



Think  
ahead with  
**poultry**  
**people**

*The perfect setting for  
**hatching eggs***



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# Think ahead with poultry people

With over 30 years experience, Prinzen is a well-established and recognised name in the field of egg handling. We design and manufacture complete solutions; from semi-automatic on-farm egg packers to complex egg and tray handling systems for hatchery applications. Through the world-wide group dealer network, we offer high quality egg handling equipment and systems with an adequate after-sales service. Being part of the Vencomatic Group, owned by the Van de Ven family, Prinzen completes a full range of innovative systems for equipping modern poultry farms all over the world.

With ongoing innovations and close customer consultation, we offer the perfect egg handling solutions for a wide variety of processes!

*"Globally we see a shift towards large scale hatcheries. This increases the demand for solutions to automate the egg intake process. Solutions for an efficient egg handling process and egg quality control. Small details can have a big impact on your hatching performance. Automating point down setting may result in 1% to 2% more day-old-chicks. On a weekly basis this might seem negligible, but annually this makes a significant difference. Our solutions can be beneficial for all sizes of operations. We would like to get in touch and show how Prinzen technology can contribute to your success."*

**Arjan Vervoort**  
Product Manager Hatcheries



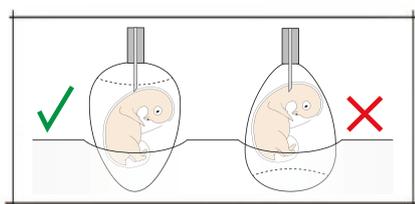
# Gentle egg handling for hatchery automation

Prinzen offers a state-of-the-art and modular designed line of equipment to handle eggs arriving in the hatchery. Optimum hatching results are achieved by selecting and setting eggs in the incubators that will potentially deliver first quality day-old chicks. Sorting by exterior quality and by weight will reduce usage of energy and waste. Gentle egg handling, unique point down setting and accurate grading are important reasons to choose for Prinzen solutions.

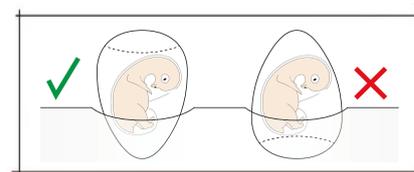


## Point down setting matters

The incidence of eggs set upside-down is largely dictated by human error and not by the shape of the eggs. Great variation between trays in the number of eggs placed upside down was observed: some trays had none, while others had 10 - 12 eggs placed small end up. Hatchability of eggs set small end up decreased by 16 - 27.3 per cent. The percentage of non-viable chicks from eggs set small end up increases, but varies between different batches of eggs. A hatchery loses 0.2 per cent of sellable chicks for each 1 per cent of fertile eggs placed with the small end up in a setter tray (Bauer et al, 1990).

