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SAUSAGE PRODUCTION WITH AL SYSTEMS

For natural, collagen and artificial casing products

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VERSATILITY WITH ALL TYPES OF CASING

Flexibility and efficiency for every application

Fully-automatic AL system with casing magazine

Semi-automatic AL system with revolver technology

Manual AL system with holding device

Since the introduction of the first model in 1993, the term Handtmann AL system - derived from the German word for linking line - has become synonymous with leading technology in industrial sausage production. From this time on, the Handtmann AL systems have been constantly developed and perfected by means of innovative features, and they thus still enable excellent productivity levels for the production of fresh, cooked or dry sausages in natural, collagen or artificial casing, coupled with maximum flexibility. Many systems allow all sausage and casing types to be processed and facilitate maximum outputs of up to 3,000 portions per minute. The systems' modular design provides a suitable solution for every application. Either with full automation thanks to automatic casing change and slug feed via the casing magazine or with manual casing spooling.

Fully automatic AL systems for artificial and collagen casings:
For the fully-automatic production of sausages, from product filling to hanging or cutting, by means of perfectly-matched automatic casing change. Slug feed is implemented via a casing magazine.

Semi-automatic AL systems for natural, artificial and collagen casings:
Automatic sausage production with manual casing change, for industrial users as well as for medium-scale and small-scale producers. Rapid changeover from artificial casing to collagen casing or natural casing ensures flexibility for a diverse product portfolio with just one system.

↑
DA 78-6 casing spooling device

↑
Casing magazine

↑
Manual casing spooling with semi-automatic casing change function

EXTREMELY SHORT CASING CHANGE TIMES FOR MAXIMUM PRODUCTIVITY

The right solution for casing spooling

Casing changes are of key importance in terms of the cost-effectiveness of a sausage production system, as simple, fast casing changes reduce non-production times, thus improving the productivity of the entire process. Handtmann AL systems enable gentle, safe and highly-efficient casing changes for every application.

1. Manual casing change

Manual and flexible casing spooling. As an option, a casing spooling device speeds up the process. The automatic holding device with a low-wear drive and a finely-tuned, flexible casing brake guarantees gentle and fast linking, even with sensitive natural casings.

2. Semi-automatic casing change

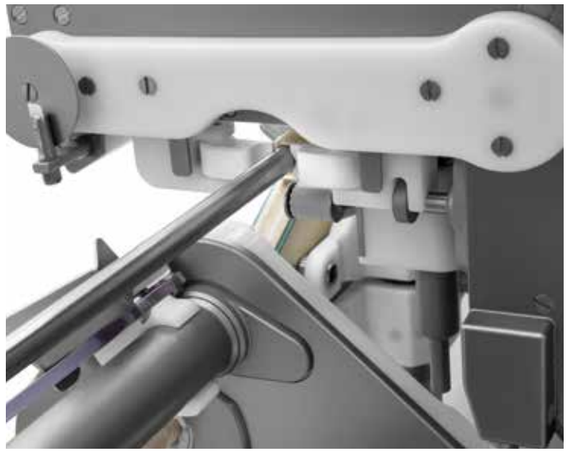
Casing spooling with 1 linking nozzle – the linking nozzle automatically moves to an ergonomic spooling position. The operator can therefore apply the new casing to the nozzle quickly and easily. Optional, integrated casing end detection via sensor technology ensures optimum casing usage and minimises impurities caused by sausage meat.

Casing change with 2-nozzle or 3-nozzle revolving head – while production continues with one linking nozzle, the next casing can already be spooled onto the second linking nozzle. To change the casing, the operator then uses the 2-handed operating unit. The revolving head tilts and moves linearly into filling position. Casing change is performed in an ergonomic position, tilted towards the operator.

3. Fully-automatic casing change

Full automation thanks to perfectly-matched automatic casing change and slug feed via the casing magazine. Highly-innovative technology with revolving head and 3 linking nozzles ensures extremely short casing change times for artificial and collagen casings. Positioning of the linking nozzle by means of the nozzle centring device with every automatic spooling operation, and precise slug guiding ensure a reliable workflow. Casing change times of less than 2 seconds are therefore possible.

↑
Fully-automatic casing change with 3-nozzle revolver and casing magazine
↓



THE MODULAR SYSTEM DESIGN

Each function perfect by itself. Optimal as part of the entire process.

