

Engineered to last - Always fit for use

FIRST IN BISCUIT FEEDING

HOUDIJK HOLLAND



First in biscuit feeding

Houdijk has been at the forefront of biscuit feeding for the last 55 years. Its mission and focus was, is and will be: First in Biscuit Feeding. With recent developments like the VISION SELECTOR™, the HOUDIJK CAPPER™, the FLEX-SKIPPER™ piling system and the INFLOW™ product buffer system, Houdijk is setting new standards for high speed biscuit feeding - in combination with a low cost of ownership, hygienic designs and vertical start-up.

More developments are on the way, giving you the opportunity to implement truly automated packaging lines, for (sandwich) biscuits, cookies or crackers, in slugs, piles or trays.

Increasing competition is forcing each biscuit producer to continuously focus on product innovation and higher production capacities. Product to market must be minimized and the production process must be as efficient as possible.

It is this combination of factors which defines Houdijk's role in serving you to the best of its creative abilities and which will determine your success.

ENGINEERED TO LAST - ALWAYS FIT FOR USE
Our systems are designed on the basis of our Houdijk Design Vision.

This Design Vision includes a strong focus on the following aspects:

1. Simple to operate
2. POKA YOKE change-overs
3. Operator safety
4. Easy to clean
5. Maintenance prevention
6. Straightforward operator & maintenance tutorials

With this brochure we would like to introduce you to our systems, to our Design Vision and to our greatest passion: your product.

Bart Houdijk - CEO & Owner

I am Bart Houdijk, since 1987 the third generation to lead this family-owned company. My grandfather founded the company in 1922. In 1962 my father developed Houdijk's first biscuit application. In 1990 I decided Houdijk should focus on biscuit and cracker feeding applications only. In the subsequent years we developed numerous systems for handling cookies, crackers and biscuits. This focus is ever present as we develop our company to meet the challenges of the future. High speed biscuit feeding technology in combination with our new Design Vision to build even better, user-friendly solutions ensures that our systems are **Engineered to last - Always fit for use** and will meet your highest performance expectations.



Product quality inspection

By eliminating out of specification products prior to handling, the number of potential jams is minimized and interference from operators is scaled down. To maximize overall line efficiency, Houdijk offers two types of up-front product inspection systems.

BISCUIT SELECTOR™

The BISCUIT SELECTOR™ discharges products on:

- rotary cut cracker lines, which are not properly cut and still connected.
- rotary mould biscuit lines, which are length wise jointed together and still connected.

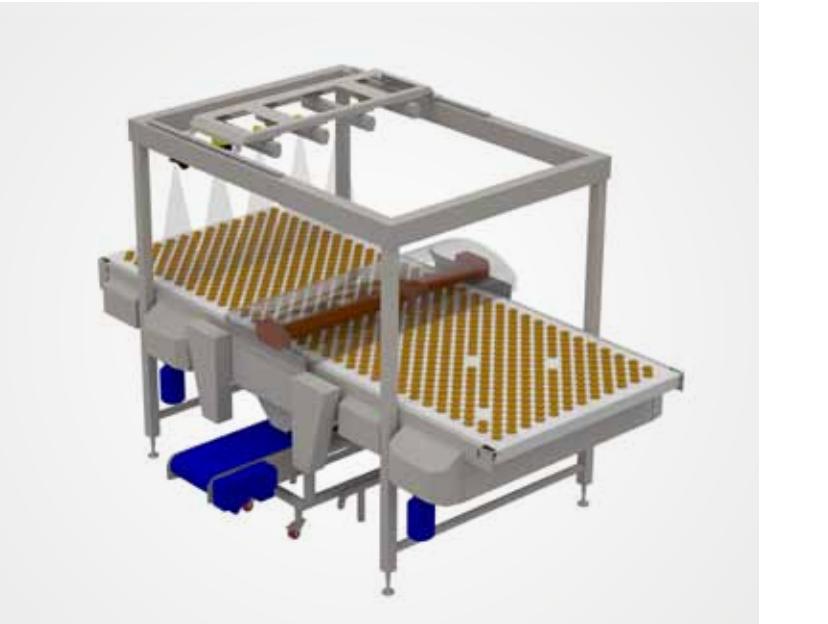
The system includes an automatic crusher system for the discharged products and is easily adjustable for different product sizes. When activated, the selector can also be used as an emergency exit.



VISION SELECTOR™

The VISION SELECTOR™ inspects each individual product by means of a 3D colour vision system.

The system can check size, shape, colour and position. Out of specification products are rejected by means of the individual product reject system.



HOUDIJK CAPPER™

In the HOUDIJK CAPPER™ two technologies meet: base cake handling & cream preparation and depositing. Houdijk offers a turnkey solution with market leading technologies. The HOUDIJK CAPPER™ is a state of the art system, in which the design is focused to maximize:

- overall performance & efficiency
- repeatability of all settings for product changeovers
- operator friendliness
- overall system safety
- uncompromised food safety standards

SYSTEM INTEGRATION

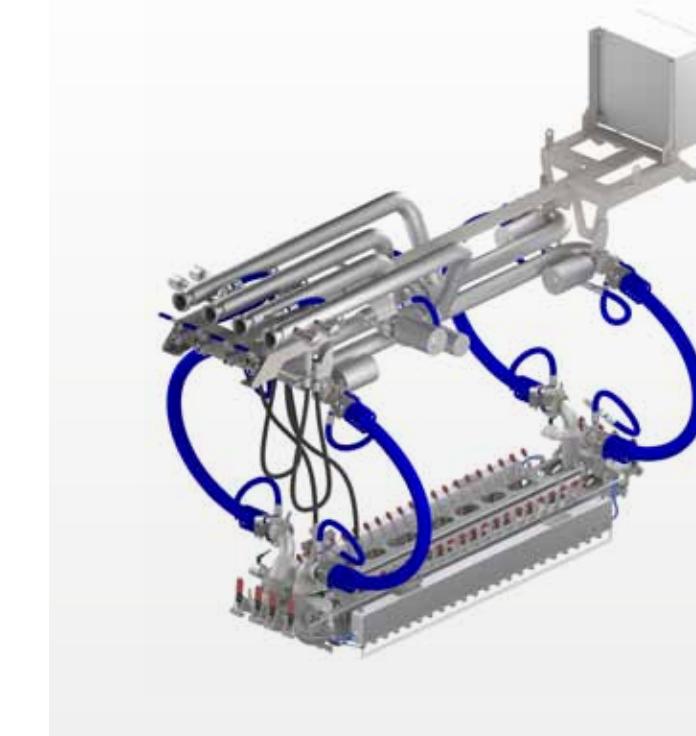
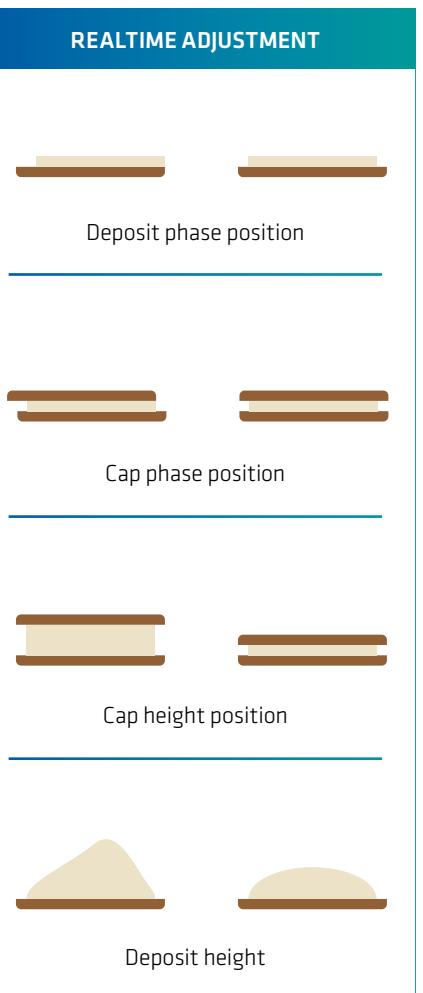
The HOUDIJK CAPPER™ system combines two technologies, base cake handling & cream preparation/depositing, resulting in high quality sandwich products. Many features are standard integrated to guarantee a flawless running system. The HOUDIJK CAPPER™ system features an integrated deposit material supply and, if applicable, a return flow. Together with a temperature controlled manifold it assures an accurate deposit.

The deposit material preparation system is the responsibility of a third party premium vendor. Houdijk defines the system performance by clearly defining requirement specification, guaranteeing a steep start up curve, quickly to a high output of commercial production and high efficiency operation.