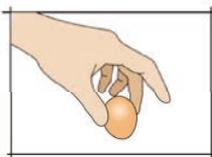
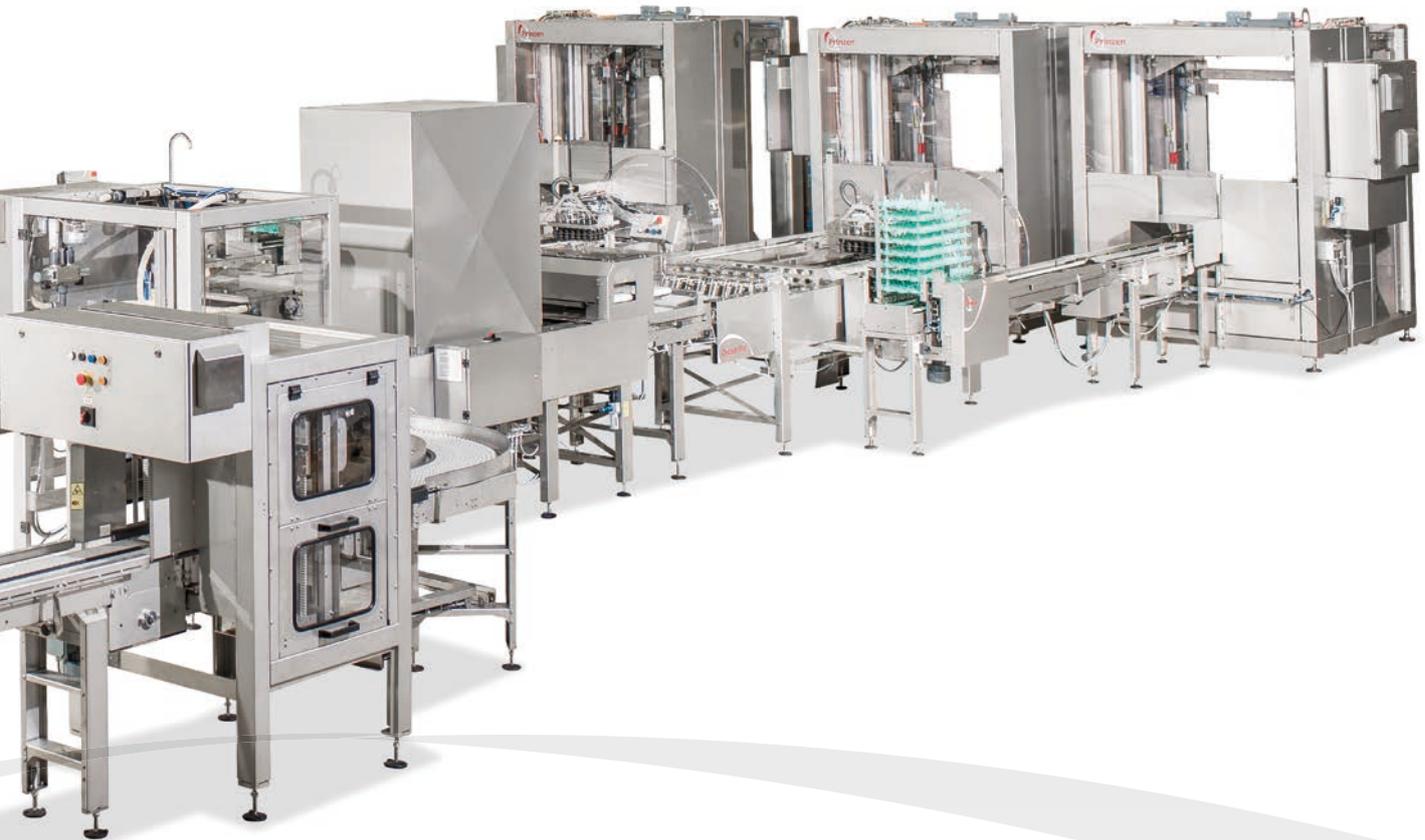


*Especially when in-ovo vaccination is applied, additional improvements can be made by not losing potential chicks through killing of a wrongly positioned embryo.*



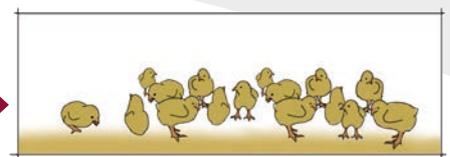
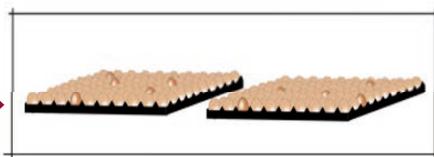
*When eggs are placed with the air cell down and the small end up, the embryo still turns, but now, the head is positioned in the small end of the egg - away from the air cell. The embryo may die because the initiation of normal lung breathing is hampered or even blocked.*

*In normal development, from day 14, the embryo turns its position to the air cell. In this position, from day 18, the embryo can penetrate the inner cell membrane to gain access to the air in the air cell - after which breathing starts.*



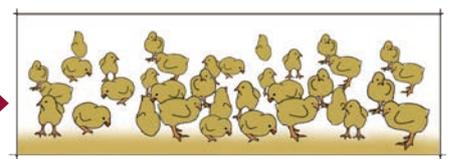
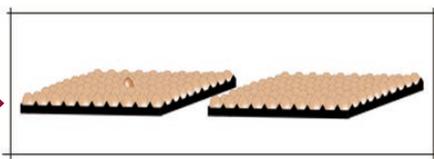
Manual setting

