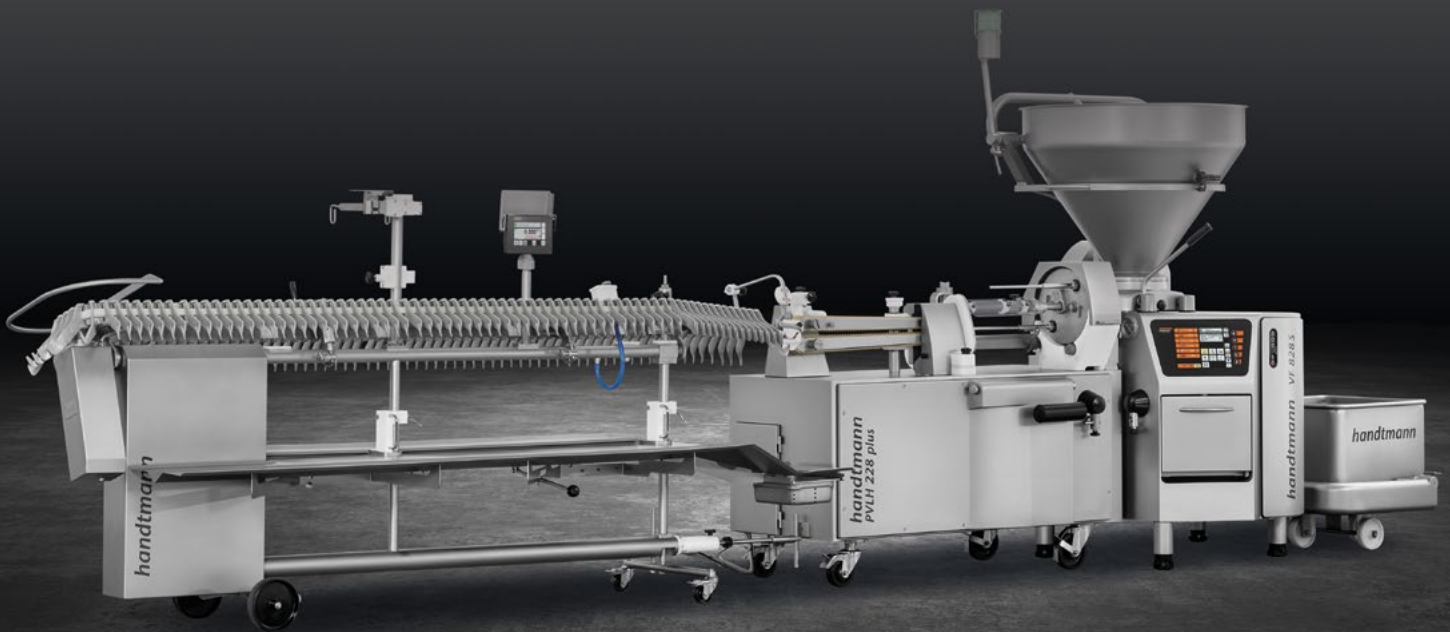
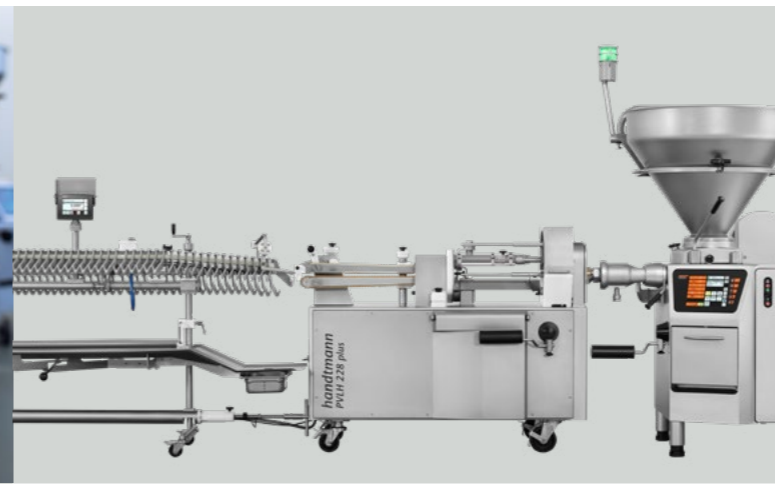


SAUSAGE PRODUCTION WITH AL SYSTEMS

For natural, collagen and artificial casing products





VERSATILITY WITH ALL TYPES OF CASING

Flexibility and efficiency in 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 further 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. Slugs are fed 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.