EFFICIENCY AND CONTROL

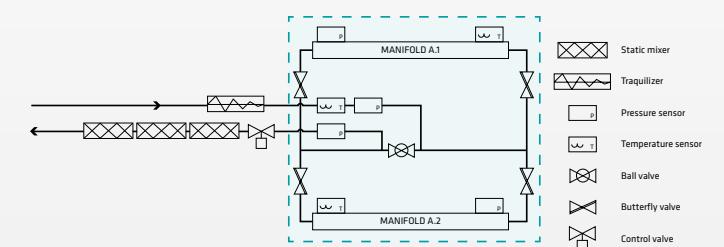
The HOUDIJK CAPPER™ in its base execution offers operation by one operator only and accomplishes a high efficiency and production output:

- A vision system controls the base cake accumulation section.
- When a low level is detected in a base cake lane, automatically a PIANOSTOPPER is activated to prevent that the lane runs empty. It also ensures synchronized release of the lane, when minimum level has reached.
- The second vision system manages the No-Product-No-Drop function.
- The Manifold Supply Module assures automatic material flow during all operating conditions.
- The HOUDIJK MANIFOLD™ assures accurate and reliable depositing across the belt.
- All drives in the system are servo controlled and settings are recipe controlled via the HMI.
- The operation takes place via a clear and operator friendly HMI touch screen, which assures a constant and repeatable performance.
- All size related parts are POKA YOKE executed, making a size exchange easy and repeatable. All size parts come with a fixed, engineered setting.
- The system is executed with a pull nose at the entry, to relax infeed when required and a pull nose at the discharge, enabling the operator to only transfer product within specification to the downstream equipment.
- The system comes with a main conveyor belt washer



MANIFOLD SUPPLY MODULE

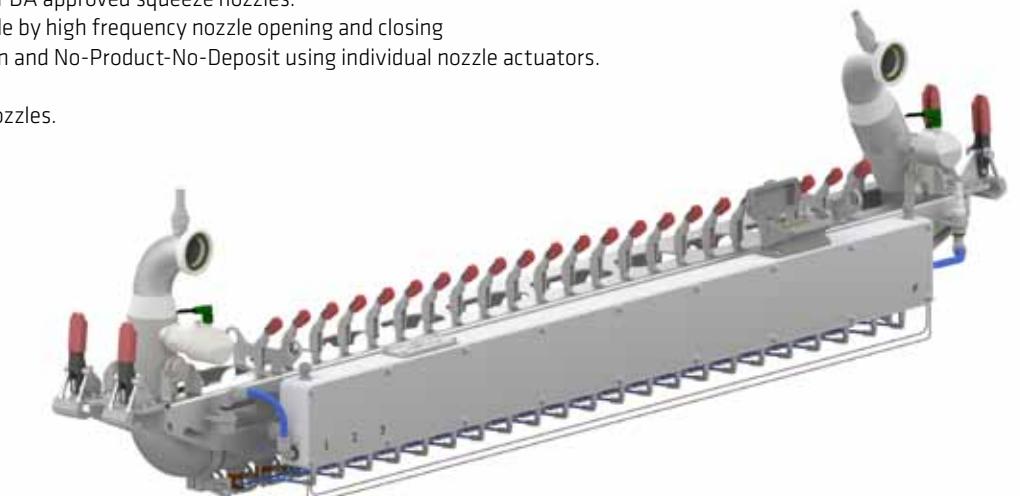
The HOUDIJK CAPPER™ is executed with a deposit material Manifold Supply Module, suitable to handle (aerated) fat cream, marsh mellow, jam and chocolate. The integrated module is executed with all features like temperature-, pressure detection, automatic flow regulation, either supplying deposit material to the manifold or to return, depending on the condition of the material and the operating condition of the HOUDIJK CAPPER™.



HOUDIJK MANIFOLD™

The HOUDIJK CAPPER™ features the patented and revolutionary designed HOUDIJK MANIFOLD™.

- Suitable for fat cream, mellow, jam, chocolate or combinations of these.
- Weight control by precise nozzle timing adjustable through the HMI.
- Suitable for sugar abrasive deposit materials or deposit materials with large inclusions.
- Optimal product distribution through product infeed at both ends of the single or double row jacketed manifold.
- Precise pressure detection by HMI monitored sensors on the manifold.
- Highly accurate dosing using FDA approved squeeze nozzles.
- Different deposits are possible by high frequency nozzle opening and closing
- Fast individual nozzle reaction and No-Product-No-Drop using individual nozzle actuators.
- No mechanical moving parts
- Quick and easy replaceable nozzles.

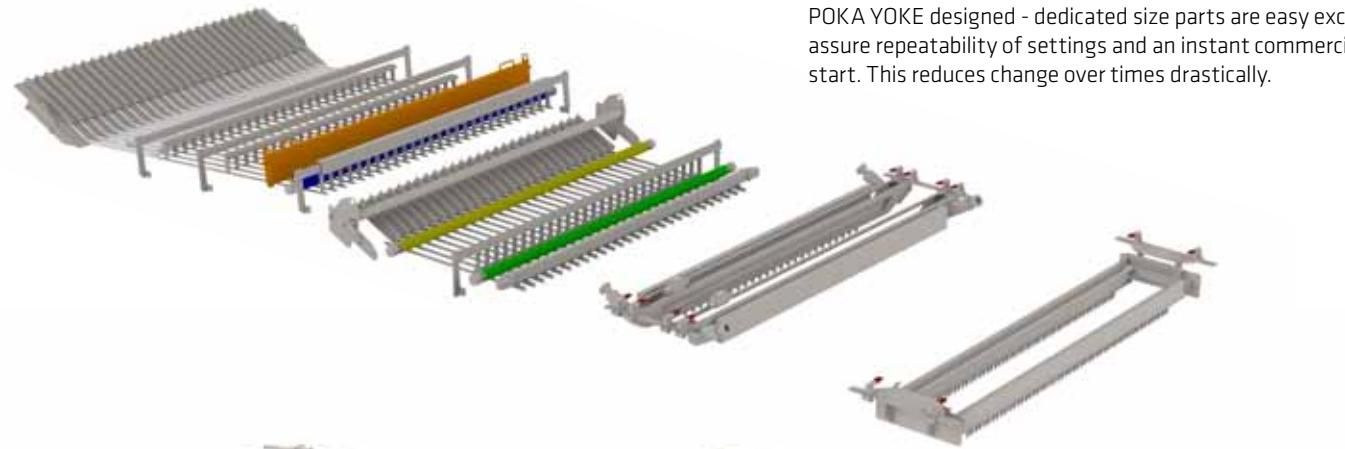


MODULAR DESIGN

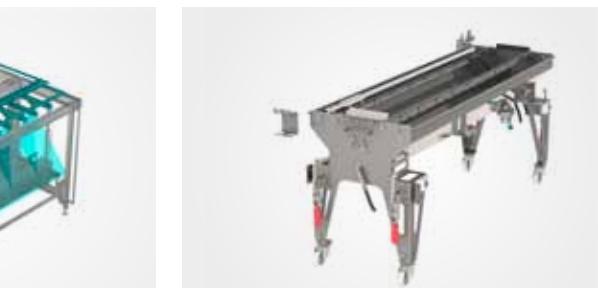
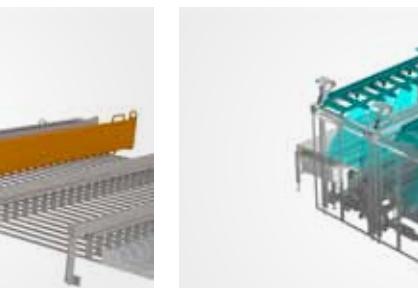
The HOUDIJK CAPPER™ has a modular design. The system can be composed of modules to configure the right solution for present and future requirements.

A HOUDIJK CAPPER™ can be built out of the following elements:

- Capping and depositing station(s), whereby sequence of depositing and capping can be altered as required.
- Possible to leave empty area(s) for another third party supplied functionality.
- Available in 1.200, 1.400, 1.600, 1.800 and 2.000 mm working widths.
- Other specific options to enhance overall performance.



Features:



CHANGE OVER

The HOUDIJK CAPPER™ is a flexible system, designed to allow a variety of differently composed sandwich products to be produced. The - POKA YOKE designed - dedicated size parts are easy exchangeable to assure repeatability of settings and an instant commercial production start. This reduces change over times drastically.