97%



Automatic setting

99.7%



**Results of an improvement of 2.7% better point down setting:**

2.7%



**Broiler hatchery setting**  
 capacity of 1 million eggs per week

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$2.7\% \times 0.2 \times 52$  million eggs  
 = 280,800 day old broiler chicks  
 per year extra

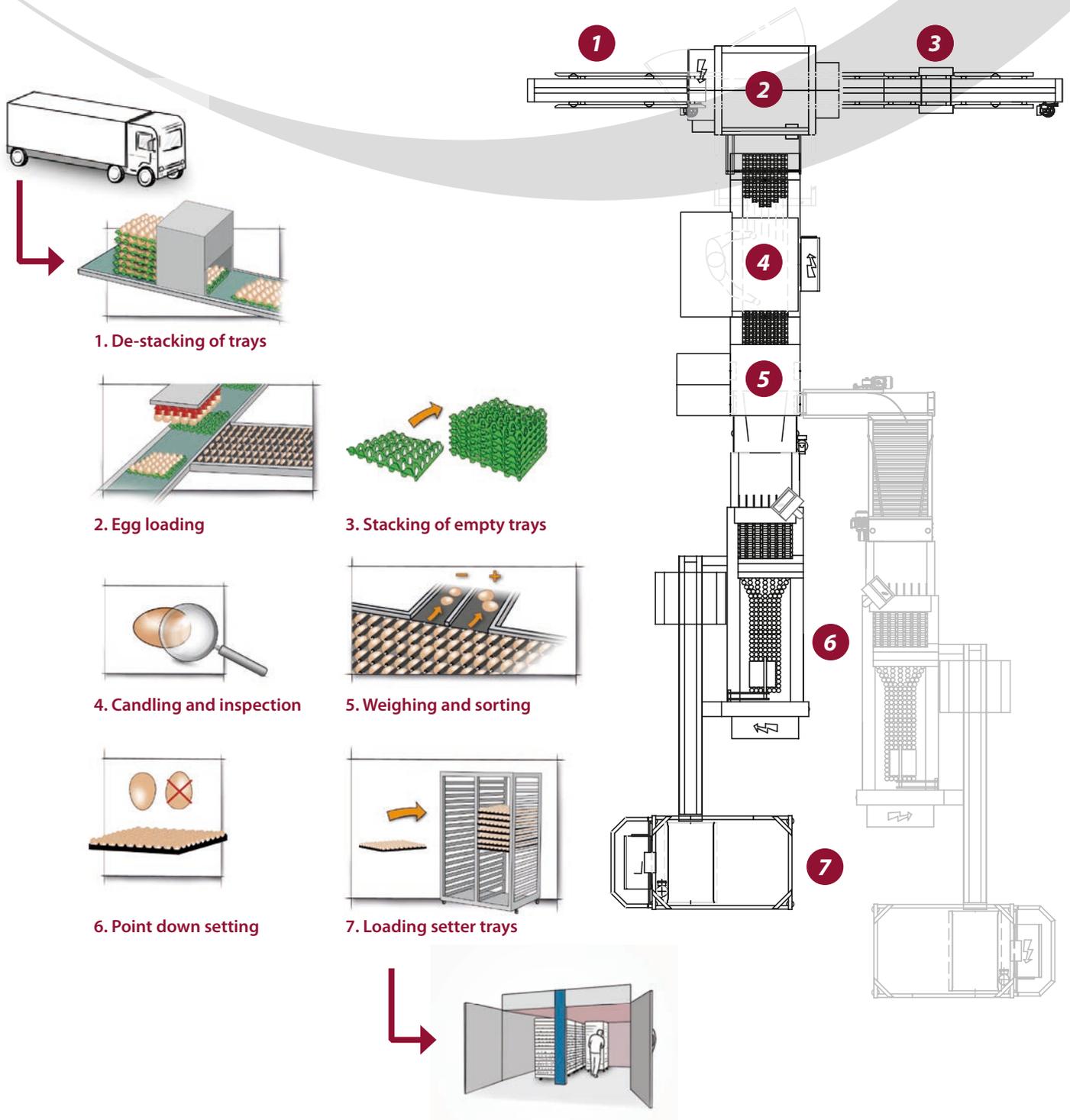
**Layer hatchery**  
 capacity of 500,000 eggs per week

