Egg collection systems
Flexible, efficient and gentle on the eggs
Egg collection systems - an investment that pays off!

Egg collection systems play an important role in successful layer and breeder management both in floor and in cage production. This is mainly due to the following reasons:

✓ they save time and labour costs;
✓ production of optimum egg quality, i.e. clean eggs, fewer cracked eggs;
✓ accurate count of the total number of eggs produced per tier, row and house.

Big Dutchman egg collection systems meet even the highest requirements:

✓ gentle egg transportation;
✓ highly reliable;
✓ easy to operate.

Based on the farm size, the house design and the individual customer requirements there are different egg collection systems available. This includes elevators, lift systems, curve-, rod- and vertical conveyors, multi-tier collection systems as well as table drive systems and manual collection tables.

Before an egg collection system is installed, the following questions should be taken into consideration:

✓ Are there uneven ground levels on the farm and are the houses built at different elevations?
✓ How large is the capacity of the packer and sorting system?
✓ Do you intend collecting the eggs separately for each flock or simultaneously?

Let our experts advise you to find the best solution for your individual requirements.

Egg collection systems for cage production

Elevator ST

Ideal for short systems, reliable egg transportation

With the elevator ST (standard) eggs are transferred onto the elevator chain in a set pattern. This is to ensure that no eggs are transferred onto already occupied steps. If the house is occupied with birds of different age groups, the elevators ST can also be used to collect eggs per row or per flock. In order to ideally adapt the conveying performance to the laying performance, we recommend actuating egg belts and elevator chains separately. With the elevator ST, the eggs are transported on the elevator chain by means of dosing wheels. The elevator chain transports the eggs downwards to the lower sliding grille where the chain turns and then transports the eggs upwards up to the desired height, where they are transferred onto the cross belt. The transfer can be carried out at any height, the standard height, however, is 2.10 m or 82.7” (Q 210) to ensure a clearance height of 1.95 m (76.8”). If a manual collection table is installed, the transfer height lies at 80 cm or 31.5” (Q 80).

Advantages

✓ collection capacity -> up to 16,500 eggs per hour and elevator;
✓ all cage rows are freely accessible -> no obstruction because of cross collection;
✓ less space required in the end-set area;
✓ suitable for all cage types.

Advanced technology and reliability

Egg transfer onto cross belt with finger wheel (optional) -> prevents a collision of eggs coming from the elevator with eggs on the cross collection.

Patented 2-component dosing wheel with a core part of plastic framed by a soft and flexible lip helps to prevent hairline-cracked eggs.

Steps of elevator chain with additional safety braces made of plastic are light and flexible

-> safe transfer from the dosing wheel
-> soft acceptance of the eggs, reduced damage
EggCellent
Large collection capacity, minimum maintenance requirements

The EggCellent elevator designed by Big Dutchman is characterised by its large collection capacity and minimum requirements for system adjustments. Of course, it provides everything that is needed for the safe transportation of eggs. From the longitudinal belt the eggs are conveyed onto a rod conveyor from where they are then transferred onto the entire width of the elevator conveyor chain. All this is done without the need for an extra dosing unit as the eggs are distributed along the elevator chain by means of a deflector.
In order to ideally adapt the conveying performance to the laying performance, we recommend actuating egg belts and elevator chains separately.

Every tier conveys onto an individual section of the rod conveyor and elevator chain; deflectors ensure an optimum distribution of the eggs on the elevator chain.

Safe transfer from the elevator chain (patent pending) to the cross belt.

Advantages

- Large collection capacity → up to 19,000 eggs per hour and elevator;
- Simultaneous collection of up to 8 tiers;
- No dosing units required → minimum maintenance requirements;
- Rod conveyor with cleaning function → soft-shelled eggs and dirt particles are removed before they get to the elevator chain;
- All cage rows are freely accessible → no obstruction because of cross collection;
- Suitable for all cage types;
- Simple assembly and adjustment.

**EggStar**

Large collection capacity, optimum and specified distribution of eggs on the elevator chain

The elevator EggStar also transports the eggs first from the longitudinal belt to a rod conveyor. The new feature, however, is that only every second rod is occupied. From there, the eggs are transferred to the elevator chain (again only to every second step). Due to the precisely coordinated speed of rod conveyor and elevator chain no eggs are transferred to already occupied steps. Moreover, the eggs are always transported in the same conveying direction until they are delivered to the cross collection at the desired height → safe and gentle transport of the eggs.