CLEANING

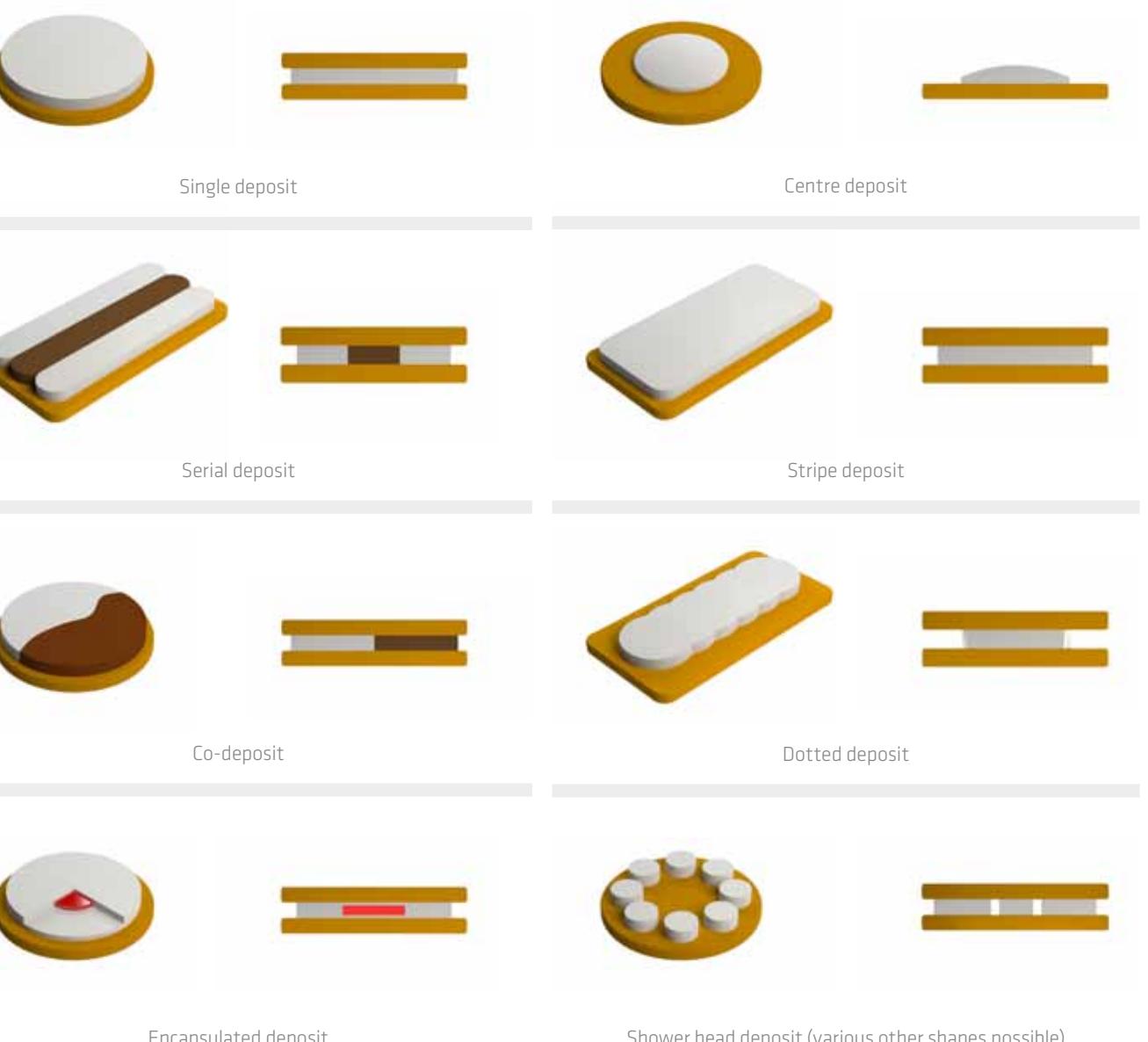
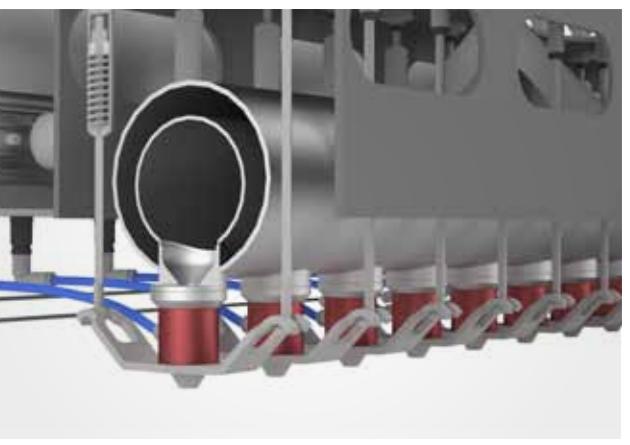
The system is designed for easy cleaning assuring a food safe environment and meets high hygiene standards. The kitchen and piping can be cleaned using a CIP system.

Houdijk offers a COP trolley - featuring a HMI enabling various cleaning scenarios - for cleaning the HOUDIJK MANIFOLD™ off line, which makes it possible to reduce downtime of the HOUDIJK CAPPER™ system considerably.



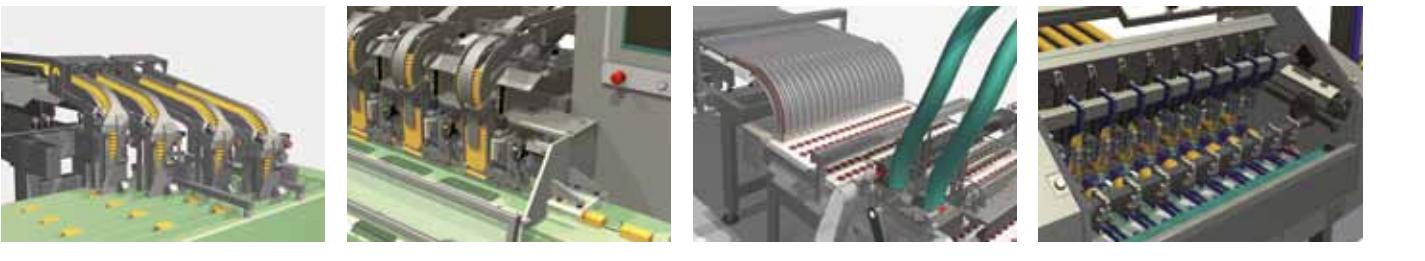
The HOUDIJK CAPPER™ can realize a wide range of deposits with one or multiple cream, jam, marshmallow or chocolate configurations.

- With the individual nozzle control multi shot deposits can be realized for the best possible cream distribution over the full surface of a rectangular or oblong shaped base cake.
- By using special equipped HOUDIJK MANIFOLD™ technology, two creams can be deposited in a single shot creating a co- or encapsulated-deposit.
- By using multiple delta robots, creams with a different dosing temperature can be deposited on the base cake.
- By changing the nozzle of the HOUDIJK MANIFOLD™, many deposit shapes can be realized like the shower head deposit.
- The motion of the delta robot is highly dynamic for an optimum deposit.



Handling

Handling of biscuits, base cakes or crackers often starts with regimented product coming from the oven/cooling conveyor. Houdijk engineers product handling solutions to connect the oven with many different applications, including:

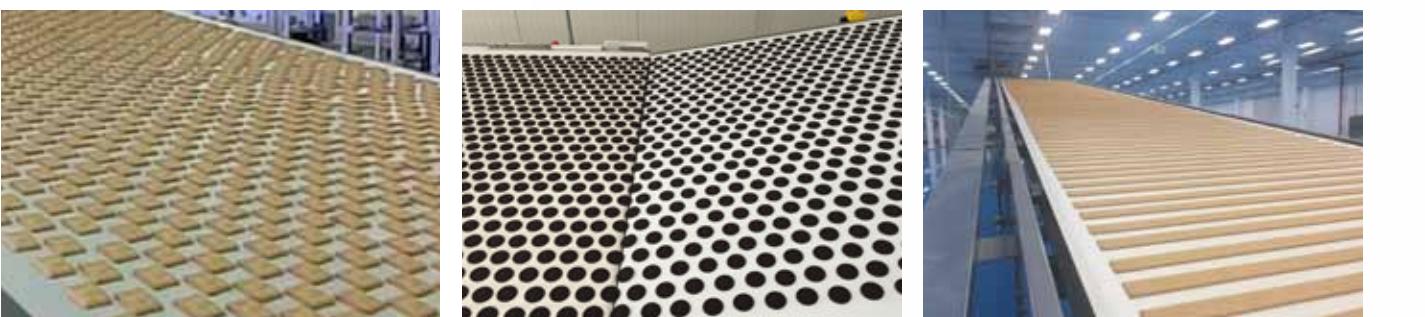


MAIN COMPONENTS OF THE SYSTEM

A typical handling line consists of the following functions:

- Receiving and guiding of incoming product via a dribble board and conveyors.
- Inverting of products by a dribble board e.g. when feeding stencil creamer.
- Lane expansion or reduction by air pulse manipulation.
- Individual lane reject when reaching maximum buffer levels, minimizing good product loss.
- Stacking (shingling) either using a penny-stacking flip roller or a rotary-stacker.
- Vibratory conveyor track offering real automatic buffer time in case of a downstream stop.
- Line control by centralized operating system.
- Lane expansion of stacked products by STRIPPER™

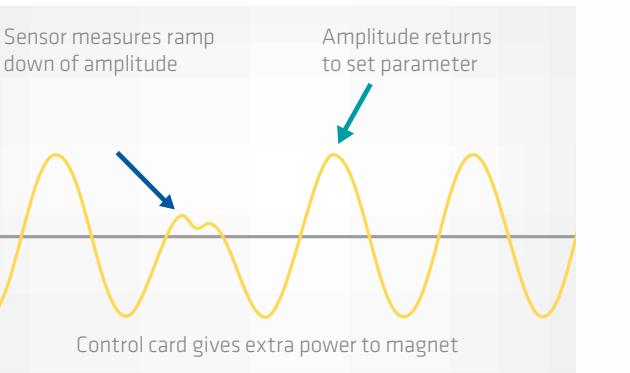
Supply patterns:



VIBRATORY PRODUCT BUFFER TRACK

Houdijk's proprietary vibratory feeding offers a unique design with real buffer time, featuring:

- One drive per section provides easy synchronization and speed set-up between the different sections of the complete system.
- Dynamic flow and back pressure control through PLC controlled contact free level sensors.
- Amplitude feedback to guarantee a constant speed during the life cycle of the spring package.
- Very even distribution of the vibrations over the product tracks of the system.
- One fit only design for easy maintenance as spring packets can be mounted separately, enabling a stress free assembly of the springs.
- Optional: quick change of tracks for easy changeover for different product dimensions and shapes.