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$2.7\% \times 0.2 \times 26$  million eggs  
 x 40% female hatchability  
 = 56,160 female day old layer chicks  
 per year extra

# Which egg handling process suits your hatchery best?

For every type of hatchery, whether broiler- breeder- or layer-chicks and most common incubator systems, with their specific setter tray types, Prinzen offers equipment to automate the egg intake process prior to setting eggs in incubators. For various functions particular machinery is available, designed in a modular set up, depending on capacity and type of egg handling. We hereby distinguish the following functionalities:



1. De-stacking of trays

2. Egg loading

3. Stacking of empty trays

4. Candling and inspection

5. Weighing and sorting

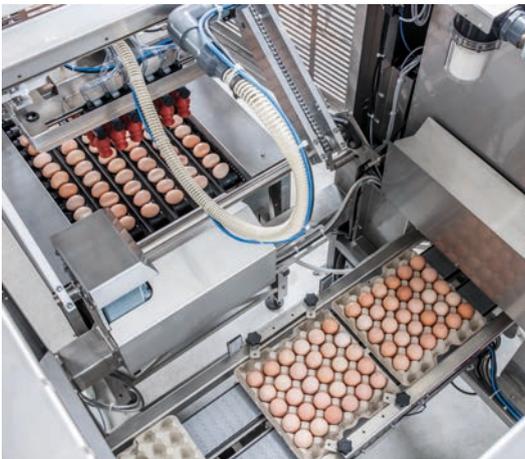
6. Point down setting

7. Loading setter trays

## 1. De-stacking of trays

Reception of hatching eggs in the hatchery can be within various methods. Most common is on a transport tray, 30-cell egg tray, mostly in a stack of six trays. These trays can either be made of paper or plastic. The De-Stacker automates de-stacking to a single tray in the correct position for the next step of the process. Stacks are placed on a conveyor belt and forwarded to the De-Stacker unit. This unit lifts the stack up from the second last tray in the stack, leaving one tray on the conveyor to continue its way in the process.

The unit turns 90° after every tray release for seamless de-stacking of the entire stack to single trays and in the correct orientation. The De-Stacker can also handle stacks of specific setter trays holding 36 or 42 eggs.



## 2. Egg loading

Rollers are used for moving the eggs through the egg handling system and/ while enabling quality inspection such as candling and grading. The System Loader receives individual trays of eggs and lifts the eggs by means of vacuum from the tray onto the rollers. The vacuum lifters safeguard a gentle egg handling. The vacuum head transfers the eggs towards the rollers, where eggs will be brought in a horizontal position. This technique ensures a most careful handling of the eggs for e.g. candling and weighing. The unit handles 30-cell trays as well as setter tray types carrying different number of eggs in various tray patterns.

## 3. Stacking of empty trays

Once the System Loader lifted the eggs from the tray, empty trays continue their way to the Empty Tray Stacker. This optional unit stacks 30-cell trays and releases the stack for further transport. The stack moves automatically to the end of the conveyor, where it can be removed manually. Maximum stack height is easily programmed. It also detects trays carrying a stuck egg and separates these from the stack. The Empty Tray Stacker reduces manual labour and is suitable for paper and plastic trays.





## 4. Candling and inspection

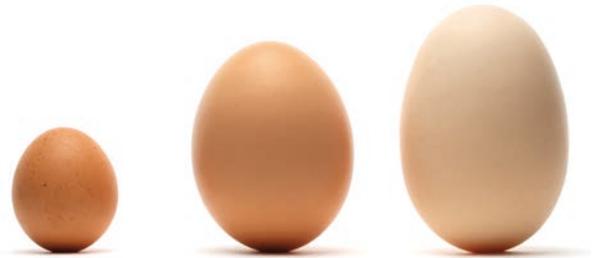
Once eggs are in horizontal position on the egg rollers they can be fully inspected for misshapes, cracks or defects. The turning rollers ensure that each individual egg can be inspected from all sides and poor quality eggs can be manually removed.

The Candling unit has lights situated under the rollers, enhancing greatly the manual inspection for cracks and internal egg defects. Light is directed with deflectors straight to the eggs and avoids blinding by the operator. In addition, a curtain completes the candling booth and limits the influence of surrounding day light during operation.

