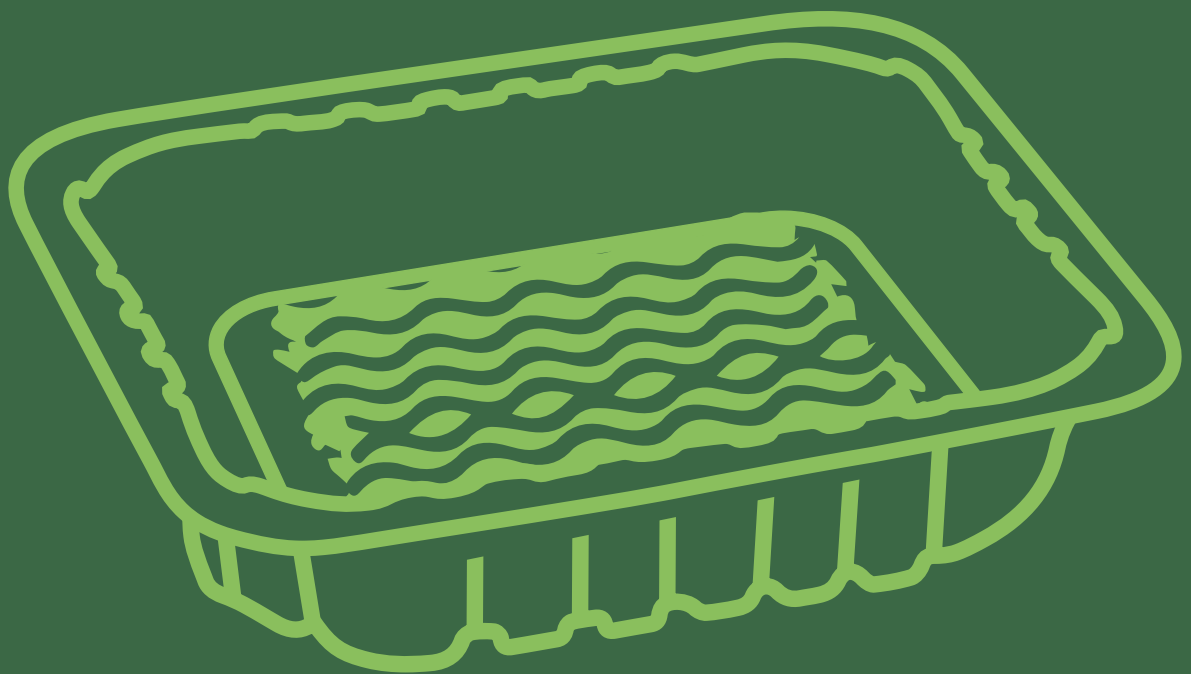


GRINDING AND FORMING





WE UNDERSTAND A THING OR TWO ABOUT GROUND AND FORMED PRODUCTS

Ground products are more than just minced meat. They have become a trend, a fast-moving, international business that demands variation and a constant supply of new ideas. But they have to be easy to prepare, and caterers have to be able to come up with surprises again and again. And that certainly includes the streetfood scene and snack bars – every single day.

Burgers, meat patties in different shapes and sizes, fresh sausage without casings, cevapcicis and lots of other products that people want because they are influenced by different cultures: there are no longer

any limits to people's imagination – or your product range.

This means new opportunities for you as a manufacturer. When it comes to capitalising on them and responding to changing demands, you can rely on VEMAG grinding technology and forming systems. We have been leaders in grinding and forming processes for years, we know the market, and we can offer you flexible, highly productive and sophisticated automation solutions: flexible production lines with integrated grinding to produce top quality products. And plenty of versatility when it comes

to attachments and forming solutions. Our systems offer top performance and maximum productivity.

Your customers are waiting for you. Let's supply them with the best products together. We look forward to solving your particular challenges together with you. We're passionate specialists in ground and formed products.