Precisely portioned, perfectly calibrated and equal length fresh, cooked or dry sausages – perfect synchronisation of the Handtmann vacuum fillers with the AL systems makes this first-class product quality possible. The vane cell feed system, state-of-the-art servo drives and Windows-based control technology of the vacuum fillers with the voider portioning and automatic casing change function of the AL systems guarantee a comprehensive, safe and efficient production process.

FUNCTIONS AND MODULES

Each individual function of the vacuum filler/AL system production line solution is perfected so as to always ensure optimum results of the entire process – a first-class product coupled with profitable production.

1. FILLING

Optimal feeding, dynamic servo drive technology, powerful vacuum capacity and the Handtmann vacuum fillers' high-precision vane cell feed system guarantee constant and reliable feeding of all AL lines. Gentle feeding and the reliable evacuation of the product are guaranteed. The prerequisite for constant, top production quality.

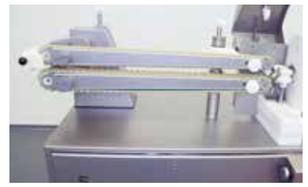
2. PORTIONING AND LINKING

Portioning accurate to the gram with the vane cell feed system and synchronised linking facilitate a large product range for all casing types with just one system. Automatic adaptation of the linking profile in line with the product is possible thanks to highly-dynamic linking with servo technology (e.g. curved collagen casings, sheep's casing rings or pigs' casings with calibre fluctuations). This results in high linking capacity and separating into precise portions.

2. VOIDING

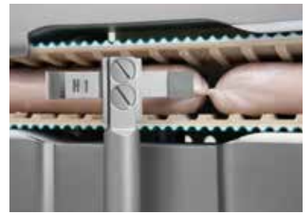
Whereas with "Portioning" mode the vacuum filling machine stops with each link, the filling process runs continuously with "Voiding" mode. The voider defines the exact linking position and, in conjunction with highly-dynamic linking, facilitates portioning accurate to the gram with constant lengths and an extremely high, industrial level of performance. Maximum outputs of up to 1,000 portions per minute are possible with natural casing. A newly developed parallel voider ensures even more gentle linking of natural casing products.

3. EQUAL LENGTHS



With its belt system, the Handtmann length unit combines the perfect synchronisation of portioning output with casing removal. And the result is exact lengths accurate to the gram. Simple adjustment and flexible adaptation of the lengths down to the millimetre via the vacuum filler's monitor control permit a wide range of products and adaptation to a great variety of packaging solutions. The conveyor belt principle therefore guarantees a diverse range of products coupled with short setup times and less cleaning work.

4. CUTTING



Separation with the 2-belt solution and sensor for exact identification of the separating point is a highly-precise process. This averts the need for rework and reduces both casing and production costs. The sausage separating principle on the belt with a synchronised blade creates a defined gap between the portions and guarantees cleanly separated portions with closed casing ends. This reliability ensures safe, uninterrupted production. Individual cutting provides scope for diversity coupled with short setup times, from fresh products to dry sausages. Separation into individual portions or chains of any desired length.

5. HANGING

The AL system places the linked sausages as straight or curved portions with the linking position exactly on the hanging unit's hook, independent of weight, length and loops. The number of loops and number of portions per loop may be chosen at will thanks to this unique flexibility. A push button on the hanging unit enables an operator to reload the hooks rapidly, which further reduces the setup times considerably. A narrow hook pattern ensures optimum smoke stick loading and therefore smoking and cooking systems are fully utilised, resulting in cost and energy savings. Rationalisation and efficiency are guaranteed thanks to this continuous, uniform overall process.

As an option, increasing the height of the hanging unit makes a more ergonomic position for removing the sausage loops possible for tall operators.

Advantages

User benefits of automatic sausage production with AL systems

ECONOMIC EFFICIENCY

→ Maximum portioning accuracy for long-term cost reductions
→ High-performance production for all casing types with one system
→ Efficiency and process reliability due to simple handling
→ Extremely short casing change times of less than 2 seconds are possible

COST REDUCTION

→ Significant cost reduction thanks to portioning accurate to the gram (optional networking via HCU software with the integration of a weighing system for automatic weight control and significant cost reductions due to reduced overfilling)
→ Low running costs (few or no additional parts are required during a product change)
→ Low maintenance costs (only few, low-wearing parts)