FEEDING FROM BULK

Infeed system to depositor/capping system in case products require offline conditioning. The products are supplied in bulk and manually fed into a hopper. The Houdijk handling system brings the products in lanes, stacks and feed them into magazines which feed the downstream equipment. Optionally the system can be executed with camera control system and a flipping system to load the biscuits with the correct orientation (top/bottom).

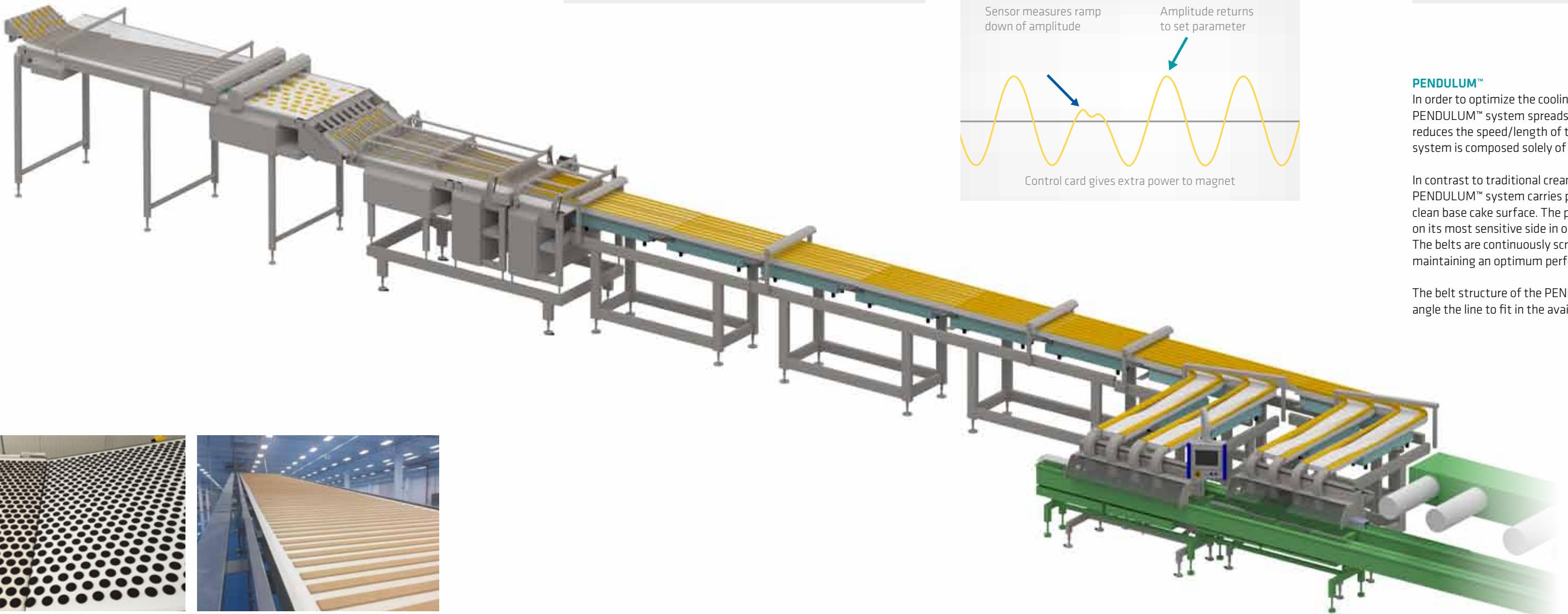
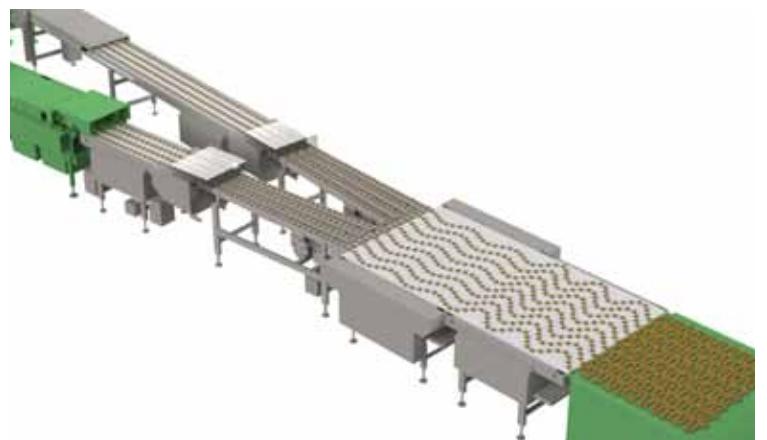


PENDULUM™

In order to optimize the cooling of creamed product, the PENDULUM™ system spreads the sandwich flow and reduces the speed/length of the cooling conveyor. The system is composed solely of conveyors.

In contrast to traditional creamer multipliers the PENDULUM™ system carries products on the stable and clean base cake surface. The product remains untouched on its most sensitive side in order to manipulate the lane. The belts are continuously scraped and are easy to clean, maintaining an optimum performing condition.

The belt structure of the PENDULUM™ can be used to angle the line to fit in the available space of the factory.



Sanitation

Houdijk's systems are specifically designed to allow an operator to ergonomically reach all product lanes of the system. To maintain the system, the HMI provides valuable information to personnel about the condition of the system like the belt tracking management system.

All parts are easy accessible for maintenance and cleaning purposes. Conveyor belts are continuously scraped to keep the surface clean and to maintain line performance. Residue is collected in crumb trays positioned under the scraper to keep the system area clean. Belt tension can be released for wet cleaning and drying.

Dribble boards and side guide structures are executed in liftable and/or in removable ergonomically designed sections. This allows easy access to conveyor belts for cleaning the surface. Dribble boards and side guiding sections can be easily re-set, as they have a one fit only execution.



Dribble board small conveyor



Liftable guides



Dribble board intermediate conveyor



Removable guides



Dribble board wide conveyor



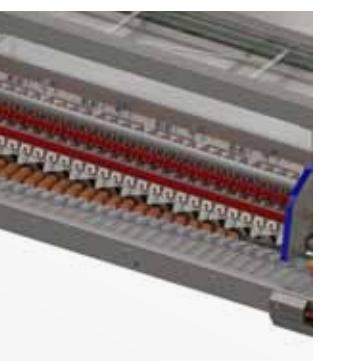
Tiltable guides

Count feeding



SLUG IN WRAPPER

The wrapping machine infeed receives counted slugs of products on edge from the SLUGMASTER™/FLEX CROSS FEEDER™ connected to a GRADOMATIC™/LINEMASTER™ system. Alternatively rows of products are received directly from the GRADOMATIC™/LINEMASTER™ system and the slug is built up in the flow wrapper flightbar conveyor.



PILE/STACK IN TRAY

By means of the Houdijk PICK & PLACE unit products are picked up row by row at the end of the GRADOMATIC™/LINEMASTER™ and gently placed into trays. The trays are positioned in the Houdijk tray flightbar.



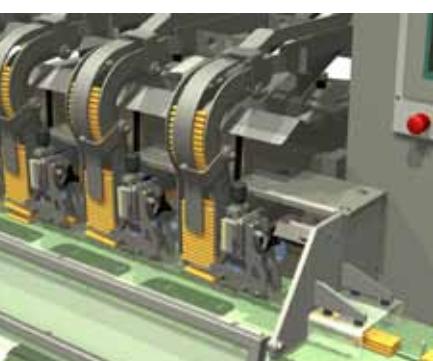
SLUG IN TRAY

By means of the SLUGMASTER™ and the TRAYMASTER™ connected to a GRADOMATIC™/LINEMASTER™ system, a slug of counted products on edge is formed and loaded into the tray.



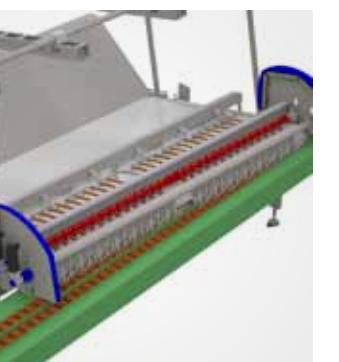
PILES/STACKS IN WRAPPER

By means of the SKIPPER™ stacking system products are piled/stacked into the chain of a wrapper, in the required count. Count change does not require a mechanical adjustment, but is achieved by recipe.



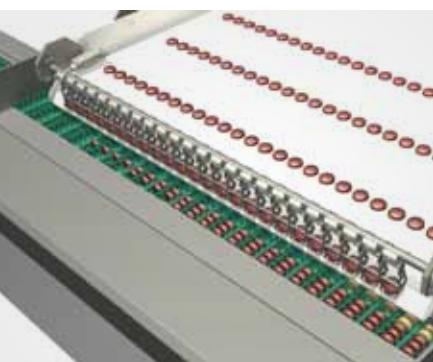
DUAL LANE SLUG IN WRAPPER

For the forming of small slugs of products on edge, the wrapping machine dual lane flightbar infeed conveyor receives two slugs of products from the GRADOMATIC™/LINEMASTER™.