CONTENTS

4	Endlessly Diverse Products
6	Efficiency And Precision
8	Filling
10	Grinding And Separating
12	Portioning And Forming
14	Weight Monitoring
16	Multi-Lane Depositing And Loading
18	The VEMAG Modular Principle For Maximum Flexibility
20	Our Machines And Everything That Goes With Them
22	Strong Together For Your Success
26	Nothing Can Beat It: The VEMAG Double Screw
28	Machine Analysis And Production Planning With Smart Link 4.0
30	VEMAG: Your Reliable And Competent Partner

ENDLESSLY DIVERSE PRODUCTS

Mince isn't just mince. Diverse ingredients, textures, looks and shapes, manufactured and processed using outstanding technology, all go to guarantee success with your customers.

Coarse or fine texture, in patties or meatballs, firm or loose in consistency, meat, meat substitute or vegetables: VEMAG helps give you freedom in production. Our flexible machine systems allow you to extend your product portfolio whenever you want, since the possibilities of production they offer are endless.

How do you want to design your product range?

- Patty Products like Burgers and Hamburg Steaks
- Cylindrical Products like Cevapcicis
- Rectangular Products like Fish Fingers
- Meatballs
- Adana Kebab
- Kebab Slices
- Fresh Sausage without Casings

Products in Fantasy Shapes

- Round
- Cylindrical
- Square or Rectangular
- Lots of other Shapes on Request





EFFICIENCY AND PRECISION

Opening up of opportunities in processing.



Depositing and Placing in Packaging

High transfer rate combined with precise positioning in packaging for a dependable effective output

Weight Monitoring

Integrated, seamless weight monitoring enables uninterrupted automated production, even if raw material parameters vary

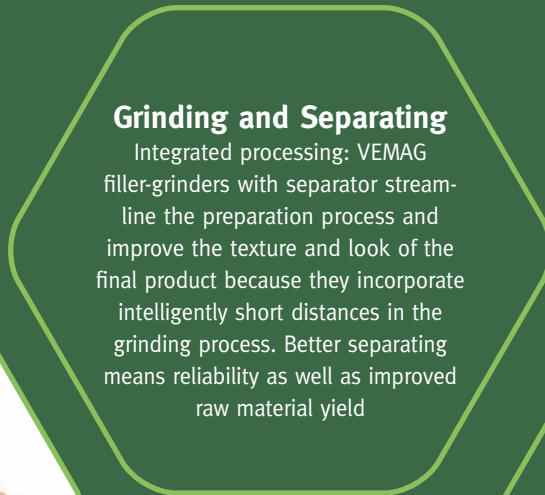


Grinding and Separating

Integrated processing: VEMAG filler-grinders with separator streamline the preparation process and improve the texture and look of the final product because they incorporate intelligently short distances in the grinding process. Better separating means reliability as well as improved raw material yield

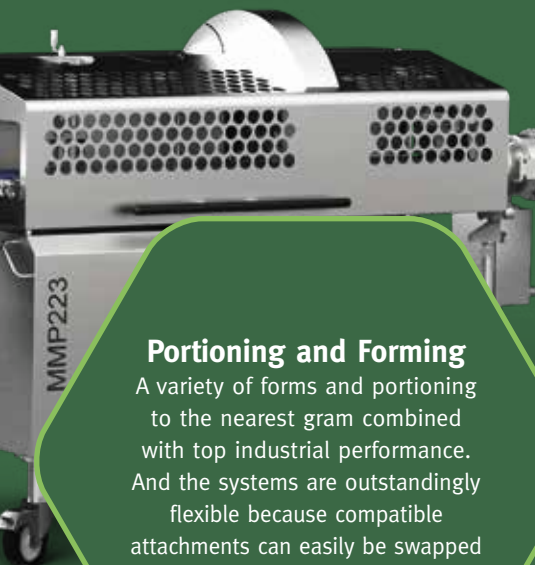
Filling

Gentle handling of raw materials and a uniform feeding guarantee maximum product quality and a perfect downstream processing



Portioning and Forming

A variety of forms and portioning to the nearest gram combined with top industrial performance. And the systems are outstandingly flexible because compatible attachments can easily be swapped for even more product diversity



FILLING



FILLING

Infeed – inlet – feeding system – outlet: Each stage of filling individually adjustable to create a unique product.

