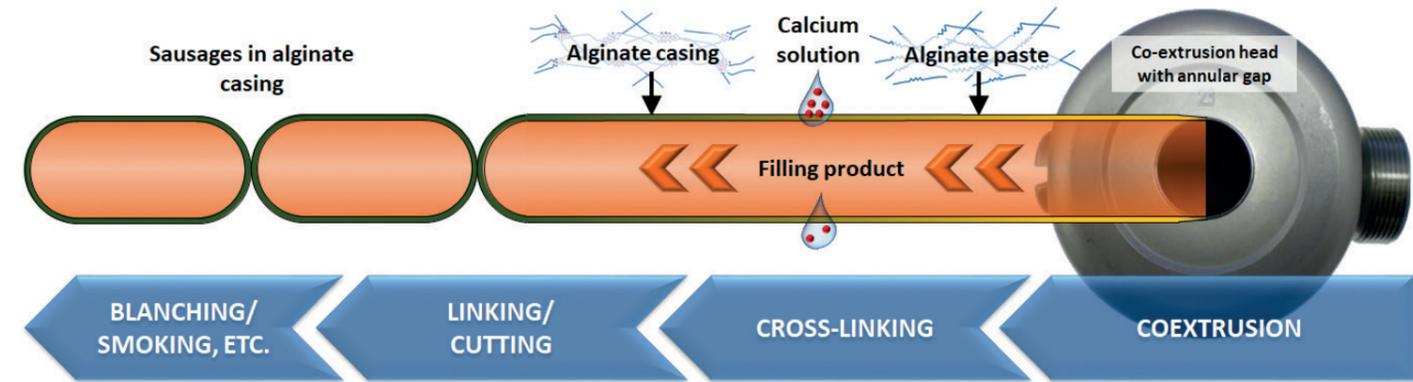


# CONTINUOUS PRODUCTION WITH CONPRO SYSTEMS

For products in alginate casing





## ALGINATE CASING

The most modern way to produce sausages and sausage-shaped products!

## UP TO 40 % LOWER PRODUCTION COSTS

Advantages of the ConPro technology in comparison to conventional production

The Handtmann ConPro systems (**Continuous Process**) raise the co-extrusion process to a new technical and technological level and in so doing create completely new application options. They combine the advantages of an edible alginate casing with flexible Handtmann vacuum filling technology. With the ConPro systems, sausage and other products can be produced more economically and new market potential can be tapped into.

The most outstanding feature of the ConPro systems is that sausage skins or casings no longer have to be changed. That means that due to continuous co-extrusion, there are no more casing change times and filling time is therefore maximised. Continuous production with increased potential for automation, almost unmanned production and in-line packaging makes it possible to put conventional production methods to the test in order to generate economic benefits.

### THE PROCESS

The basic components of the Handtmann ConPro system are comprised of a master machine, a slave machine or alginate feed unit and a co-extrusion unit. While the master machine continuously conveys the product, the slave machine or the alginate feed unit precisely feeds the alginate paste to the co-extrusion head. The slave machine or the alginate conveying unit facilitates individual determination of the casing thickness and guarantees consistent application. The alginate casing is produced during filling as part of a continuous process through gelatinisation of the pasty alginate film in a saline fixing solution.

### ADVANTAGES OF ALGINATE PASTE

- From a reliable, natural raw material source (brown algae)
- Composition can be adapted on a product and process-specific basis in terms of stability, colour and flavour
- Can be produced across a wide range of temperatures and pH levels and is insoluble in water and heat-stable
- Continuous process: alginate casing is produced during the filling process
- Full process control and traceability
- Perfect product presentation
- New production options for traditionally produced products and product innovations
- Wide variety of applications for fresh, mould-ripened, dried, cooked and smoked sausage products
- Suitable for many different applications, such as meat, cheese, fish, vegetarian and sweet products
- Also for vegan, vegetarian, kosher or halal products

Continuous production with alginate casing provides significant growth potential, allowing forward-thinking processors to acquire new market share, as the alginate casing can be customised in terms of its thickness, its colour and its taste. This creates completely new opportunities for developing, designing and marketing innovative products. Excellent potential for widening the product range coupled with highly efficient production.