ON EDGE PRODUCT IN CAVITY TRAY

At the end of the GRADOMATIC™/LINEMASTER™ products are placed - row by row - directly into defined cavities of trays. The trays come from a demester and are presented in synchronized position by the Houdijk tray flightbar.



DUAL MODE SLUG TRAY/WRAPPER

The combination of the SLUGMASTER™ and the TRAYMASTER™ connected to the GRADOMATIC™/LINEMASTER™ system creates product loading flexibility. A slug of products can either be loaded straight into the flightbar infeed chain of the wrapping machine, or alternatively the products can be loaded into a tray.



PORTION/VENDING PILE PACK

The FLOWMASTER™ product distribution and buffer system is followed by the FILEMASTER™ product chicane conveyors. It produces a single-, double- or triple lane count-balanced supply to the high speed flow wrapper. Over 1.000 products per lane can be gently supplied.



FLOWMASTER™

For "on demand" distribution of your product to multiple leg downstream equipment, the Houdijk FLOWMASTER™ product distribution system takes care of this task. It is suitable for high volumes of sandwich biscuits, wire cut deposited cookies or chocolate enrobed products. The system can either accept random arrival of products or regimented rows and lines.

FLAT PRODUCT HANDLING

The FLOWMASTER™ system handles products positioned flat on the belt. This applies specifically for products like wire cut cookies or sandwich biscuits. Product is always carried on its most solid bottom surface. By flat product handling, the sandwich product is prevented from being squeezed or wire cut cookie from being scuffed. Back pressures between the products can be controlled and limited, avoiding interlocking, damaging and/or riding on top of each other.

HIGH VOLUME HANDLING

The high volumes of modern production cannot be handled by a single wrapping machine. The Houdijk FLOWMASTER™ is a flexible system to distribute large number of products over various legs. Whether tray loaders, slug wrappers or portion pack (vending pack) wrappers, it is possible to distribute different percentages to each leg.

PRODUCT SPREADING:

In case products arrive from multiple stencil creamers and one of the stencil machine stops, a part of the belt where product arrives is not occupied. To assure and maintain continuous product spreading the ACCUBELT™ spreads all product over the full belt width of the connected FLOWMASTER™ system.



ACCUBELT™



Arrival from sandwiching machines through PENDULUM™



Arrival from depositor/wire cut



Arrival in regimented rows and lanes from HOUDIJK CAPPER™

LEG DISTRIBUTION

When a leg is ready to receive products, an Overhead Feeding Mechanism will cross transfer products towards this leg. The FLOWMASTER™ system can connect to combinations of multipurpose legs in different executions, for example a combination of slug wrap and/or portion packs wrap and/or tray loading.

In case it is received by a GRADOMATIC™ count feeding equipment, this system features an integrated product accumulation system. When received by a FILEMASTER™, to chican the products to single, dual or triple lanes, the FILEMASTER™ will be executed with an ACCUFEEDER™, being a small accumulation unit to the leg that regulates the speed in that particular leg, avoiding speed hunting of the downstream equipment.

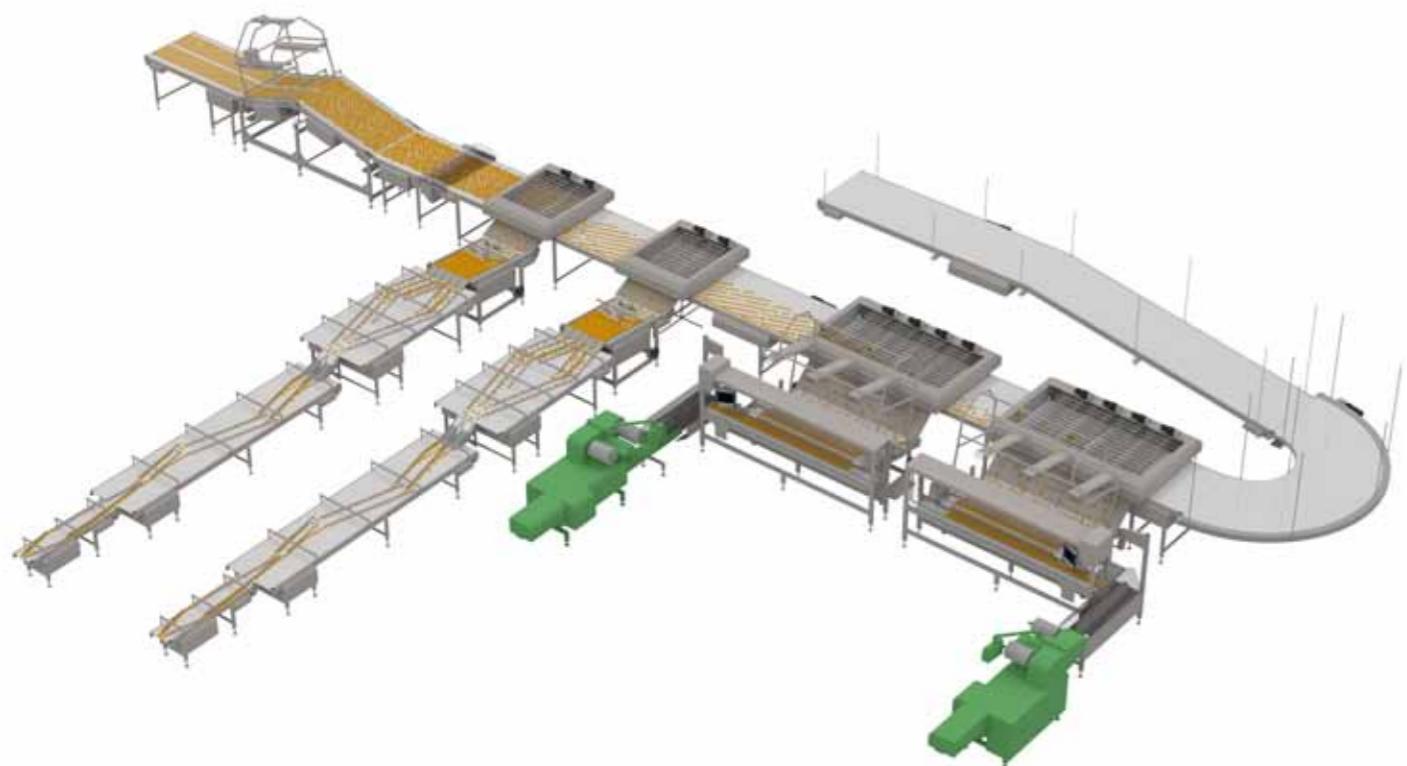


Single lane FILEMASTER™

OVERFLOW™ buffer (FILO)

In case products at the end of the product distribution cannot be handled by any of the available legs, they are temporarily relegated to the (FILO) OVERFLOW™ buffer conveyor. Once product enters the buffer conveyor, the FLOWMASTER™ system will automatically instruct all available legs to surge speed.

Directly after restoring sufficient wrapping capacity, the FLOWMASTER™ starts to empty the buffer into the last leg. It automatically handles both incoming production and temporarily stored products. The system keeps all legs in surge running condition until the buffer conveyor is emptied. Once empty, all legs automatically return to their nominal running speed. The buffer refeed capacity to the last leg is maximized thanks to the use of multiple dynamic buffer/refeed conveyors covering the last leg.



Dynamic buffer/refeed conveyors

INFLOW™ buffer (FIFO)

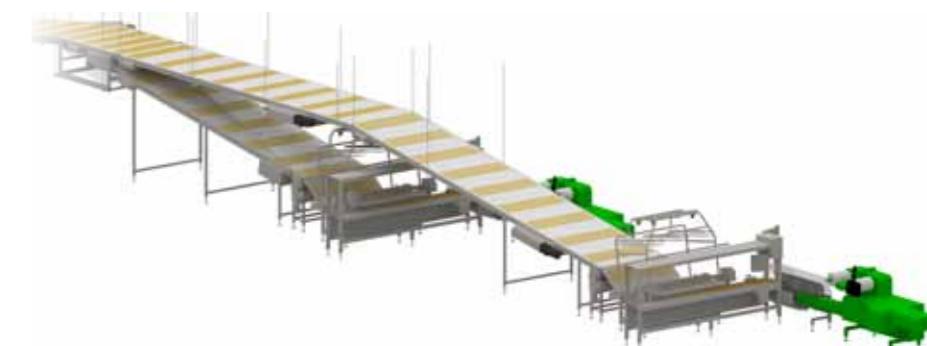
All products travel through the INFLOW™ buffer before reaching the wrapping legs. In case products cannot be handled by any of the available legs in the product distribution system, they are maintained in the (FIFO) INFLOW™ buffer conveyor by means of moving the 180 degrees curve conveyor, thus extending or shortening the buffer conveyor.

Once product is buffered, the FLOWMASTER™ system will automatically instruct all available legs to surge speed. Directly after restoring sufficient wrapping capacity, the FLOWMASTER™ starts to empty the buffer by surging the outfeed. It automatically handles both incoming production and temporarily stored products. The system keeps all legs in surge running condition till the buffer conveyor is back to minimum level. Once empty all legs automatically return to their nominal running speed.