The filling process plays a major role in the industrial production of ground and formed products. Different parameters such as geometry, component size and function, from the inlet to the outlet, all influence fundamental product characteristics. You decide which properties your product should have, and we adapt our machine fully to your requirements. This helps you achieve perfect weight accuracy in your products, a drastic reduction of giveaway and big savings on resources and costs. Continuous product infeed, constant, powerful vacuum performance and gentle feeding of the filling material all ensure that the downstream attachments and

automated line systems are perfectly supplied with top-quality product.

Our powerful vacuum fillers convey your products carefully and along the shortest possible feeding distance, with minimised dwell time: This prevents smearing, minimises leftovers and guarantees perfect hygiene.

The benefits:

- Excellent product quality
- Gentle processing
- Reduces giveaway and therefore saves money
- Adapt and improve your products perfectly

VEMAG filling technology for products the way you imagine them





GRINDING

Gentle grinding for the best possible product presentation.

VEMAG machines help you achieve a consistent particle size, excellent colouring and a clear texture for a perfect product presentation. The quality of your raw material is always our top priority. The creation of heat is avoided during the grinding process and the grinder's diameter is wide, preventing a build-up of pressure which would cause changes to the product texture.

VEMAG machines do a lot to help your hygiene: our machines and attachments are designed to be easily dismantled and therefore quick and easy to clean, so that

unwanted product remnants do not remain in the machine.

VEMAG filling-grinding technology features extremely short, direct product feeding without corners or turbulence, which guarantees hygienic products of the highest quality.

Optimum temperature consistency is also assured. VEMAG filling-grinding technology can easily handle very cold, stiff mixtures when producing particularly challenging products.

The benefits:

- Straight product feeding without dead space, in which residue could accumulate. This guarantees perfect hygiene
- Clear particle size and an attractively coloured end product
- High degree of standardisation

SEPARATING

Safely remove unwanted particles to achieve top quality.

When producing your products, unwanted components such as bone particles, gristle and sinews are separated out, so that you end up with a raw material in which you can be confident and which can be pro-

cessed in line. The fine texture of mature muscle is carefully preserved. This ensures that your product is safe and that the raw ingredients exhibit excellent qualities.

The benefits:

- Upgrades the raw material
- Separating grinder without separate drive: the faults that operating errors often cause are eliminated
- Top quality products and dependable product safety
- Efficient processing enabled in line solutions

More efficiency: Raw materials are processed over a short distance





PORTIONING

Highly accurate weights and high output.

Precise weights, just the way you define them: our portioning systems are suitable for producing mince from beef, pork and poultry, as well as other ingredients. The form of the material you produce depends on the minced meat attachment's final

hole plate. It can easily be adapted to different tray sizes. The product flow that comes out of the minced meat attachment is automatically deposited on a carrier (paper strip) in the mince portioner and transported to the blade by a conveyor

belt. The blade is specially adapted and synchronised to the production process and it cuts the product flow and the carrier into individual portions of a precise weight.

FORMING

Efficient and innovative machines for perfectly shaped, versatile products.

Are you looking to make perfectly formed products that you and your customers love? VEMAG forming systems give you the right partner and the right range of machines. Choosing a line with multiple attachments enables you to cover a very wide range of products and use your line's capacity to the full, in a way you will not find anywhere else in the world. Meat or vegetable mixtures: our machines form precision products from a range of raw ingredients – products which offer a unique texture and a natural bite. Our machines convey the ingredients very carefully along the shortest possible distance, which means that meat fibres are not crushed

as they are in conventional manufacturing processes. Our Automatic Meat Ball Loader AML273 can be used universally to make meatballs and products in cylinder and ellipse form. The products are given their shape by hole plates that rotate in opposite directions and through which the mixture is fed. The hole plates are adapted to the form of the product and shape the products quickly, reliably and variably. VEMAG machines place no limits on your creativity. This helps you open up new market shares with innovative products.