PRODUCT QUALITY

→ First-class product quality due to excellent portioning accuracy and length consistency
→ Optional use of integrated inline grinding technology with gristle separator for a further improvement in product quality with fresh and dry sausages
→ State-of-the-art technology ensures long-term, high-class product quality as standard

PRODUCT DIVERSITY

→ Extremely flexible sausage production due to easy combination with auxiliary devices
→ Wide calibre range for an extensive product portfolio
→ Large product range due to flexibility with all types of casing and sausage meat
→ Flexibility in production due to quick casing changes

MODULARITY

→ Modular system for maximum flexibility and fast adaptation to different product requirements
→ Optionally available as cutting and hanging combination for mixed production of hung sausages or cut fresh products
→ Additional option of a casing end sensor for even more efficient natural casing production

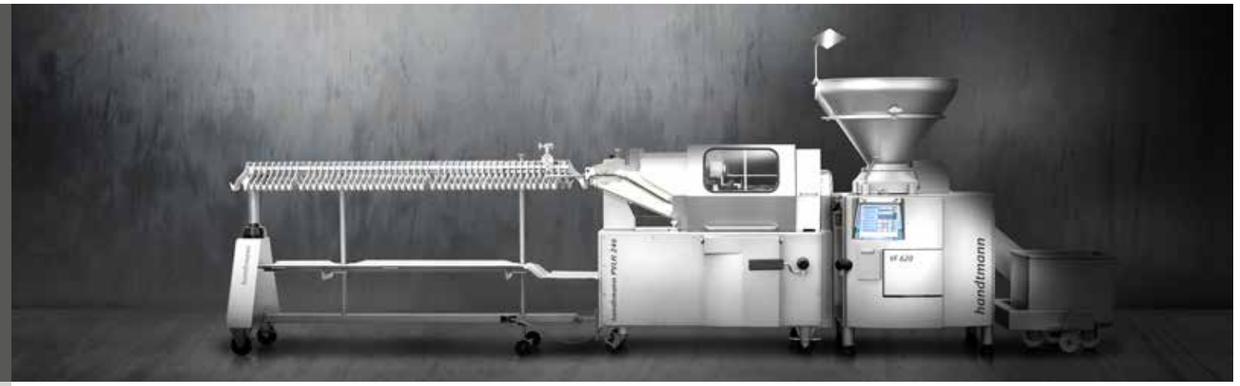
PROCESS RELIABILITY

→ High level of system availability and reliability
→ Reliability ensures the cost-effectiveness of the entire process
→ Perfect hygiene conditions due to a reduction in manual intervention
→ Reliable module in complex production line solutions

ERGONOMICS

→ Simple cleaning and exemplary hygiene
→ Good ergonomics for simple and fatigue-free operation
→ User-friendliness due to machine setup assistant:
based on product details such as weight, length, casing type, etc., the MSA automatically generates a suggestion for the equipment and parameter settings of the machines and calculates the effective output to be expected. The advantages in daily use are the automatic calculation of parameters, the identification of best practise values with respect to optimum machine settings, help for the operator when converting the machine and the reproducibility of high production standards due to consistent product settings and practical machine equipment.
→ Easy operation and optimum handling provide support for inexperienced operators

	Module	PLH 216	PVLH 226	PVLH 228	PVLH 241	PVLH 246	FPVLH 242	PLS 115	PVLS 125	PVLS 143	PLSH 217	PVLSH 229
F	Filling						•					
P	Portioning	•	•	•	•	•	•	•	•	•	•	•
V	Voiding		•	•	•	•	•		•	•		•
L	Equal lengths	•	•	•	•	•	•	•	•	•	•	•
S	Cutting							•	•	•	•	•
H	Hanging	•	•	•	•	•	•				•	•



Product overview

Models and functions at a glance

The AL system portfolio has the right model for every production requirement: from the automatic sausage production entry-level model to the high-performance model for fully-automatic single-product production, such as hot dogs.
Whether it be CUTTING or HANGING (or both), manual or automatic casing spooling (or both).