### COST REDUCTION

- Up to 40 % lower production costs compared with the equivalent products in conventional types of casing
- Significant cost reduction thanks to portioning accurate to the gram
- Reduced labour costs due to high level of automation (reduction from three operators to one, depending on the level of automation)

### ECONOMIC EFFICIENCY

- Significant increase in efficiency through continuous production flow
- Fast return on investment due to high productivity and low investment costs
- Efficiency and process reliability due to simple handling
- Low operating, maintenance and running costs

### PRODUCT QUALITY

- Guaranteed reproducible product standards
- Constant product appearance due to precisely definable alginate casing application
- Individual portions accurate to the gram due to excellent portioning accuracy

### FLEXIBILITY

- Outstanding flexibility due to fast adaptation to product versions
- Large range of applications due to calibre range from 8 mm to 32 mm
- Simple synchronisation and operation via the vacuum filler control system

### PROCESS RELIABILITY

- High level of system availability and reliability, including as a module in complex process chains and handling systems
- Perfect hygiene conditions due to a reduction in manual intervention
- Optional digital solutions [HDS] for additional added value



# PROCESS OPTIONS

Product variety through diverse process options

The systems can basically be classified into ConPro systems and ConProLink systems (with linking function). The primary difference between them is the shape of the product ends.

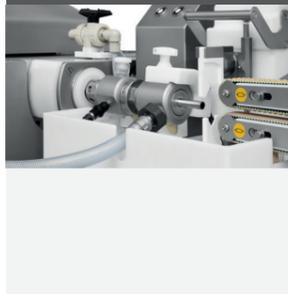
With the ConPro systems, the product strand is either cut directly and straight after co-extrusion and fixation using appropriate separating devices or formed during cutting by means of a forming cut. The product ends are not completely enclosed by the casing. With the ConProLink system, the product strand is linked, thus closing the ends completely. The linked portions can then either be hung or be cut into individual portions or strings.

### Filling & co-extrusion (ConPro/ConProCompact)



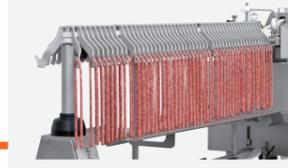
- Filling the endless sausage strand
- Alginate applied by means of co-extrusion
- Gelatinisation of the pasty alginate film in a saline fixing solution

### Filling & co-extrusion (ConProLink)



- Filling the endless sausage strand
- Alginate applied by means of co-extrusion
- Gelatinisation of the pasty alginate film in a saline fixing solution
- Portion by portion linking of the product strand

### Separated sausages, hanging



- Central hanging of separated sausages
- Hanging a continuous sausage strand
- Formed or straight sausage ends
- Wide variety of product calibres and lengths

### Separated sausages, horizontal position



- High portioning capacity
- Formed or straight sausage ends
- Wide variety of product calibres and lengths

### Linked & separated sausages, horizontal position



- Formed, closed sausage ends
- Suitable for semi-viscous products
- Wide variety of product calibres and lengths

### Linked sausages, hanging



- Formed, closed sausage ends
- Suitable for semi-viscous products
- Wide variety of product calibres and lengths

### Collating and packing the sausages



- Precise depositing into trays or thermo-forming packaging
- High process reliability
- High level of automation

### Continuous further processing

- Feeding to continuous smoking, cooking or baking systems



**HFM**  
HANDTMANN FUNCTION MODULE  
Scalable output and activation of software functions

**HCU**  
HANDTMANN COMMUNICATION UNIT  
Software for planning, controlling and optimising the filling department

**MSA**  
MACHINE SETUP ASSISTANT  
Assistant for simple setup including recommendation of product-specific components

**HMC**  
HANDTMANN MACHINE COCKPIT  
Cloud integration of Handtmann machines to increase machine availability

**HMF**  
HANDTMANN MONITORING FUNCTIONS  
Automatic parameter monitoring to avoid misproduction

## PROCESS STEPS

Perfect by itself. Optimal in the overall process.

## DIGITAL SOLUTIONS AND PRODUCT HANDLING

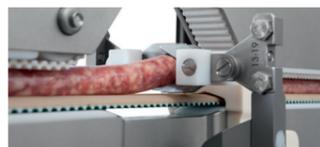
For added value in production and for expansion to form an overall process

Each individual process step in the ConPro system is perfected so as to always ensure optimum results of the entire process – a first-class product coupled with profitable production.



### 1. FILLING AND CO-EXTRUSION

The continuous filling of an initially continuous sausage strand ensures maximum productivity with superior product quality. The alginate paste solidifies in the fixation solution at the same time as the sausage strand is fed to the AL system conveyor belts.