The benefits:

- The VEMAG modular machine portfolio for the world's widest product range: ultimate application flexibility
- Flexibility in the size and form of your products
- Quickly change the product form using interchangeable nozzles or by adjusting the forming plates / inserts
- Short set-up times and minimal downtimes
- Gentle systemised product handling for top quality
- Utilise resources optimally to maximise profits

Flexible lines to make your production versatile





WEIGHT MONITORING

Integrated, seamless weight monitoring for automated production.

Complex production lines require uninterrupted product weight monitoring. Our VEMAG weighing systems help you to calculate accurately and effectively eliminate products that are too heavy or too light.

Random sampling or seamless production monitoring: VEMAG weighing systems are highly precise. The VPC716 weighing system is an integrated continuous scale without ball bearings. Because it does not have ball bearings, the system is extremely reliable and easier to clean. That reduces the time which cleaning takes, as well as maintenance costs, and increases your production line's availability. An integrated computer programme allows the weighing system and filler to communicate with one another. The VPC716 provides constant feedback on the portioned weights, which allows the fill quantity and portioning to be optimised. Reports can be obtained

easily through an integrated USB port or a direct link with an ERP system.

The VPC716 is suitable for mince and forming lines and helps you comply with EU regulations on packaged food, as well as other national regulations. A drop-down conveyor connected to the system automatically ejects incorrect weights. Intelligent process check software control supplies user-friendly reports in a wide range of standard layouts. Online production monitoring provides you with exact data on things like the number of packages per minute, total weight, the number of rejected packages and giveaway.

The benefits:

- Ideal monitoring of the production process
- Easy to integrate into VEMAG production lines
- Adjust portion sizes by integrating with VEMAG vacuum fillers
- Prevent incorrect weights
- Reduce giveaway
- Robust build: suitable even for the most adverse working conditions

Permanently optimising fill quantities and portioning





MULTI-LANE DEPOSITING AND LOADING

Efficient automation for the subsequent processing of your products.

If you want to divide mince and formed products up into multiple lanes so that they can be packaged automatically, you need a really good way of dividing, depositing and loading them. With our VEMAG machines, products manufactured in a single row can be conveyed in multiple lanes to packaging systems and further processing.

VEMAG shuttle conveyors are available in different lengths, can be integrated perfectly into our production lines and are suitable for a wide range of products. Working at high speed, they place down your products in the direction your packaging machine operates. The automatic meatball loader produces meatballs and

fresh sausage without casings at a high speed and places them automatically into trays. This allows you to achieve a high level of automation in your production and guarantees perfect hygiene.

The SL305/DL302 loading line for fresh meat products deposits accurately and fully automatically into trays and conveys products to the appropriate packaging. The loading line's compact design enables parallel, space-saving arrangement of the lines in your production process.

The benefits:

- Optimum hygiene on account of fully automatic solutions from a single source: products are not touched at all
- Can be used flexibly for a wide range of products
- High loading performance
- Easy to operate
- Also suitable for sliced and cut products such as chops

Fast product distribution on multiple lanes



Machines shown: HPE + MMP223 + MTL280

THE VEMAG MODULAR PRINCIPLE FOR MAXIMUM FLEXIBILITY



Modularity is what our machines are all about. And that means there are no limits to your product range.

VEMAG's big portfolio of machines, attachments and accessories is like a box of building blocks from which you can select the modules you want to assemble the solution for you.