System	Module and functions	Performance data
PLH 216 	**Hanging line with manual casing spooling** • Portioning–Equal lengths–Hanging • Natural, collagen and artificial casing • Manual casing change	• Up to 700 portions/min. in natural casing* • All casing types cal. 13 to 50 mm • Portion length from 25 mm
PVLH 226 	**Portioning with voider and semi-automatic casing change** • Portioning–Voiding–Equal lengths–Hanging • Natural, collagen and artificial casing • Semi-automatic casing change with 1 linking nozzle	• Up to 2,000 portions/min. • Up to 1,000 portions/min. in natural casing* • All casing types cal. 13 to 50 mm • Portion length from 25 mm
PVLH 228 	**Portioning with voider and 2-nozzle revolver** • Portioning–Voiding–Equal lengths–Hanging • Natural, collagen and artificial casing • Semi-automatic casing change with 2 linking nozzles	• Up to 2,000 portions/min. • Up to 1,000 portions/min. in natural casing* • All casing types cal. 13 to 50 mm • Portion length from 25 mm
PVLH 241 	**Fully-automatic hanging line with automatic casing change** • Portioning–Voiding–Equal lengths–Hanging • Collagen and artificial casing • Fully-automatic casing spooling with 1 linking nozzle	• Up to 2,500 portions/min. • Cal. 13 to 50 mm • Portion length from 25 mm
PVLH 246 	**Fully-automatic hanging line with 3-nozzle revolver** • Portioning–Voiding–Equal lengths–Hanging • Natural, collagen and artificial casing • Fully-automatic casing spooling with 3-nozzle revolver(semi-automatic for natural casings)	• Up to 2,500 portions/min. • Up to 1,000 portions/min. in natural casing* • All casing types cal. 13 to 50 mm • Portion length from 25 mm

*depending on casing quality

System	Module and functions	Performance data
FPVLH 242 	**Filling and hanging line with automatic casing change** • Filling–Portioning–Voiding-Equal lengths–Hanging • Collagen and artificial casing • Fully-automatic casing spooling with 1 linking nozzle	• Up to 3,000 portions/min. • Cal. 13 to 34 mm • Portion length from 25 mm • Filling capacity 4,000 l/h • Filling pressure max. 35 bar
PLS 115 	**Cutting line with manual casing spooling** • Portioning–Equal lengths–Cutting • Natural and collagen casing • Manual casing change	• Up to 700 portions/min. in natural casing* • All casing types cal. 13 to 34 mm • Portion length from 40 mm
PVLS 125 	**Portioning with voider and casing change with 2-nozzle revolver** • Portioning–Voiding–Equal lengths–Cutting • Natural and collagen casing • Semi-automatic casing change with 2-nozzle revolver and 2 linking nozzles	• Up to 1,500 portions/min. • Up to 1,000 portions/min. in natural casing* • All casing types cal. 13 to 40 mm • Portion length from 40 mm
PVLS 143 	**Fully-automatic cutting line with 3-nozzle revolver** • Portioning–Voiding–Equal lengths–Cutting • Natural and collagen casing • Fully-automatic casing spooling with 3-nozzle revolver (semi-automatic for natural casings)	• Up to 1,500 portions/min. • Up to 1,000 portions/min. in natural casing* • All casing types cal. 13 to 40 mm • Portion length from 40 mm
PLSH 217 	**Flexible solution for hanging or cutting** • Portioning–Equal lengths–Cutting or Hanging • Hanging: natural, collagen and artificial casing Separating: natural and collagen casing • Manual casing change	• Up to 700 portions/min. in natural casing* • All casing types cal. 13 to 34 mm • Portion length from 40 mm
PVLSH 229 	**Flexible solution for hanging or cutting** **Portioning with voider and 2-nozzle revolver** • Portioning–Voiding–Equal lengths–Cutting or Hanging • Hanging: natural, collagen and artificial casing Separating: natural and collagen casing • Semi-automatic casing change with 2-nozzle revolver and 2 linking nozzles	• Up to 2,000 portions/min. • Up to 1,000 portions/min. in natural casing* • Up to 1,500 portions/min. with cutting • All casing types cal. 13 to 40 mm • Portion length, hanging, from 30 mm separating from 40 mm

*depending on casing quality

Product diversity thanks to auxiliary devices

Flexible combination and synchronisation

The Handtmann sausage filling lines are powerful, flexible systems. Together with various auxiliary devices and options, these lines guarantee an extremely wide range of products. It is possible to operate them as a stand-alone production unit or to integrate them into system solutions. With the monitor control system of the vacuum filler as the central controller component, even complex production processes can be mastered with confidence.

