# In an airless space

***Multivac Vacuum packs in pouches offer a high level of flexibility.***

**Vacuum packed food in pouches is still as successful in the retail trade as it has ever been. The reason: pouches are very flexible when it comes to product size, batch size and product geometry.**

"The great advantage of vacuum pouch packs is their flexibility. Companies that pack their products in many different sizes or geometries do not need to convert their machine every time. All they have to do is keep various pouch sizes in stock", says Dr. Ingo Renner from MULTIVAC.

Vacuum packs in pouches are also often used in preference for small product batches, as well as for packs which are sold across the counter or used in catering. "The vacuum pouch pack can be produced cost-effectively and simply. As a result of the possible use of many different pouch materials, the pouch pack can be used in many different sectors. Among these are pouches made of printed or metallized films, as well as the familiar boil-in-bag pouches", adds Ingo Renner.

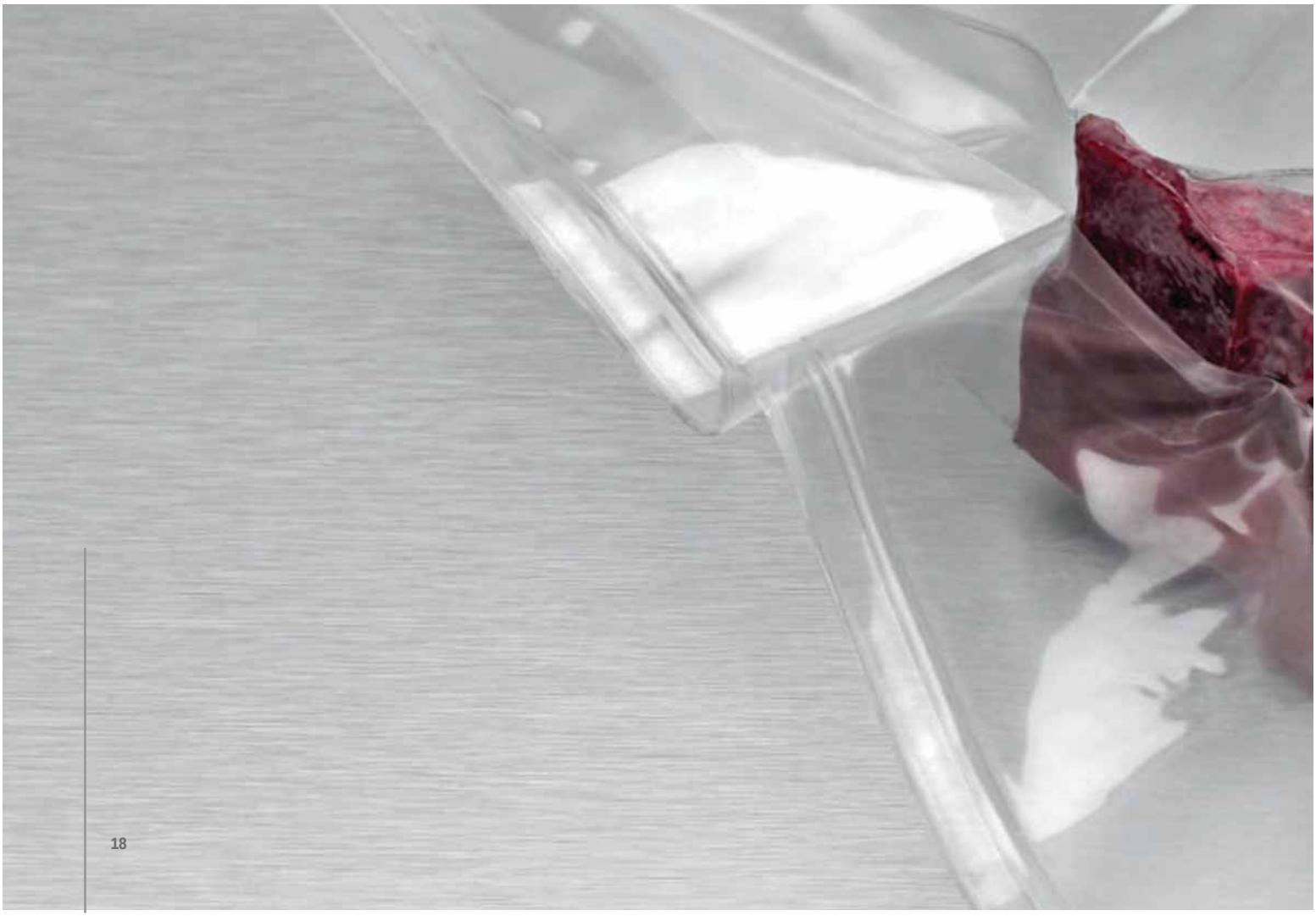
With regard to the sector of industrial or consumer products, the vacuum pack primarily protects the products from environmental influences, such as dust or moisture. Vacuum packs are today still largely used however in the food area.