END STATION EXECUTION

GRADOMATIC™ systems in combination with a FIFO buffer can be positioned as end of line station for pile or slug loading of rectangular/square shaped products.



To economically use the factory space, the buffer conveyor can be inclined, carrying the product at an elevated position. To fit the system in the available factory space, the FLOWMASTER™ system and/or OVERFLOW™ buffer can be "folded" in the space, by adding curved conveyors.

Many executions of INFLOW™ buffer systems possible:



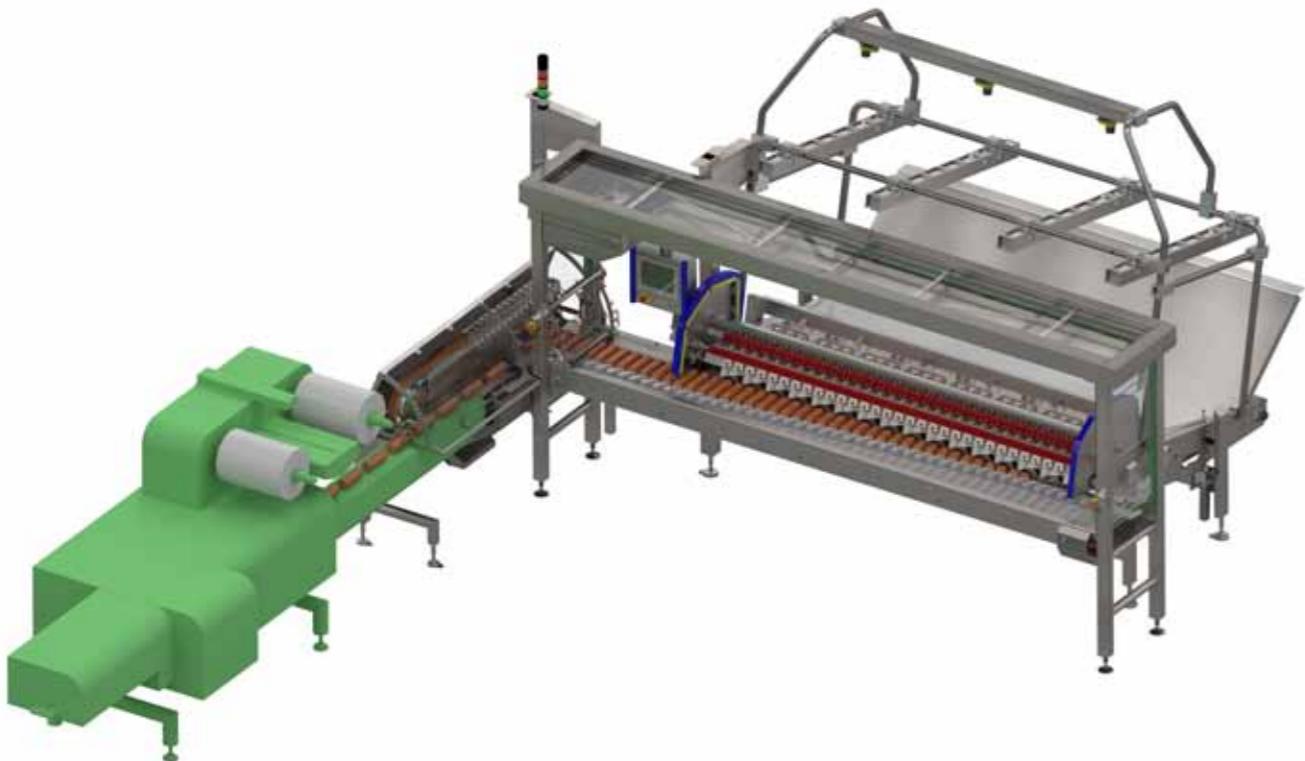
Elevated, carrying the product at an elevated position.



Multilayer execution (optionally combined with ambient cooling)

GRADOMATIC™

The GRADOMATIC™ is a versatile Houdijk product row forming system for round products. The GRADOMATIC™ is able to handle a random supply of product, blending the production as well as enabling count feeding. It handles large quantities of product per unit, while still handling the individual product extremely gentle. The design is open and is easily accessible for operation, change-over, maintenance and cleaning.



The GRADOMATIC™ functional concept already exists for more than 55 years. It has led to the current execution, which is the most advanced and largest volume handling unit of its kind. Products are received in a defined accumulation section. The product back pressure in the accumulation section of the GRADOMATIC™ system is controlled and limited by means of an adjustable inclination of the dosing conveyor.

From the accumulation section products are fed into product channels. Products too high or lying on top of each other are prevented from entering the channel area. Accumulation level and product flow in the channels is monitored by vision cameras. It indicates which area is running short of product and signals the FLOWMASTER™ distribution

system to feed additional product. Multiple product channels allow handling of a large quantity of product while maintaining a comfortable dosing cycle.

A row gating mechanism meters the products, row by row, from the product channels into the Houdijk downstream equipment e.g. SLUGMASTER™ or directly in the flightbar of the wrapping machine. Optionally the first product can be inverted in the slug.

SIZE PARTS TROLLEY

All the product size related parts - channel side guide sections, row gating mechanism roller, etc. - are POKA YOKE executed and easy exchangeable. The POKA YOKE size parts come with engineered settings. The

size parts can be easily removed, without tooling, for cleaning purposes and cleaning the belt of the loader. All size parts can be easily re-set, as they have a one fit only execution. For size part storage trolleys are provided.



LINEMASTER™

The LINEMASTER™ is a unique Houdijk product row forming system for non-uniform shaped products. The LINEMASTER™ handles products individually after they have been redistributed into a single file by the FILEMASTER™. The LINEMASTER™ is able to handle large quantities of product: up to 1.000 products/minute.

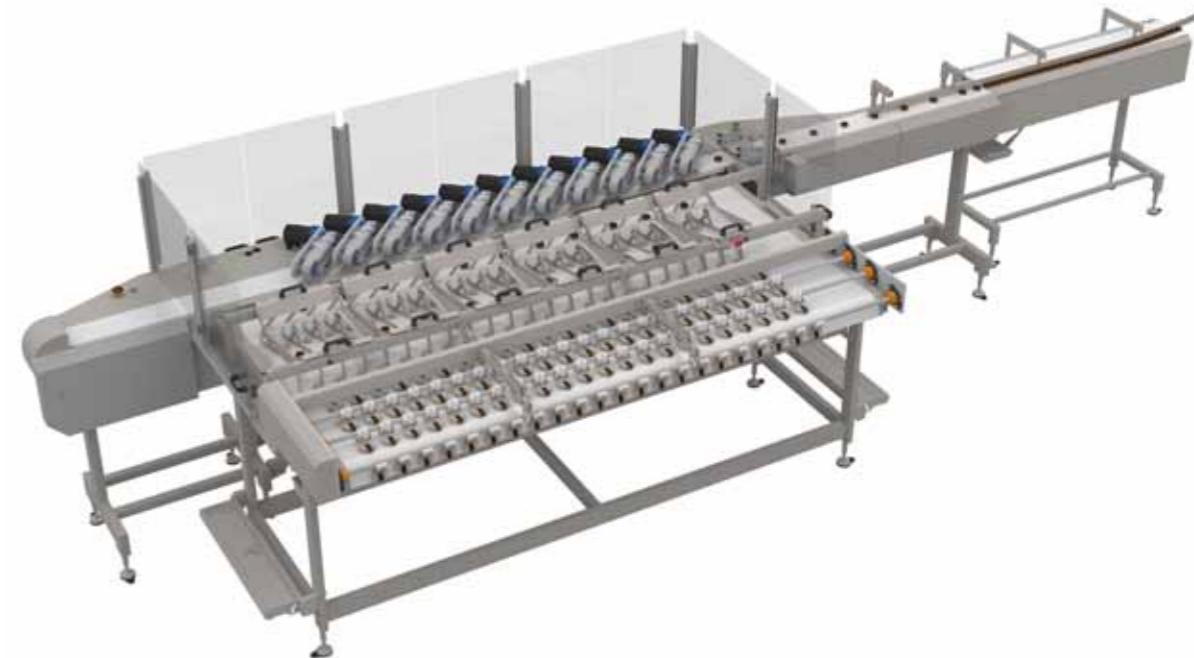


LINEMASTER™ PRODUCT ROW FORMING SYSTEM

The LINEMASTER™ system is specially designed for products which do not allow accumulation, as they would climb on top of each other. It is for this reason that through the complete system, products are treated as individual products. Because of the delicate nature of these types of product, which sometimes can feature soft inclusions, the products must be gently treated.

Irregular shapes with large tolerances are allowed sufficient space preventing them from getting stuck.

Products arrive in a single lane and are accelerated allowing them to create gaps between each other. By means of a photocell unit, individual products are placed in a digital register. Servo driven pushers transfer only product within specification into lanes of the LINEMASTER™ dosing conveyor.



FILEMASTER™

The FILEMASTER™ is a sub system connected to the FLOWMASTER™ product distribution system. It either feeds the LINEMASTER™ row forming system or a portion/vent pile packing machine. The wrapping machine can be supplied with single-, dual- or triple lane, count balanced, product files for high capacity feeding.