## 5. Weighing and sorting

The Ovograder, a grader and sorter by egg weight, has proven to be an asset at the hatchery. The system uses electronic weighing units, grading eggs into user defined sizes, i.e. weight ranges. It opens the possibility to sort egg sizes to suit specific incubation programs or processes to increase hatchability, but foremost increase uniformity in chick size. The compact design of the Ovograder fits perfect in the system and offers the possibility to sort and direct eggs within the same weight range to one or multiple Ovoset Pro eggs packers.

Eggs with unsuitable weight for hatching are discharged to a packing shelf to gather reject eggs manually. The grader collects statistical information such as the number of eggs, individual and total



**Better results by uniform egg sizes**

egg weights per day, per breeder house and the percentage of eggs in various weight classes. This data can be collected daily and transferred to a PC for data acquisition and further analysis for accurate management of egg production or feedback to suppliers.

For more information

Scan the QR code



## Egg coding

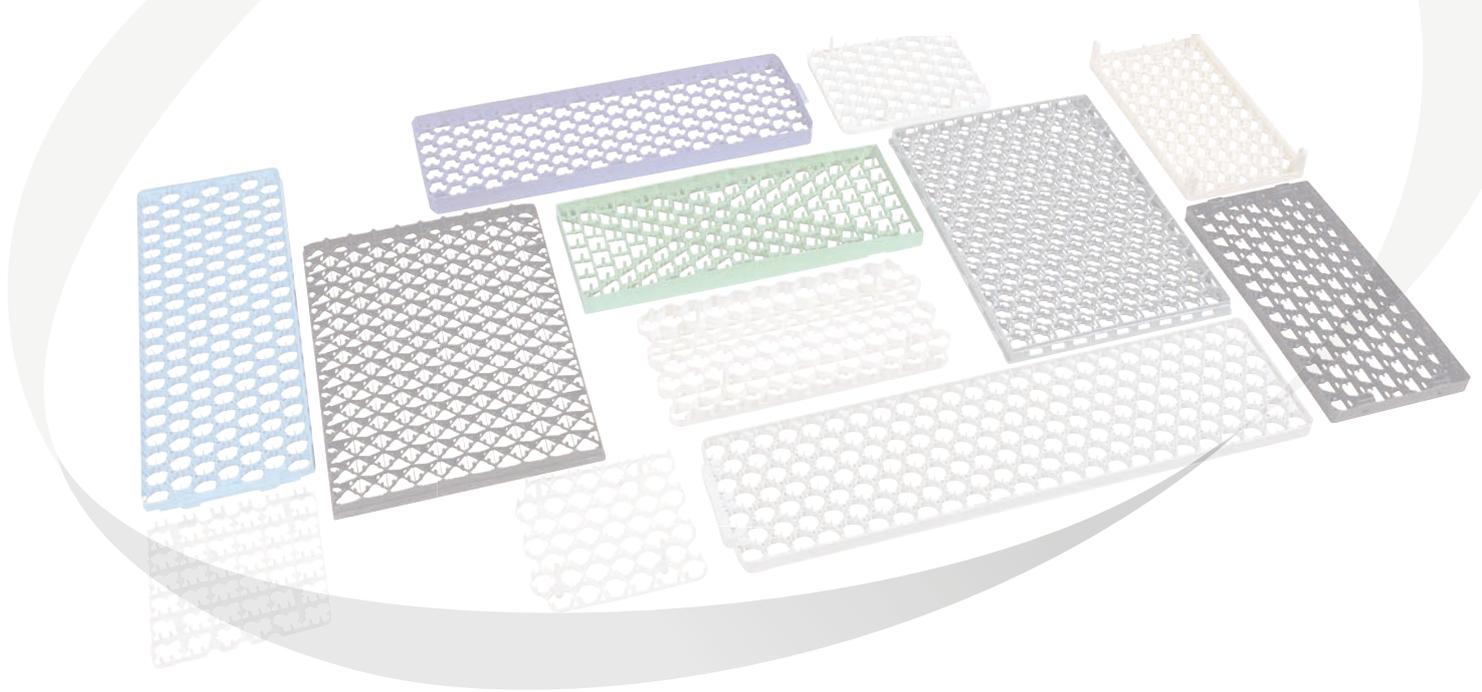
Prinzen offers two high quality methods for coding individual eggs at minimal costs.