↑ Separating with 2-belt solution and sensor



↑ Casing magazine



↑ Manual casing spooling with semi-automatic casing change function

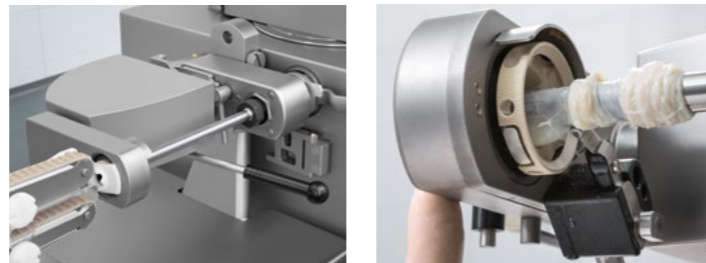
EXTREMELY SHORT CASING CHANGE TIMES FOR MAXIMUM PRODUCTIVITY

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.

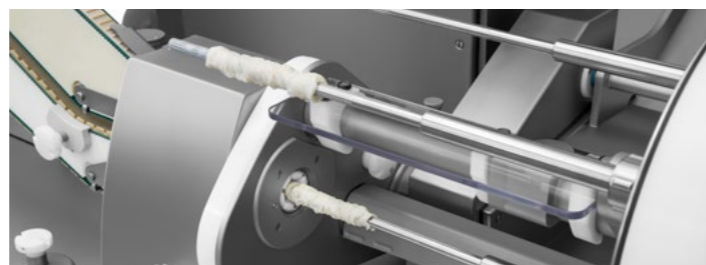


2. Semi-automatic casing change

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.

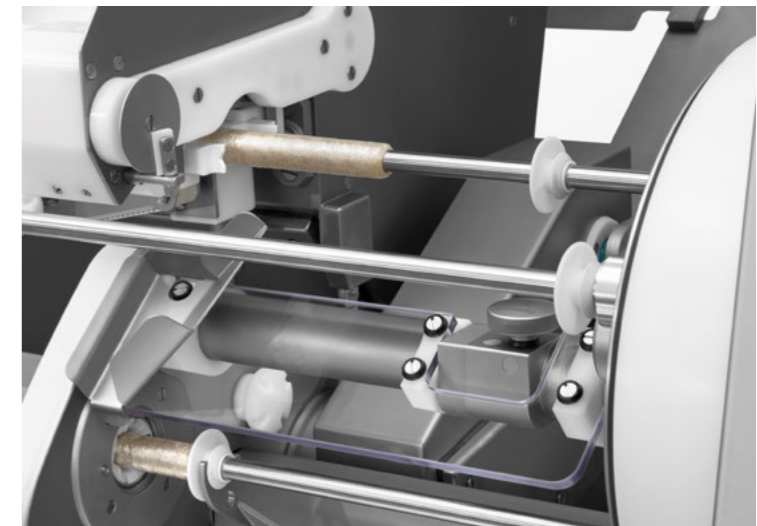


Casing change with 2 or 3-nozzle revolving head: While production continues with one linking nozzle, the next casing can already be spooled onto the second linking nozzle. To change the casing, the operator then uses the two-handed operating unit. The revolving head tilts and moves linearly into filling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

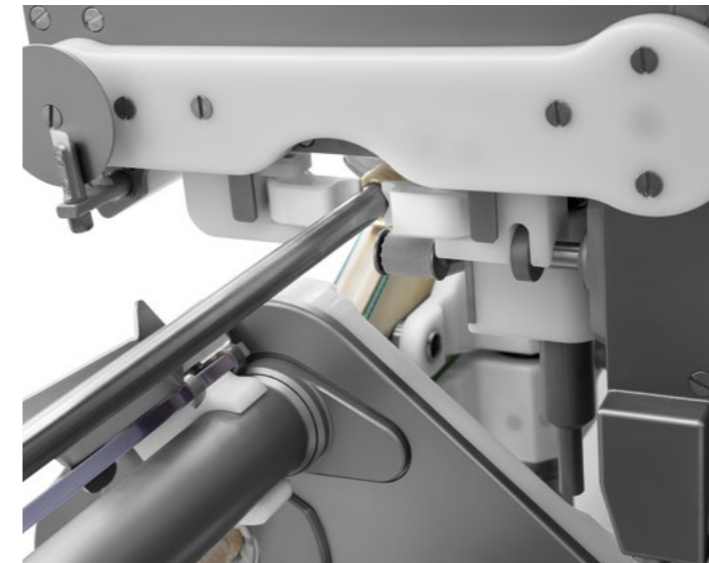


3. Fully automatic casing change

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 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.



3. 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.

4. 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.



5. 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 strings of any desired length.