### 2. CUTTING AND FORMING

The continuous sausage strand is precisely separated into defined portions (equal lengths and equal weights). The forming process step (ends are formed into the typical, round sausage shape) provides an excellent and appetising product appearance.



### 3. SEPARATING AND HANGING

The interplay of the cutting unit and hanging unit guarantees individually separated sausage loops of equal length.



### 4. LINKING AND SEPARATING

Continuous sausage production for linked and cut fine sausage meat and dry sausage products with well-formed, closed portion ends.



### 5. LINKING AND HANGING

Reliable portion linking due to ConProLink linking unit, followed by product hanging on the hanging unit in line with the required number of loops and the distance between them.



### 6. COLLATING AND DEPOSITING

Using the collating module, portions can be collated in many different ways. Precise depositing into trays is the perfect basis for additional automation steps such as packaging, for example.

### 7. CONTINUOUS FURTHER PROCESSING

The individual, cut portions can be transferred to continuous systems, such as smoking, cooking and baking systems, in horizontal position.

### Automation from filling through to packaging thanks to product handling

Completely rethink conventional production processes due to continuous production with increased potential for automation, almost unmanned production and in-line packaging: ConPro technology. Handtmann product handling systems provide the opportunity to further automate the ConPro process. ConPro systems have a modular design. Supplementary modules for collating and depositing, through to packaging, facilitate a complex line configuration, tailored to individual production requirements.

	GS 300 collating system	GS 301 collating system	GS 302 collating system
<b>Modules</b>	<ul style="list-style-type: none"> <li>GM 310 collating module</li> <li>ZB 311 feed belt</li> <li>INTRAY tray denester</li> </ul>	<ul style="list-style-type: none"> <li>GM 310 collating module</li> <li>GB 320 collating belt</li> </ul>	<ul style="list-style-type: none"> <li>GM 310 collating module</li> <li>GB 322 collating belt</li> <li>ER 330 loading robot</li> </ul>
<b>Applications</b>	Collating system for fresh sausage directly into trays for <b>alginate</b> , natural and collagen casing.	Collating system for fresh sausage pre-grouped onto the collating belt for <b>alginate</b> , natural and collagen casing (depending on the product). Manual depositing into trays or thermo-forming systems.	Collating system for fresh sausage for depositing into thermo-forming systems for <b>alginate</b> , natural and collagen casing (depending on the product).
<b>Performance data</b>	<b>Alginate casing:</b> <ul style="list-style-type: none"> <li>Portioning speed up to 400 portions/min.</li> <li>Casing calibre 13 to 32 mm</li> <li>Portion length 80 to 310 mm</li> </ul>	<b>Alginate casing:</b> <ul style="list-style-type: none"> <li>Portioning speed up to 400 portions/min.</li> <li>Casing calibre 13 to 32 mm</li> <li>Portion length 80 to 400 mm</li> </ul>	<b>Alginate casing:</b> <ul style="list-style-type: none"> <li>Portioning speed up to 360 portions/min.</li> <li>Casing calibre 13 to 32 mm</li> <li>Portion length 80 to 220 mm</li> </ul>
			



## CONPRO SYSTEM

Top performance for cut or formed products

## CONPRO COMPACT SYSTEM

Entry-level model for cut or formed products

The ConPro system (KLSH 153) is available in two performance level versions. The smaller, entry-level model is suitable for producers who are beginning ConPro production. If more production capacity is required there is no need to buy a new system, production output can be increased via an upgrade. Depending on production requirements, the optimum forming and separating units facilitate a significant increase in capacity, coupled with a visually appealing product appearance. Top performance is therefore possible for cut or formed products.

With this ConPro system, the product strand is either cut straight after co-extrusion and fixation using appropriate separating devices or formed during cutting by means of a forming cut. With both versions, the product ends are not completely enclosed by the alginate casing. The processes of collating and depositing or transferral into a continuous system for further processing are the next steps of the complete solution.

The ConProCompact system is the entry-level variant for the continuous production of products in alginate casing. A flexible solution with all the options for a variable production in the areas of meat, convenience, fish, vegetable/vegetarian products, dairy and more.