Module	Product examples		
Clipper 	Clippers are easy to attach to the hanging unit.		
GD 93-3 inline grinding system 	Integrated inline grinding system for the production of dry or fresh sausages. Grinding the product to its final grain size and simultaneously portioning it in one process step.		
DA 78-6 casing spooling device 	Casing spooling device for easy manual spooling of natural casings, from small-calibre sheep's casing to beef rings.		
PCH system 	Continuous process thanks to fully-automatic clipping and hanging of half rings and whole rings in artificial, fibrous and collagen casing. Modular line solution comprising a vacuum filler, AL hanging line and Poly-clip FCA 3430 H.		

HCU software

Tool for planning, controlling, monitoring and optimising production

The market environment for modern food processing plants today is characterised by cost pressure, a highly dynamic approach and complexity. High demands are placed on production managers, in particular by executive managers, the sales department and quality assurance. But the conditions are not always straightforward. As an intelligent control tool, the HCU software solution supports production managers in planning, documenting and organising the filling department.

Production data recording for perfect process analysis

Batch tracking, accurate documentation of production for each filling line and recording down-times ensure 100 % traceability, reveal weak points and thus provide information on the potential for savings. It is possible to improve production capacity utilisation in a targeted way due to the transparency and direct comparability of the filling lines.

Automatic weight control for reduced costs

The integration of a weighing system is another tool aimed at production and cost optimisation with the HCU. Checkweighers linked to the network are used for an on-going target/actual value comparison of the set values and the measured weights. A trend calculation tunes the Handtmann filling lines that are also connected to the network. The system then automatically adjusts the portion weight. This results in significant cost savings due to less overfilling.

Production planning made easy

The HCU tool for planning and transferring production volumes to the production lines. Production line availability, the number of operators and the type of product being filled are automatically taken into consideration. The order list is transferred to the vacuum filler control system easily and centrally with just a click of the mouse.

For further information, see the HCU brochure.

Increase in efficiency thanks to product handling

AL systems as a module for complex automation solutions

Product handling systems from Handtmann stand for automation and increased efficiency. The modularity and flexibility of the AL systems enable them to be integrated reliably into complex production processes. Be it with downstream process steps, such as collating, grabbing, feeding and depositing, or fully-automatic robot solutions for industrial producers – productivity, food safety, high economic efficiency and reproducible quality standards are ensured.

	GS 300 collating system	GS 301 collating system
Modules	• GM 310 collating module • ZB 311 feed belt • INTRAY tray denester	• GM 310 collating module • GB 320 collating belt
Applications	Collating system for fresh sausage directly into trays for alginate, natural and collagen casing	Collating system for fresh sausage pre-grouped onto the collating belt for alginate, natural and collagen casing (depending on the product). Manual depositing into trays or thermo-forming systems.
Performance data	**Natural casing** • Portioning speed up to 400 portions/min. • Casing calibre 15 to 32 mm • Portion length 80 to 310 mm **Collagen casing** • Portioning speed up to 420 portions/min. (singles) up to 600 portions/min. (pairs) • Casing calibre 13 to 32 mm • Portion length 80 to 310 mm	**Natural casing** • Portioning speed up to 400 portions/min. • Casing calibre 15 to 32 mm • Portion length 80 to 300 mm **Collagen casing** • Portioning speed up to 400 portions/min. • Casing calibre 13 to 32 mm • Portion length 80 to 400 mm
Bild		

	GS 302 collating system	AST 340 automatic smoke stick transfer unit
Modules	• GM 310 collating module • GB 322 collating belt • ER 330 loading robot	• VF 600 • PVLH 241 or FPVLH 242 AL system with hanging unit • AST 340 automatic smoke stick transfer unit
Applications	Collating system for fresh sausage for depositing into thermo-forming systems for alginate, natural and collagen casing (depending on the product)	Robot system for automatically hanging smoke sticks with strings of sausages and depositing them into smoking trolleys
Performance data	**Natural casing** • Portioning speed up to 360 portions/min. • Casing calibre 15 to 32 mm • Portion length 80 to 220 mm **Collagen casing** • Portioning speed up to 360 portions/min. • Casing calibre 13 to 32 mm • Portion length 80 to 220 mm	**Artificial and collagen casing** • Loading: 2 smoking trolleys • Output: max. 6 smoke sticks/min. • Smoke stick lengths 995 to 1,010 mm • Smoking trolley width 900 mm to 1,050 mm Smoking trolley length 950 mm to 1,200 mm • Casing calibre 13 to 50 mm