6. 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 full utilisation of smoking and cooking systems, 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
- Easy operation and optimum handling provide support for inexperienced operators

DIGITAL SOLUTIONS

- Added value in sausage production thanks to digital solutions (HDS). From the individual solution to production networking

AUTOMATION OPTIONS

- Downstream automation solutions from smoke stick handling through to automatic depositing of fresh products into trays



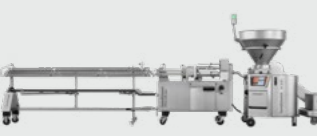


Module	PLH 216	PVLH 226	PVLH 228 plus	PVLH 241	PVLH 246	FPVLH 242	PLS 115	PVLS 125 plus	PVLS 143	PLSH 217	PVLSH 229 plus
F Filling						•					
P Portioning	•	•	•	•	•	•	•	•	•	•	•
V Voiding		•	•	•	•	•		•	•		•
L Equal lengths	•	•	•	•	•	•	•	•	•	•	•
S Cutting							•	•	•	•	•
H Hanging	•	•	•	•	•	•				•	•









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 <ul style="list-style-type: none"> Portioning – equal lengths – hanging Natural, collagen and artificial casing Manual casing change 	<ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Portioning – voiding – equal lengths – hanging Natural, collagen and artificial casing Semi-automatic casing change with 1 linking nozzle 	<ul style="list-style-type: none"> 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 plus 	Portioning with voider and 2-nozzle revolver <ul style="list-style-type: none"> Portioning – voiding – equal lengths – hanging Natural, collagen and artificial casing Semi-automatic casing change with 2 linking nozzles 	<ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Portioning – voiding – equal lengths – hanging Collagen and artificial casing Fully automatic casing spooling with 1 linking nozzle 	<ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Portioning – voiding – equal lengths – hanging Natural, collagen and artificial casing Fully automatic casing spooling with 3-nozzle revolver (semi-automatic for natural casing) 	<ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Filling – portioning – voiding – equal lengths – hanging Collagen and artificial casing Fully automatic casing spooling with 1 linking nozzle 	<ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Portioning – equal lengths – cutting Natural and collagen casing Manual casing change 	<ul style="list-style-type: none"> Up to 700 portions/min. in natural casing* All casing types cal. 13 to 34 mm Portion length from 40 mm
PVLS 125 plus 	Portioning with voider and casing change with 2-nozzle revolver <ul style="list-style-type: none"> Portioning – voiding – equal lengths – cutting Natural and collagen casing Semi-automatic casing change with 2-nozzle revolver and 2 linking nozzles 	<ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Portioning – voiding – equal lengths – cutting Natural and collagen casing Fully automatic casing spooling with 3-nozzle revolver (semi-automatic for natural casing) With optional hanging function 	<ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Portioning – equal lengths – cutting or hanging Hanging: natural, collagen and artificial casing Separating: natural and collagen casing Manual casing change 	<ul style="list-style-type: none"> Up to 700 portions/min. in natural casing* All casing types cal. 13 to 34 mm Portion length from 40 mm
PVLSH 229 plus 	Flexible solution for hanging or cutting Portioning with voider and 2-nozzle revolver <ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 in 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.

Auxiliary devices

GD 451 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



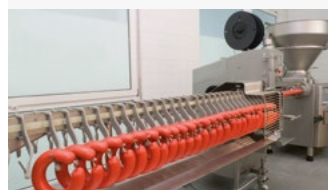
Casing spooling device for easy manual spooling of natural casings, from small-calibre sheep's casing to beef rings.

PTH



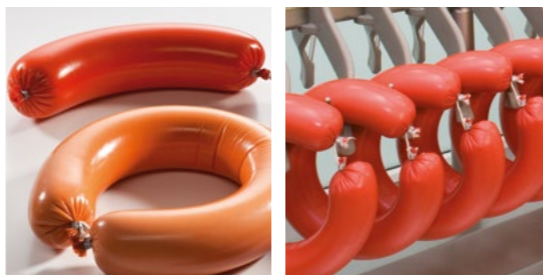
Automatic turnkey solution for portioning, tying and hanging sausages in natural casing, comprising a Handtmann portioning and hanging line and Inotec IGS2-iT tying technology.

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 100.