The main feature of the ConProCompact system is an alginate feed unit with 40-litre volume, which replaces the second vacuum filler for the alginate paste feeding. "Compact" means simple structure, minimum space requirements and easy operation of the system. Perfectly suited therefore for start-ups or small- and medium scale producers who seek to enter the field of alginate technology. The system is scalable and can therefore be adapted to increasing production requirements with its different performance levels. Thanks to its easy conversion, the system can also be used for sausage production in natural, collagen or peel-off casing at any time.

### ADVANTAGES

- Flexible adaptation to production capacities due to scalability
- Optimum new forming and separating units for top performance
- Excellent product shelf life due to ideal hygiene conditions
- Production costs reduced by up to 40 % in comparison to equivalent products made from natural or artificial casings
- Cost savings through optimum utilisation of the smoking chambers thanks to the possibility of hanging small-calibre products close together

### PERFORMANCE PARAMETERS ConPro/ConProCompact

- ConPro system comprising VF master and VF slave or VF and alginate feed unit with KLSH 153 AL system
- Calibre range 8 to 32 mm
- Portion length from 40 mm
- ConPro-1:  
Belt speed: max. 1 m/sec.  
Portioning capacity (depending on product and lengths):
  - Cutting: max. 1,200 portions/min.
  - Forming and cutting: max. 1,200 portions/min.
- ConPro-2:  
Belt speed: max. 2 m/sec.  
Portioning capacity (depending on product and lengths):
  - Cutting: max. 1,800 portions/min.
  - Forming and cutting: max. 1,200 portions/min.
- Hanging option: minimum hook spacing 20 mm
- Further processing of hung products: conventional smoking and cooking systems
- Further processing of cut products: collating, depositing in packaging solutions, transferral to continuous smoking, cooking or baking systems

### COMPACT BENEFITS

- Compact variant as low-cost entry-level model into the field of alginate technology through its alginate feed unit (instead of a second vacuum filler with slave function)
- Reduced production costs through alginate casing starting at calibre 8 mm
- Minimal space requirements thanks to the "compact" design
- Easy "compact" operation thanks to all parameters being set on the master vacuum filler
- Maximum flexibility thanks to easy conversion for processing natural, collagen and peel-off casing
- With increasing production, it is possible to easily boost performance with a software solution (no other hardware or system replacement required)
- Consistent, first-class product quality through constant, continuous process



↑ Straight cut



↑ Forming cut



↑ Breakfast sausage



↑ Fried sausage spiral



↑ Hot dog



↑ Merguez



↑ System version for processing natural, collagen and peel-off casing



# CONPROLINK SYSTEM

Linking with optional cutting or hanging

↑ Different hook versions for different applications

The ConProLink system enables the continuous production of products with closed ends. The hanging function takes the production of sausages to another level and creates additional potential for innovative product solutions and highly economical processes. A newly-developed hook makes it possible to hang snack products very close together (cal. 8 and cal. 10). Smoking chambers are therefore utilised to a significantly higher degree, thus resulting in cost savings.

The ConProLink technology produces an alginate casing using the linking/co-extrusion head, portions the filling product accurate to the gram, constricts it in equal lengths with the help of the voider and links the products. The individual, linked portions are then either cut and processed further in horizontal position or a specified number of them are transferred to the hanging unit in loops, with the required distance between them.



↑ Mould-ripened salami



↑ Cheese sausage



↑ Vegan wieners



↑ Vegan fried sausage



↑ Mini wieners



↑ Pet food

## ADVANTAGES

- Excellent product appearance due to closed ends
- Production costs reduced by up to 40 % in comparison to equivalent products made from natural or artificial casings
- Processing semi-viscous products is possible due to completely closed product ends
- Excellent product shelf life due to ideal hygiene conditions
- Existing smoking/cooking systems can be used for hung products (e.g. salami sticks)
- Cost savings through optimum utilisation of the smoking chambers thanks to the possibility of hanging small-calibre products close together

## PERFORMANCE PARAMETERS

- ConProLink system comprising VF master and VF slave with KVLSH 162 AL system
- Calibre range 10 to 28 mm
- Portion length from 80 mm
- Portioning capacity up to 300 portions/min. (depending on product and lengths)
- Minimum hook spacing: 20 mm
- Further processing of hung products: conventional smoking and cooking systems
- Further processing of cut products: collating, depositing into packaging solutions or transferring to continuous smoking, cooking or baking systems



↑ Closed product ends



↑ Salami sticks



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