The FILEMASTER™ system starts with an ACCUFEEDER™ unit, which features a small accumulation section to regulate the product flow to the downstream. It avoids undesired speed hunting of the following unit. The product back pressures/contacts in the accumulation/high density section of the ACCUFEEDER™ unit are controlled and limited by means of an adjustable inclination of the conveyors.



Count feeding with blending



SLUGMASTER™

The SLUGMASTER™ receives products row by row from the GRADOMATIC™ or LINEMASTER™ system. It comprises an Overhead product flightbar conveyor, featuring individual moving slug side guides (runners), which are statically laying on the flightbars. The slugs are supported from underneath by a belt conveyor, avoiding rolling of product. The required count of products in a slug is gradually built up. The runners are POKA YOKE executed and can be easily removed for cleaning purposes. Via HMI settings the slug count can be set to requirements.

INTEGRATION OF TRAY DENESTER

Houdijk can integrate high quality tray denesting systems, including management support in tray design. The integration guarantees a flawless integration of both requirements of the tray denester system and the rest of the tray loading system. This ensures a maximum line efficiency.

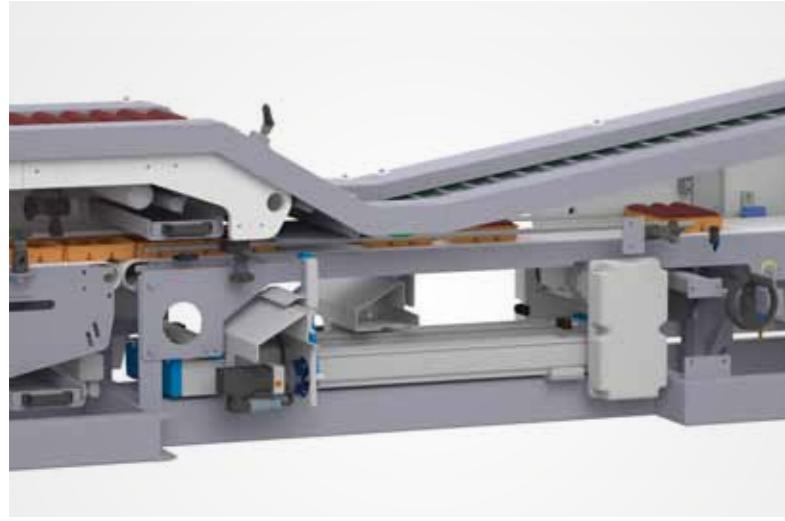
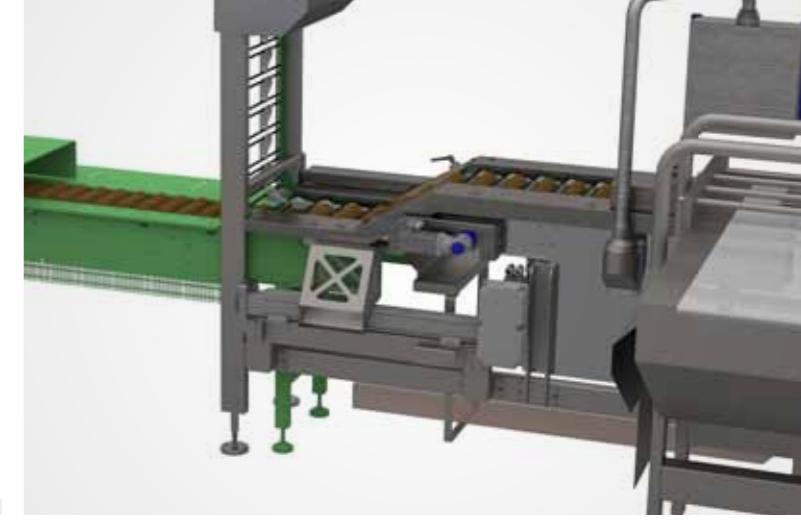


SLUGMASTER™ + FLEX CROSS FEEDER™

Once the slug count is completed the slugs are introduced to the cross positioned FLEX CROSS FEEDER™. The FLEX CROSS FEEDER™ has the unique feature that each slug pocket - comprising of two independently driven front and back pushers - can receive the slug of products, can wait to allow the received slug to first stabilize, then lock the product in the slug and consequently accelerate the slug to the actual continuous speed and pitch of the infeed of the connected flow wrapper. Via HMI settings the slug length can be set to requirements.

PHASER™

When loading slugs directly into the flightbar conveyor of the dy-fold (x-fold) wrapper, the PHASER™ is added to the SLUGMASTER™. The wrapping machine is designed to run at a constant speed. The SLUGMASTER™, however, operates in fluctuating motion to collect the desired slug count. The PHASER™, aligns the two different dynamic behaviours. It enables a gentle transfer of the slug into the flightbar conveyor of the dy-fold wrapper.



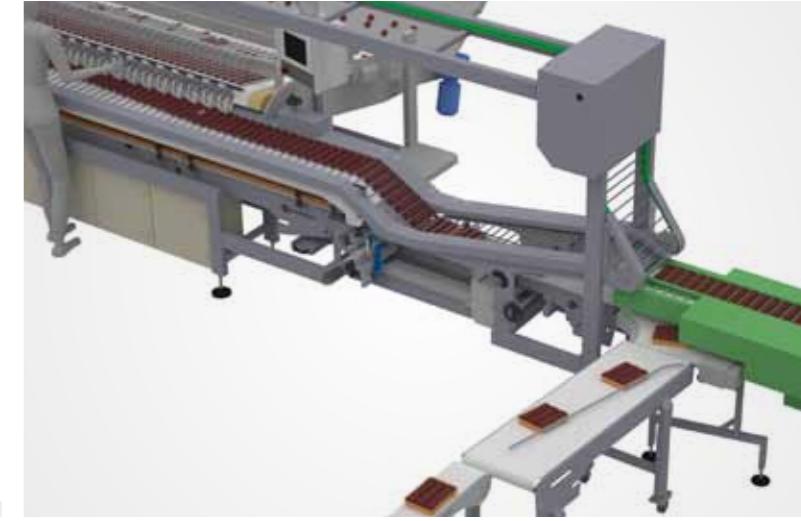
TRAYMASTER™

The TRAYMASTER™ comprises the tray denester, the tray infeed conveyor, the tray synchronization and the filled tray discharge.

The trays, coming from the tray denester are received by the Tray infeed conveyor and are buffered side by side. Via the TRAYMASTER™ servo driven two pin flightbar mechanism, trays are synchronized with the completed slug at the slug transfer position of the SLUGMASTER™. Two servo driven pins synchronize the trays to the product slug and the complete rolls gentle in the positioned tray. The trays leave the system by the tray discharge conveyor and can be turned short side leading when required.

DUAL MODE

The DUAL MODE enables the same GRADOMATIC™ or LINEMASTER™ system to load slugs of products either in a tray or directly into the flightbar conveyor of the connected BOE slug flow wrapper. For this purpose the SLUGMASTER™ is extended and offers two slug transfer positions.



PICK & PLACE

The PICK & PLACE unit is a servo driven system, picking up complete product row(s) and placing them in the designated location. Products are gently picked up by means of vacuum and placed in a tray.



PICK & PLACE LOADING

The Houdijk PICK & PLACE robot is a state of the art design. The unit is suspended in a portal to maximize space underneath the system. It is highly dynamic and able to carry relatively large payloads up to 50 cycles per minute. The unit can be executed to pick up single or double row of product.

The reliability of the pick and place process is very high, due to the unit's ability to pick up complete product rows. This allows for a gentle build-up of vacuum and a low controlled travel speed. It accurately places the product in the desired position. The PICK & PLACE unit, in combination with the Houdijk GRADOMATIC™ and LINEMASTER™, results in a highly efficient tray loading system. It handles per station large quantities of products per minute.

The unit offers high flexibility in tray configuration in terms of product/cavity size, number of cavities per tray and stack height. Dedicated solutions to load paper cups or carton tubes are available.

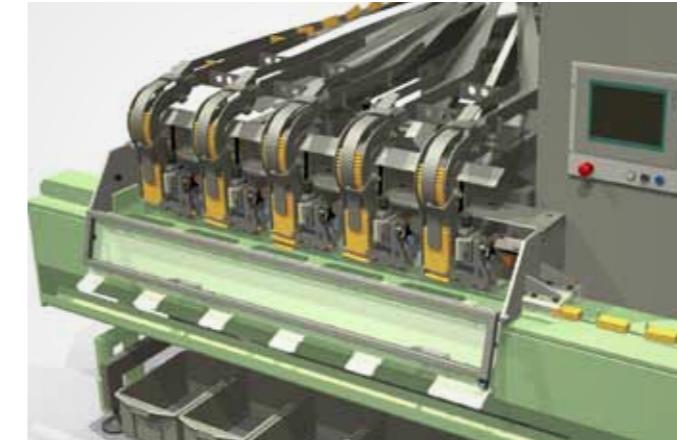
TRAY FLIGHTBAR

The tray flightbar receives the products row by row from the PICK & PLACE robot coming from the GRADOMATIC™ or LINEMASTER™ system. The tray flightbar comprises the Tray denester, the tray infeed/buffer conveyor, Tray index mechanism which transfers the trays in the flightbar and the flightbar carrying the trays.

