



Big Dutchman®



Egg collection systems

Versatile and efficient operation,
gentle egg handling

Egg collection systems – an investment that pays off!

As far as layer and breeder management is concerned, it is nowadays of vital importance to choose the right egg collection system in order to be able to

- save time and payroll costs and
- to produce high-quality eggs, i.e. clean eggs and a minimum number of cracked and hair-cracked eggs.

Big Dutchman meets the high demands on egg collection systems in a most exemplary manner:

- high reliability;
- ease of operation;
- gentle egg transportation.

Depending on farm size, different house designs and individual requirements of the farmer, Big Dutchman offers different custom-made egg collection systems,

such as elevators, lift systems, curve and rod conveyors as well as Multitier, the multi-level egg collection system.

The following important factors and questions respectively should be taken into consideration prior to the purchase of a certain type of installation:

- The performance of the egg collection system should be adapted to the capacity of the egg grader or packer.
- Are there differences in altitude on the farm premises and are the houses staggered respectively?
- Do you intend to select the eggs by flock or rather simultaneously?

It is only after careful consideration of these aspects that you can make the right choice.

Multitier – efficient collection with only one egg transfer

Poultry farms with many years of experience have rediscovered this well-proven system, which is especially suitable for large units, since the eggs can be collected in all cage rows and on all tiers simultaneously.

There is only one transfer point each for the longitudinal and cross collection of eggs => gentle egg transportation. Moreover, this transfer point is adjusted only once, namely during assembly => continuously high egg quality.

The V-shaped cross channel ensures a good distribution of eggs, so that they do not touch the sides of the channel. The perforated channel bottom guarantees a smooth belt guide and reduces driving power. When collecting eggs per flocks, the belts are operated at a speed of 4 m/min. When eggs from different houses are collected simultaneously, the speed of the longitudinal belt can vary owing to the frequency control between 6 and 90 Hz.

Multitier curve conveyors (200 and 250 mm wide) transfer the eggs from different tiers to the operating level of the egg grader or packer using the shortest possible length of run.

However, one disadvantage of this system consists in the difficult access to the cage rows.



Multitier – the egg collection system for large laying units

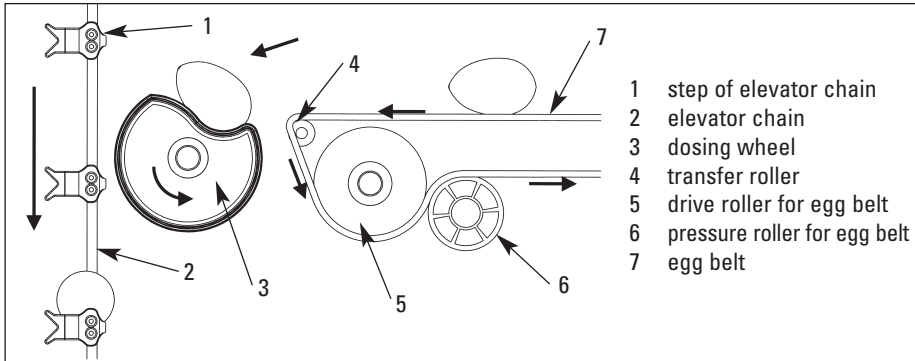


Advantages

- simple and reliable technical construction;
- high collection capacity, even for the largest egg graders;
- gentle egg transportation;
- cost effective solution for large units;
- low maintenance requirement;
- favorable to long conveying distances (up to 200 m).

Elevator – simultaneous egg collection on up to 8 tiers

The elevator transfers the eggs from 4 tiers onto the elevator chain according to a set pattern => the eggs do not get onto an already occupied elevator step. In elevators with more than 4 tiers, the eggs are laterally deviated in the 5th to the 8th tier => the eggs are thus transferred to the free half of the elevator chain => simultaneous transfer. If layers of different age groups are housed, the elevator can collect the eggs from both in rows or per flock. In the case of a conventional elevator, egg belts and elevator chains are driven by only one motor. In order to be able to adapt the conveying capacity to the laying performance in the best possible way, it is, however, possible to equip egg belts and elevator chains with one motor each.



Elevator with simultaneous transfer



Crossbelt transfer with flexible finger wheel, consisting of a hard plastic core and soft polyurethane fingers
=> When the eggs are transferred from the elevator onto the crossbelt, there is always one row of fingers between the eggs rolling out of the elevator and the eggs on the crossbelt, thus substantially reducing roll-out velocity and preventing collisions.



