, we offer a comprehensive range of accessories for your thermoforming packaging machines.

**Suction unit for film trim**
Automatic film suction significantly reduces the manual effort during disposal of film trim. The suction unit reliably removes film trim, such as edge trim and centre trim, punch trim and granulated edge trim. As an optional version, the film container can be emptied without interrupting production.

**Edge trim macerator**
The edge trim macerator is placed between the thermoforming packaging machine and the suction unit. The holding capacity of the suction unit can be used to its optimum through a reduction in the mass of the edge trim.

**Film transport trolleys**
With its two models of the Rollboy and Jumbo Roll Trolley, MULTIVAC offers transport units for the easy and secure transportation of standard and jumbo web rolls. The Rollboy model not only makes the transportation of web rolls easier, it also helps in changing the lower web.

**Die changing trolley**
The die changing trolley facilitates very simple and ergonomic die changes. It is mobile, lockable, and can be used as a storage space.

**Lifting trolleys for the transportation of film or dies**
MULTIVAC offers lifting trolleys in various versions for the easy and convenient transportation of web rolls and dies, as well as for the simple positioning of these on the machine.
Better Packaging with MULTIVAC

More than every second thermoforming packaging machine sold worldwide is a MULTIVAC. When you decide on MULTIVAC, you get individually tailored packaging solutions, reliability in your packaging process, the groundbreaking MULTIVAC Hygienic Design™, excellent service and, if required, a complete packaging line from one source.
Custom built for you

With MULTIVAC you get individually designed packaging solutions. Our wide and versatile product range enables us to supply a machine with the output, functionality and flexibility, which meet your requirements. Make use of our consultancy service and benefit from our experience in food packaging to find the ideal machine configuration. Simply ask us!
When it comes to reliability, it means everything!

When we develop and manufacture our packaging solutions, it is our main aim to ensure a faultless and smooth packaging process for our customers.

MULTIVAC therefore offers
- Reliable machine design
- Maximum hygiene
- Simple operation
- Acquisition and processing of production data
- Quick availability of spare parts and service

**Easy machine operation with HMI 2.0**
Ease of operation is critical for process reliability. The HMI 2.0 user interface with its touchscreen display is intuitive to operate thanks to its graphic user guidance. Calling up one recipe is sufficient to control all the modules of a line, which means operating errors can be avoided. Thanks to the individual management of operating rights, an operator only has access to those parameters, which are relevant to him. All settings and important production data are automatically documented. Faults in the packaging process can therefore be traced back to their cause.

**Logon with chip card**
Operators can log on and log off quickly with this option. Registration takes place without any contact. It is sufficient to hold one’s personal chip card to the machine control briefly.

**Start/stop without contact**
A sensor, which operates without contact, enables the machine to be started and stopped without the operator coming into contact with it.

**Remote access to the machine control (VPN)**
The secure VPN connection with integrated firewall enables remote assistance by Service to be provided quickly and reliably to the machine. This means any faults can be found quickly and eliminated easily.

**MULTIVAC Smart Services**
The constant capture of operating data in the packaging machine offers the opportunity for qualified analysis of the machine status. With the aid of various analytical tools within MULTIVAC Smart Services, it is possible to continuously optimise the efficiency and cost-effectiveness of the packaging process.
MULTIVAC thermoforming packaging machines in the MULTIVAC Hygienic Design™ are designed for the hygiene requirements of the food industry. Hygiene design and high quality materials ensure reliable and fast cleaning. The smooth, angled external surfaces without recesses, corners or edges are easy to clean.

The modules in the machine's interior are also optimised for hygiene, such as the transport chain, the chain guides, and the motors. The interior of the machine is easily accessible due to completely removable side panels.

Our thermoforming packaging machines
- Are certified in accordance with DIN EN 1672-2-2005
- Are manufactured on the basis of NSF/ANSI/3-A 14159-1-2002
- Can be equipped, as an option, in accordance with the USDA hygiene standard.

Benefits
- Tested by the German Social Accident Insurance (DGUV) and carrying the GS test seal
- Packaging of products with a high-quality appearance and long shelf life
- Shorter cleaning and servicing times, therefore less downtime
- Easy access to all important components
- Economical use of water and cleansers
- Longer lifespan of the packaging machines

Clean-in-Place
The Clean-in-Place (CIP) cleaning system ensures the machine is cleaned automatically and reliably. The modules within the machine are automatically cleaned and disinfected via nozzles. This means water and cleanser consumption is minimal. The cleaning process can be documented and reproduced.
More service

Service from MULTIVAC covers the entire lifecycle of a packaging solution. More than 1,000 specialists worldwide support you with consultancy, training, and technical service.

**Professional consultancy and machine installation**
The packaging specialists from MULTIVAC analyse existing packaging concepts and highlight potential for improvement. They develop new types of packaging and suitable machine concepts with you. They also ensure your new packaging solution is put into service without a hitch, and that it is integrated in your production process.

**Tests of packaging solutions in the MULTIVAC Innovation Centers**
We provide capacity in our Innovation Centers for you to perform packaging tests. You have the opportunity to test packaging concepts, as well as produce small quantities for conducting market acceptance studies. Shelf life tests and technical food analysis can also be performed.

**Needs-based training courses**
We offer user training courses worldwide for our customers’ operators and service personnel. On site at customer, at the premises of our subsidiaries or at the MULTIVAC Training & Innovation Center. We are flexible in matching the content of our training courses to your requirements.

**Machine maintenance**
Thanks to the benefits of reliable machine technology, our technical service always ensures the maximum readiness of your equipment is maintained. The easy and rapid supply of spare parts contributes significantly to this machine availability. The expertise of our specialists makes our service perfect.
MULTIVAC develops and manufactures turnkey packaging lines, including infeed equipment, handling modules, convergers, inspection systems, labelling and marking equipment, as well as outer packaging systems. All the modules of a line can be controlled centrally via the MULTIVAC HMI user interface and MULTIVAC Line Control. Our product range is rounded off with solutions upstream of the packaging process in the areas of slicing, portioning and bakery technology. Thanks to our extensive expertise in packaging lines, all modules can be integrated into complete solutions. This means MULTIVAC solutions guarantee a high level of operational and process reliability, as well as efficiency.
MULTIVAC is there for you on-site, worldwide.

Our sales and service network comprises more than 85 subsidiaries. We are present on all continents and in all important markets. At all times and in all places, more than 1,000 consultants and service technicians will offer you expert advice and a comprehensive range of services covering all areas of packaging, as well as support you on your way to the best possible and most efficient overall solution. Our technical service, combined with rapid availability of spare parts, ensures all MULTIVAC machines installed worldwide are at maximum readiness.