After each row of products is placed flat in the cavities of the corresponding cells, the tray flightbar travels to its next position receiving the following row of products until the tray desired configuration is completed.

SKIPPER™

The high speed SKIPPER™ unit is a unique and innovative Houdijk pile/stack loading system for plain products. The SKIPPER™ accepts without lane reduction/expansion the given number of product lanes coming from the oven. It separates extremely gently individual products from the vertical magazine by means of a servo driven horizontal indexing disc. The individual products are transferred in the designated pitches of the infeed chain of any make flow wrapping machine. Thus it composes the product pile/stack with pre-set count.



SKIPPER™ PILE/STACK LOADING

The SKIPPER™ pile/stack loader is suitable for round, oval and rectangular shaped products in short or long side leading orientation. The SKIPPER™ system comprises multiple servo driven discs. It guarantees the highest efficiency available in the market for pile loaders.

The SKIPPER™ pile/stack loader avoids the need for complicated and expensive product supply systems, as it is able to handle the number of lanes coming from the oven. The stacked product supply via conveyor belt and/or vibratory conveyor is connected to the SKIPPER™ systems. The number of stacked product lanes arriving from the oven is accordingly connected to a SKIPPER™ unit disc. The available SKIPPER™ units are divided over the desired number of flow wrapper(s).

Per flow wrapper, the system composes the required product pile/stack count according to an algorithm controlled lane balancing system. It collects individual products each time from different vertical product magazines and feed these synchronised in the pitch of the continuous running infeed of the connected flowwrapper.

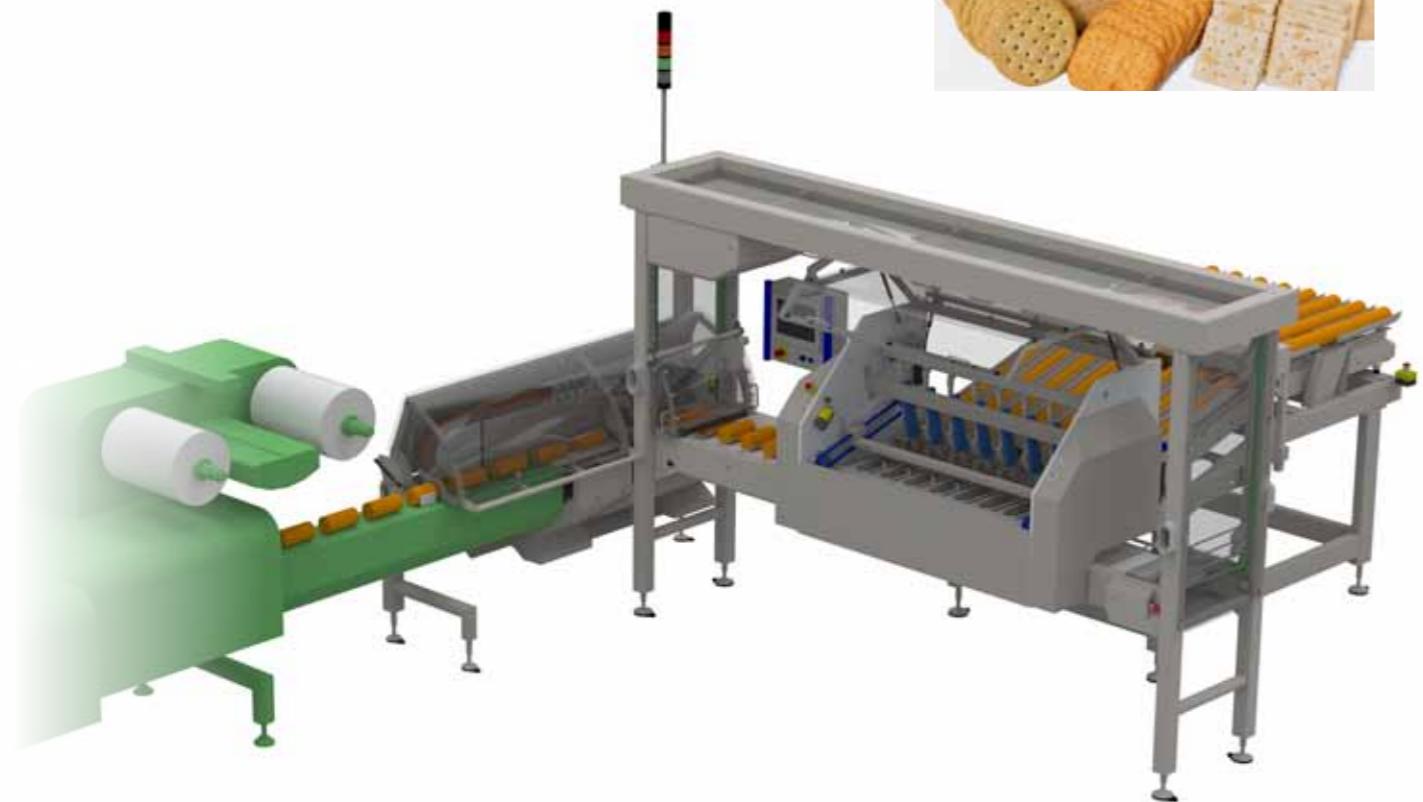
The system is able to ignore a product lane, once it reaches minimum level.

FLEX-SKIPPER™ PILE/STACK LOADING

The FLEX-SKIPPER™ is designed to produce a bigger pile/stack count as the number of products lanes arrive to the system without having a complex upstream expansion system.

The FLEX-SKIPPER™ collects individual products each time from different vertical product magazines and feed these in the connected magnetic driven chain pocket. The FLEX-SKIPPER™ magnetic driven chain pocket has a unique feature: each pile/stack pocket - comprising of two independently driven front and back pushers - can receive individual products, can wait to pile/stack more individual products on top, can move to a next magazine position. Once the count is completed, the products in the pile/stack are consequently accelerated to the actual continuous speed and pitch of the infeed of the connected flowwrapper.

The CLIPPER™ volumetric slug loader ("length measuring feeder") is a modern design solution for loading slugs of biscuits standing on edge. The CLIPPER™ is suitable for loading biscuits and crackers, with round, oval, square and rectangular shapes. In combination with the Houdijk handling system, it is a versatile solution for feeding products into a flightbar infeed.



CLIPPER™ SLUG LOADER

The CLIPPER™ slug loader servo driven system is able to achieve an output per channel of up to 25 slugs per minute, subject to the characteristics of the product. The CLIPPER™ in combination with the Houdijk product handling system offers the most gentle and highly efficient volumetric loader in the market. Because of an integrated software control, back pressure is extremely well controlled. A spring loaded knife mechanism separates the required slug length while back pressure control minimized back pressure. This ensures a gentle insert between products preventing product from being damaged.

The loader is flexible with respect to product size and slug length variety. The recipe setting and control is done via the Human Machine Interface (HMI) touch screen. The CLIPPER™ loader features automatic lane balancing. When reaching minimum buffer levels, the related lane stops the slug separation and loading until new product is supplied. The connected wrapping machine needs to be equipped with No Slug – No Wrap functionality. The CLIPPER™ is an ergonomically and hygienically designed loader and easy to operate and to maintain.

SLUGMASTER™/FLEX CROSS FEEDER™

Once the slug separation is completed, the slugs are loaded in the SLUGMASTER™. It comprises an Overhead product flightbar conveyor, featuring easy to set side guides. The slugs are supported from underneath by a belt conveyor, avoiding rolling of product. The slugs are at the end of the SLUGMASTER™ introduced to the cross positioned magnetic driven chain FLEX CROSS FEEDER™. The FLEX CROSS FEEDER™ has the unique feature that each slug pocket - comprising of two independently driven front and back pushers - can receive the slug of products, can wait to allow the received slug to first stabilize and consequently accelerate the slug to the actual continuous speed and pitch of the infeed of the connected flow wrapper.



Performance guarantee

Houdijk offers engineered and customized systems for high speed biscuit feeding, forming the interface between oven and wrapping.

Nowadays, the key to a maximum output lies in the level of automation in that particular area of a production line. Through a binding Performance Statement, Houdijk defines and guarantees a minimum achievable efficiency, which will be confirmed in 2 phases:

1. After the system is engineered, built and tested in the Houdijk factory, together with you we perform a Factory Acceptance Test.
2. Once the system is installed and commissioned at its final location, the performance is again measured and documented with a Site Acceptance Test protocol.

With Houdijk as your partner, you will get a firm guarantee that your investment will lead to the expected efficiency outcome. Put your biscuits in the hands of the people who love them most: the specialists at Houdijk.

EFFICIENCY STATEMENT

$$Ep = (1 - (W / S)) \times 100 \%$$

This efficiency defines the operational quality of the installation. Therefore, this efficiency defines the relation between the time products are supplied and the time the installation is ready to handle these products.

FACTORY ACCEPTANCE TEST (FAT) CERTIFICATE



This document certifies that the equipment has satisfactorily completed all necessary factory acceptance tests and that all conditions are met.

SITE ACCEPTANCE TEST (SAT) CERTIFICATE



This document certifies that the equipment has satisfactorily completed all necessary commissioning tests and that all agreed conditions are all satisfied.



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