For you as a user, it means that once you have purchased the core system, a

VEMAG filler, you can design your production the way you want using a combination of different attachments and suitable accessories. So you do not have to buy a new machine for new products: all you need is the right accessories or an attachment.

VEMAG attachments and accessories are system components whose technology and operation are tailored exactly to our machines. That means you always have the perfect solution from a single source.



OUR MACHINES AND EVERYTHING THAT GOES WITH THEM



OUR MACHINES AND EVERYTHING THAT GOES WITH THEM

Our VEMAG filling and portioning solutions provide you with powerful, flexible systems that can be combined with our attachments and accessories to enable a wide range of products, efficiently supporting even the most complex production processes.



MMP220



PC706 - MMP223



FM250



AML273



MTL280 - 283



SC260 - 263



SL305 - SL306



DL302



FSL210



**STRONG TOGETHER
FOR YOUR SUCCESS**



YOUR PRODUCT

...is Number One

At VEMAG, our top priority every day is to be there for our customers in every way. We consider your product the most valuable asset, and we want to protect it, refine it, improve it and make it even more professional.

That will give you an edge and your customers as well. We develop, perfect and install every vacuum filler, every attachment and every complete line so that you can achieve your objectives with a wide range of functions:

- Excellent products, designed and produced exactly the way you want them
- VEMAG machine technology is highly flexible, enabling amended and newly developed products to be made easily on existing VEMAG lines to produce the best possible outcome
- Optimised standards that ensure guaranteed reproducibility and product safety for your end-customers

Our product managers and food technologists are there to assist you and are in constant dialogue with our development department in order to make your products even better using improved machine technology.



LESS RAW MATERIALS

...for more sales

Only once your product is as perfect as you want it can we think about improving yields. We understand that good food has to be competitive, which is why our own teams of experts are always using and developing their knowledge to allow you to get more of your high-grade raw materials into sellable products. That means more profit, and also less waste.

- Optimised weight accuracy and less giveaway allow you to deliver only what you are going to be paid for.
- Higher yield reduces your costs. For example, have you ever calculated what 1% less casing or raw material and ingredients could do for your profits, thanks to VEMAG's intelligent filling technology?
- Perfect product lengths and geometries reduce packaging problems and improve your packaging costs. They also eliminate high waste costs.

Together we can work out how your process combined with our technology can generate added value for you, precisely by using less raw material.





LESS RISK

...more customers

VEMAG fillers and VEMAG lines offer endless features, making them low-risk production systems that give you more time to concentrate on what is important. Every time we develop anything, we think about your safety and the hygiene standards you build your business on. We were leading the world in some areas while other companies hadn't even started there.

- VEMAG supplies the world's first vacuum filler with 3-A Sanitary Standards.
- VEMAG fillers allow you to remove stoppers and feed units hygienically, quickly and easily in the filling direction so you can clean them. This means you can clean seals properly because it is quick and easy to do, and practical for operators.
- The vacuum channel between the feeding system and vacuum pump is much shorter and easy to clean. VEMAG is at the top of the industry when it comes to hygiene standards.
- VEMAG feeding technology makes product distances shorter and with fewer corners in the product flow. Hygiene is outstanding, and the products are better.
- Fewer parts in the feeding system mean better hygiene. There are also fewer parts to lose.



OUTSTANDING AVAILABILITY

...another aspect of VEMAG Service

What happens if your product is not ready to sell on time? No product often means no sales, which not only reduces turnover, it can annoy your customers a lot and even drive them into the arms of your competition. VEMAG Service includes lots of ways of avoiding that:

- VEMAG machine concepts include 'Function First'. From the drawing board onwards, we try to make functions as durable as possible. A good example is our vacuum fillers' box-in-box system, which doubly encapsulates electronic parts.
- Quick set-up times mean more time for production. VEMAG lines can often start producing a completely new product simply by replacing a small attachment or module, which is quick and easy.
- VEMAG trains agency and branch office technicians at its VEMAG Academy. This means our international service standards are always improving for your VEMAG solutions, and it means you receive, from installation onwards, the service that will secure your investment over the long term and make your product available to meet your customers' demands flexibly.