### Ovoprint:

a perfect imprint due to adjustable print heads.

### Ovostamp:

a proven stamping technology using a flexible rubber head for gentle code stamping.



## 6. Point down setting

Accurate point down setting of hatching eggs onto setter trays is an essential condition for maximising hatchability and results. Prinzen is known for its unsurpassed points down setting rate of 99.7%.

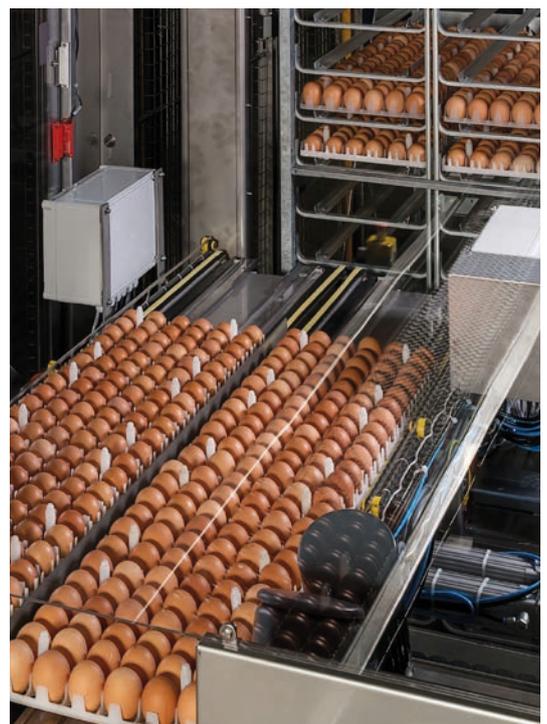
The rotating movement of roller tracks orientate eggs with their pointed ends towards the outside of the rollers. At the end of the track eggs are tipped into the cups. Gravity ensures that the eggs are positioned point down. The cup conveyor brings the eggs to the vacuum transfer unit. Here eggs are lifted and positioned point down in the setter trays. The Ovosec Pro handles various setter tray types and can create various patterns in order to set eggs to both rectangular matrix or hexagonal structured setter tray patterns.

Ovosec Pro is the perfect machine for point down correction of hatching eggs. Setter trays are automatically handled and positioned for egg transfer and setting.

## 7. Loading setter trays

The Trolley Loader is an additional option that completes the automated egg handling process. It is designed for fully automatic loading or unloading of various transport- and setter trolley types of the incubator companies. Setter trays are conveyed by the tray lane of the packer onto an automatic trolley feed unit, which gently pushes trays in the tiers of the setter trolley. Besides substituting heavy and repetitive manual labor of placing setter trays into trolleys, it also eliminates the risk of damaging hatching eggs.

Many options are available, such as a version with a twin trolley feed unit to handle two or more setter trays simultaneously per cycle. All in a compact design to take up minimal floor space. The trolley (un)loaders are available as stand-alone units and can be used to feed single or a series of setter trays into existing processing equipment.





## Tray to tray transfer solution

In situations where eggs are supplied to the hatchery with suitable weights and point down correction, the transfer from a 30-cell tray to the setter tray can be automated with the Transformer. This unit handles eggs in large numbers per hour and is designed for the 150 egg type setter tray. The machine consists of an infeed conveyer

for stacks, automatic (de-)stacking of empty trays, automatic supply of setter trays and vacuum operated transfer units to set eggs gently onto setter trays. Additional equipment like the Trolley Loader can be added to load trays in the setter trolleys.

For more information

Scan the QR code





## Venco Campus Home of Poultry Innovation

What suits a team of poultry people better than an egg shaped building? We are accommodated in one of world's most sustainable buildings: the Venco Campus. This building reflects our mission of being the number one global player for sustainable, poultry friendly systems.

The Venco Campus serves as an international knowledge and innovation centre for the poultry industry. We strongly believe in open innovation through thinking ahead with poultry people. Your experience is of great value to us and we invite you to come and explore what poultry innovation can offer you. ***Together we bring the poultry sector to the next level.***



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