Product examples



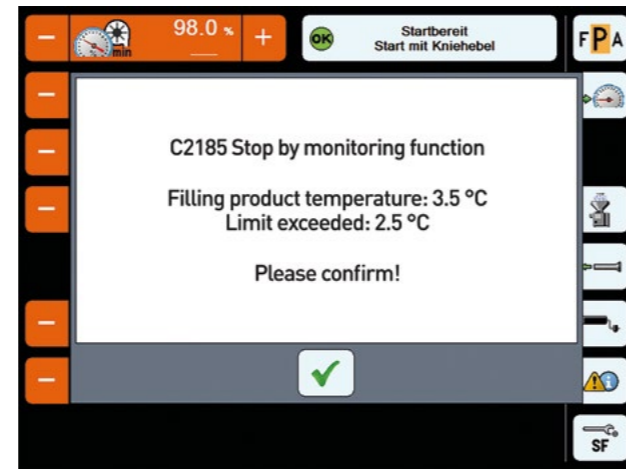
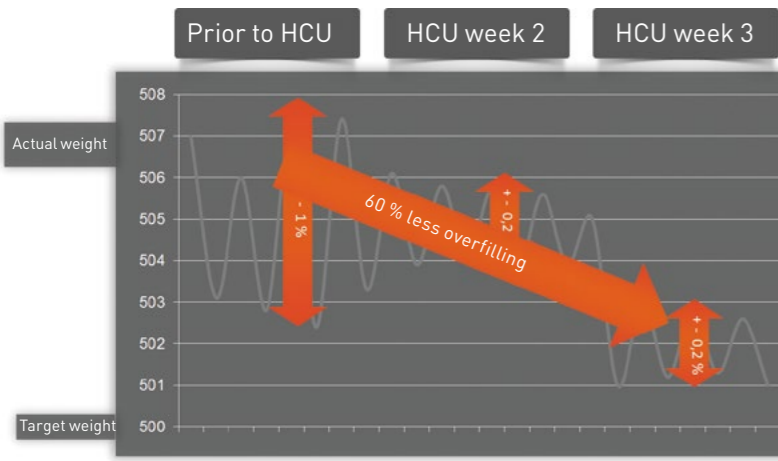
INCREASE IN EFFICIENCY DUE TO PRODUCT HANDLING

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, gripping, feeding and depositing, or fully automatic robot solutions for industrial producers: productivity, food safety, a high degree of economic efficiency and reproducible quality standards are ensured.

You can find detailed information about the Handtmann automation solutions in the brochures "Product handling – GS 300 collating system" and "AST 340 automatic smoke stick transfer unit".





HANDTMANN DIGITAL SOLUTIONS

Individual solutions. Networking software. Service cloud solution.



HCU

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

HCU (Handtmann Communication Unit) is state-of-the-art production networking. A unique tool for controlling, monitoring and optimising production. It reduces the work of the company management team, quality assurance and the production management in the face of cost pressure, greater dynamics and complexity.

Advantages:

- + Efficient tool that relieves production planning, monitoring and control
- + Graphically supported production planning with quantity distribution and transfer to production lines
- + Accurate weights thanks to automatic weight control
- + Significantly reduced costs due to less overfilling
- + Automatic data recording with graphically supported evaluation and easy weak point analysis



HMF

HANDTMANN MONITORING FUNCTIONS
Automatic parameter monitoring to avoid misproduction

Rejects are often only discovered after completion of the product. The delay between filling process and quality control often results in a large and correspondingly expensive quantity of rejects. The Handtmann Monitoring Function (HMF) indicates already during production that parameters are outside the permissible range. This helps optimising your economic efficiency.

Advantages:

- + Definition of upper and lower limits for different parameters, e.g. vacuum, filling product temperature, pressure and other parameters
- + Automatic machine stop when parameters are exceeded or undercut



HMC

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

The new Handtmann Machine Cockpit (HMC) stores defined data such as operating hours, pressure curves, error messages and machine status in the Handtmann Cloud. An up-to-date overview is thus also available on mobile devices anywhere and anytime – almost in real time! Critical information such as due date of the next maintenance are not only available to the customer but also to the Handtmann contact responsible for service scheduling. Machines that are maintained in good time help avoid unplanned downtimes and keep operating costs low.

Advantages:

- + Service support
- + Enhanced maintenance planning and troubleshooting
- + Increase of machine availability



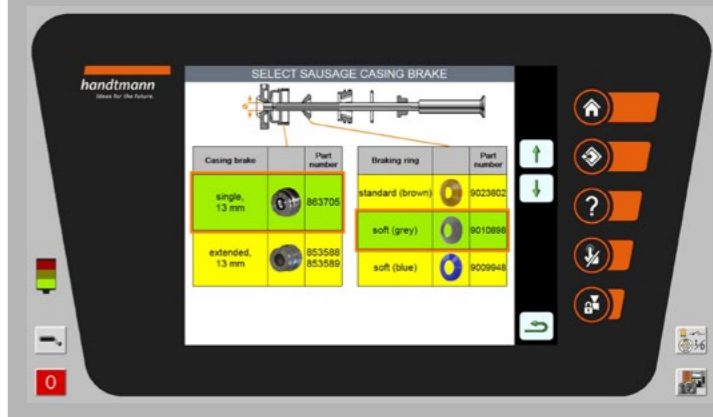
MSA

MACHINE SETUP ASSISTANT
Assistant for simple setup including recommendation of mould components

Based on product information such as weight, length casing type, etc. the Machine Setup Assistant (MSA) automatically proposes equipment options and parameter setting for the machines. The machine control system thus provides optimum support for new or inexperienced operators.

Advantages:

- + Safe machine start guaranteed
- + Calculation of setting and equipment parameters (a plus for inexperienced operators)





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