NOTHING CAN BEAT IT: THE VEMAG DOUBLE SCREW



NOTHING CAN BEAT IT: THE VEMAG DOUBLE SCREW

At the heart of our fillers are VEMAG double screws. No other feeding technology is as flexible when it comes to adapting to your product.

Lots of options in terms of pitch, diameter, length, compression, profile and much more all mean one thing: your product is perfect.

Perfection in precise weights or whole pieces of muscle – specialist or compromise, or both?

Every cleaning process enables the double screw to be changed quickly. You might want to change the product quickly, or service parts of the pump. The feeding system

consists of just two parts: the housing and the double screw.

VEMAG technology enables you to use components such as double screw parts that are made entirely out of stainless steel. This makes it more durable, and also improves hygiene levels.

A major benefit of VEMAG double screw technology, one which protects your products, is the first-in-first-out principle: the filling material is continuously force-fed. A system such as rotary vanes can drag the product several times through the pump, whereas the mixture that arrives first at the double screw is what arrives first at the outlet.

The benefits:

- Ideal for adapting to your product
- Handles raw materials gently
- Flexibility for new product ideas
- Outstanding weight accuracy even at high outputs
- Optimised yield providing more sellable product
- Uniquely hygienic feeding system
- VEMAG filling-grinding technology: The ideal in-line extension and next step for sensitive products
- Easy to disassemble and clean
- Lower service costs



MACHINE ANALYSIS AND PRODUCTION PLANNING WITH SMART LINK 4.0

Evaluate machine data effectively and quickly – and remotely: so you can know what is happening on which line, and when. All this is possible with the latest VEMAG Smart Link 4.0.

VEMAG Smart Link 4.0 is an operating and product data collection system which allows you to evaluate your filling data at any given time and date. VEMAG Smart Link records internal machine parameters.

It means you can see exactly what is happening at a glance. Power consumption, pressure levels at the sausage grinder and other information can be viewed, compared and evaluated. This allows you to identify any weak points that may exist, as well as things you can improve and continue. It allows you to see what is actually

happening right now. Filling data is transferred and stored, in the filler as well if you want.

This means that machine data such as product filling weights, quantities achieved, machine running times and much more can be viewed centrally, such as at your central office. This improves planning quality.

The benefits:

- Be ready for IoT: Networking your machines improves your production
- Receive a constantly updated insight into your primary production figures. One of the things this enables is accurate product costing
- Optimise costs by reducing giveaway and using resources more effectively
- Achieve production security and constant quality by optimising your machine settings
- Achieve transparency and traceability by automatically documenting your production data



RELIABLE, EXPERT PARTNER



VEMAG: YOUR RELIABLE AND COMPETENT PARTNER

Service and maintenance: we are there for you worldwide.

At VEMAG we consider service part of our DNA: you, the customer, are always at the centre of our activities.

VEMAG service technicians, subsidiaries, agencies throughout the world: we will always provide you with outstanding service wherever you are, and we define manufacturer standards to keep it that way, including at our VEMAG Academy. VEMAG Service in Germany and our offices and agencies abroad will support you from the installation of your machine,

throughout comprehensive training, and whenever repairs are needed.

You can rely on:

- Global support
- Service technicians trained worldwide by the VEMAG Academy
- Sound technological training
- Practice-based technician and user training



The VEMAG Customer Centre: Space for innovation.

Make your vision a reality with us and discover how you can improve your production. We can show you individual components and complete production lines at our VEMAG Customer Centre. We will show you, under realistic conditions, how you can make a wide range of foods.

Experience VEMAG up close and in action — our competent advisers are there for you.





VEMAG Maschinenbau GmbH
Weserstr. 32
27283 Verden, Germany

www.vemag.de