Patented two-component dosing wheel with a core of rigid plastic and a soft, flexible polyurethane lip at the outer ring
=> maximum reduction of hair-cracked eggs
=> simplified cleaning

Light and flexible **steps of the elevator chain with additional plastic safety struts** aus Kunststoff sind
=> soft egg collection, no damages
=> gentle crossbelt transfer
=> no sliding grids necessary to prevent eggs from rolling down from the bars
=> little soiling, simplified cleaning

How the elevator works:

The eggs are transferred from the longitudinal egg belt via the dosing wheels onto the elevator chain, which transports the eggs down the elevator. Reaching the lower cage, the conveying direction of the elevator chain is changed and the eggs are transferred to the cross collector at the desired height. Depending on the type of installation, egg transfer can take place at any height, preferably at 2.10 m (Q 210). Hence, a passage height of 1.95 m is guaranteed. When a hand-gathering table is used, egg transfer occurs at a height of 80 cm (Q 80).

Advantages

- same conveying direction of egg belts and elevator chain => smooth egg transportation;
- egg collection simultaneously on up to 8 tiers;
- easy access to all cage rows => no impediment caused by cross collection;
- little space requirement in the end set area;
- softly coated dosing wheels => very careful egg transfer.

Lift system – cost efficient for small installations, only one egg transfer

The lift collection system gathers the eggs simultaneously from all cage rows of each tier. The special feature of the lift is that the conveyor moves to the individual tiers to collect the eggs. After having completed its work, the lift is raised to the parked position.

Depending on the house length, the longitudinal belts of up to 6 rows can be driven by one motor => low power load and reduced current costs.

Especially for smaller units and individual houses respectively, when the eggs are not collected per flock, the lift collection system constitutes an efficient and cost-effective solution. The eggs are transported very carefully as only one transfer is involved from the egg belt to the cross conveyor.

A frequency regulator should be installed to adjust the conveying capacity to the performance of the egg grader, in which case the speed of the longitudinal belt of 4 m/min can vary between 50 and 120 %.



Lift system – eggs are collected by tier



Cross collector in parked position



Egg transfer from longitudinal to cross belt

The special Big Dutchman control enables the longitudinal belts to be reversed for a short period of time before the cross collector is moved to the next tier. Eggs that are situated near the critical transfer area can thus be moved into a safe position. The Big Dutchman lift egg collection system can be equipped with a rod or curve conveyor with a width of 350, 500 or 750 mm.

Advantages

- smooth egg transportation => reduced amount of cracked and hair-cracked eggs;
- easy access to cage rows, as the lift is raised to the parked position after egg collection => cross collection does not block the aisle allowing free access between the rows for inspections and moving animals in and out;
- can be combined with any type of cross collector with different widths.



Lift collection system for a 6-tier cage installation

Rod and curve conveyor – for custom-made solutions

Different house designs as well as differences of level almost always require an individual, customized solution for the transportation of eggs.

The **Big Dutchman curve conveyor** is designed as a modular system, thus meeting individual requirements, such as different heights and curve guides. The curve conveyor can transport eggs over long distances.

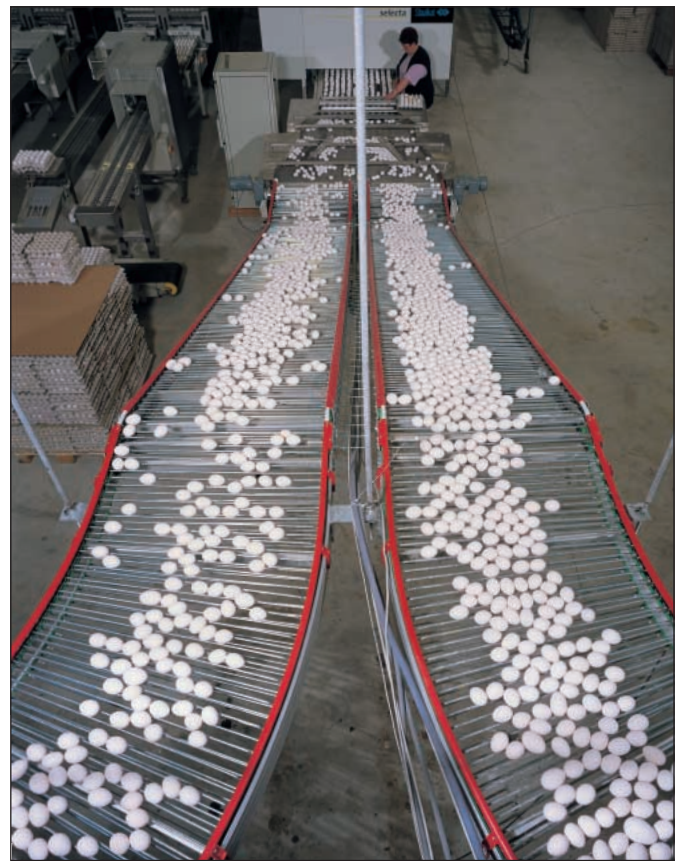
The core of the curve conveyor consists in the galvanized and plastic-laminated conveying chain respectively, which is made of two hardened outside chains with welded-on crossbars. These are arranged on the same level. This