The removal of oxygen from the pouch prevents the proliferation of microorganisms, which are dependent on oxygen, and it inhibits the oxidization process.

## Simple operation - wide spectrum

Vacuum packs in pouches are produced in so-called chamber machines. MULTIVAC's machine range covers the whole spectrum of machine size, output and equipment specification: compact table-top and free-standing models, twin chamber machines, fully automatic conveyor belt machines and complete shrink packaging lines.

The handling of the machines is comparatively simple. The product to be packed is placed in its film pouch into the open vacuum chamber. The lid of the vacuum chamber is then closed. The air is sucked out of the chamber via a valve, until the desired vacuum is reached. "In the case of chamber machines from MULTIVAC, the pressure target value in the chamber is measured absolutely by means of a pressure sensor, and this value



is shown by a display in the machine control", explains Ingo Renner.

In order to further extend the shelf life of the products, or to protect them against pressure points or similar danger areas, there is the additional, optional possibility of providing the packs with a modified atmosphere (MAP packs). Here the inert gases are blown into the film pouch and the inside of the chamber via inert gas nozzles, which are made of stainless steel. The important factor in the production of modified atmosphere packs (MAP) is the use of pouch materials with an oxygen barrier, to prevent the exchange of inert gases between the inside of the pouch and the outside environment.

When the evacuation process is completed, the pouch is sealed with the product inside it. This involves the two inner sides of the pouch being pressed together by a heated sealing bar and fusing together to form an airtight seal.

The last stage of the procedure is the ventilation of the chamber via a valve. When the pressure inside the chamber matches the ambient pressure, the chamber lid opens automatically by means of a spring mechanism. The machine is then ready after the ventilation for the next product.

In order to make vacuum packaging in pouches even more user-friendly, MULTIVAC offers additional functions, such as easy-open or tear-open features, multiple packs containing several small packs, shrink packs and other similar features.

## The temperature is critical

In the case of products which contain water, the quality of the vacuum depends crucially on their temperature. For example, the drier and cooler a product is, the better the vacuum. "A vacuum pouch is an enclosed space, in which the water contained in the product forms a vapour atmosphere. One would say in layman's terms that it sweats. The vapour atmosphere does not acclimate to the ambient pressure but rather during evacuation the ambient pressure in the chamber reduces. The consequence: the water contained in the product vaporizes", explains Ingo Renner. If the inherenttemperature of the product is high, the water contained in it begins to vaporize earlier. If the pressure in the chamber has reduced to 23 millibar, vapour bubbles start to form in the water: "The water boils, although the temperature is only 20 degrees Celsius. The pressure in the chamber no longer reduces. No more air is then evacuated, but only water vapour", says Ingo Renner. The maximum final pressure has then been reached.

In the case of liquid products such as sauces, the formation of vapour bubbles can commence very fiercely and forcefully, so that the product is projected out of the film pouch. Vacuum pumps, which are not designed to withstand a high proportion of vapour, can be damaged. Contamination or damage to the product can be avoided by a slow evacuation, which corresponds to the nature of the product. ◆