- allows smooth transfer of eggs to the conveying chain and
- prevents accumulation of eggs along the inner radius of curves.

The distance between crossbars allows for ascending gradients up to 20°. Standard curve sections are available to construct 180°, 90° and 45° bends. The conveyor height can be set by means of adjustable posts. The conveying chain is covered from both sides with a red safety profile.

A telescopic unit, which is delivered with a compensator and link components, connects the curve conveyor to the lift system.

The width of the curve conveyor determines its transport capacity. In a Multitier system, the entire width of the curve conveyor can be used. The actual conveying width of elevator and lift is reduced by approx. 80 to 100 mm owing to baffles in the egg transfer area. At a conveying velocity of 6.5 m/min the following results can be achieved:



Width	Conveying capacity	
	Multitier	Elevator/Lift
200 mm	24 000 Eggs/h	
250 mm	30 000 Eggs/h	
350 mm		34 000 Eggs/h
500 mm		50 000 Eggs/h
750 mm		80 000 Eggs/h

The **Big Dutchman rod conveyor** is used for special tasks and is often installed into alternative laying systems as a link between the laying nest and the egg collection system. It can only transfer eggs in a

straight line.

Depending on the individual requirements, an elevator with hand-gathering table or rod and curve conveyor with subsequent egg packer can be used.



Elevator with hand-gathering table



The eggs are transported via a rod curve conveyor to the egg packer

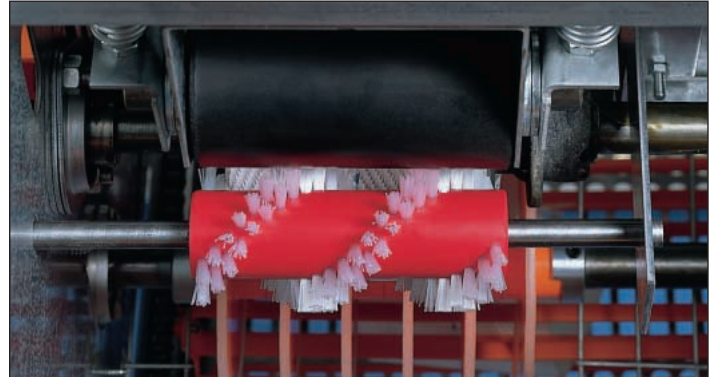
Technical accessories that make a big difference

Small accessories that make a big difference – that's what we could call accessories available from Big Dutchman:

- cleaning brush for egg belts;
- egg belts of different materials;
- automatic egg counter.

Egg belt cleaning brush

Dirt is removed by means of a rotating brush, located below the egg belt in the area of the drive unit of each tier. It rotates in the opposite moving direction of the egg belt => **good cleaning effect**. The spiral arrangement of the extremely robust bristles results in a **good self-cleaning effect** of the egg belt cleaning brush.



Egg belt

You can choose between different types of egg belts:

- egg belts of woven polypropylene (PP)
- egg belts of perforated polypropylene

Depending on the intended use – be it in cage systems or as egg collection belts for laying nests – different sizes of egg belts are available.



Automatic egg counter

Using an automatic egg counter you can determine whether eggs are counted in rows, per tier and/or per house. Technical prerequisites:

- **amacs** – the agro management and control system
- one basic unit per house
- one counting module per longitudinal or cross belt, per row or only per house.

How the system works:

Each counting module has 8 infrared sensors. When an egg passes the counting module, the intensity of reflection is measured by the infrared sensors. The egg is counted and registered as soon as the highest point of the egg has been recorded by the infrared sensor. **amacs** provides the information about the number of counted eggs at any moment during operation.



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