The transfer can be carried out at any height, the standard height, however, is 2.10 m or 82.7” (Q 210) to ensure a clearance height of 1.95 m (76.8”). If birds of different ages are housed, the eggs can be collected also by rows or flocks as is the case with EggCellent. In order to ideally adapt the conveying performance to the laying performance, we recommend actuating egg belts and elevator chains separately.

Advantages

- Large collection capacity → up to 22,000 eggs per hour and elevator;
- Simultaneous collection of up to 8 tiers;
- Synchronized transfer of eggs without change in direction → very gentle egg transport;
- Rod conveyor with cleaning function → soft-shelled eggs and dirt particles do not reach the elevator chain;
- All cage rows are freely accessible → no obstruction because of cross collection;
- Suitable for all cage types;
- Simple assembly and adjustment.
Lift system
Only one egg transfer, less space required in the end-set area

The lift system collects the eggs simultaneously from all rows. The main feature of the lift system is that the cross conveyor moves to the individual tiers to collect the eggs. Once the eggs from all tiers are collected the lift is raised to its stand-by position. The lift system is a good and economic solution especially for small units or individual houses, and when the eggs are not collected per flock. The egg transport is very gentle as only one transfer is involved from the longitudinal belt to the cross belt.

Advantages
- Smooth egg transport as there is only one transfer from longitudinal to cross belt;
- Free access to the rows as the lift system is moved up to its stand-by position after the collection is finished –> the cross collection system does not obstruct inspection rounds;
- Less space required in the end-set area;
- Can be combined with every cross collection of any width.

Due to the specially designed control system, the longitudinal belts can be reversed just before the cross collection moves to the next tier. Eggs located in the critical area of the transfer can thus be moved to a safe position. The lift system can be connected to a rod or curve conveyor with a width of 350, 500 or 750 mm (13.8", 19.7" or 29.5"). Differences in height are overcome by means of a telescopic unit.

MultiTier
Large collection capacity, minimum maintenance requirements

MultiTier is especially well suited for large units as it collects the eggs from all rows and all tiers simultaneously. There is only one transfer from the longitudinal collection to the cross collection which ensures gentle transportation of the eggs. Thanks to the V-shape of the channel, the eggs have almost no contact with the channel sides –> good distribution. The perforated bottom ensures a smooth forwarding of the belt at an reduced driving power.

If the eggs are collected per flock, the belts operate at 4 m/min (13.1 ft/min). In case of simultaneous collection from several houses, the longitudinal belt speed can be frequency controlled between 6 and 90 Hz (option). With such a system, it is, however, rather difficult to access the rows.

Advantages
- Simple and reliable technical construction, low maintenance requirements;
- Large collection capacity;
- Gentle egg transportation;
- Cost-effective solution;
- Well suited for long transport distances (up to 200 m; 7.9" per drive unit).
Egg collection systems for floor production

In alternative egg production and also in broiler breeder management, where one or two-tier laying nests are used, a completely different egg collection system is required. For aviaries with off-set nest arrangement, vertical conveyors, rod and curve conveyors are available. Elevators and lift systems are mainly designed for the collection of several tiers; they can also be used in floor production. If eggs are to be collected manually, we recommend using manual collection tables. Table drives, on the other hand, are especially well suited for single-tier double nests. There are not egg transfer points and therefore no loss in quality.

Under the name of EGOO, Big Dutchman has compiled different egg collection units. These economic and space-saving solutions are mainly used in houses with manure pit and two-tier double nests.

Vertical conveyors
Space-saving, for off-set nest arrangement

Vertical conveyors are the standard solution whenever there is little space between the nests and the cross collection. They operate with a gradient of 50° and are available in two widths – 350 and 500 mm (13.8 and 19.7”). The vertical conveyor is powered by a separate drive unit for greater flexibility of the collection speed. We recommend frequency regulation of the longitudinal egg belt (optional).

Rod and curve conveyors
Flexible egg transport

Rod conveyors are often used in alternative layer production as a connection from the nest to the cross collection. However, they can only be used in straight direction. Curve conveyors on the other hand are often used as cross collection because, thanks to their flexibility, they can be adapted to any type of house design. The core part is the galvanized, plastic-coated chain which consists of two hardened outer chains with weld-on cross bars. At the standard conveying chain the cross bars are arranged on the same level. This means:

✓ smooth transfer of the eggs to the conveying chain;
✓ no accumulation of eggs along the inner radius of the curve.

The distance between the cross bars allows for an ascending gradient of up to 20°. Standard curve sections are available for installation of 180°, 90° and 45° bends. The required standing height can be achieved by means of height-adjustable posts. The conveying chain is protected by a red safety profile on both sides.
Lift
Only one egg transfer

The lift system can be used for multi-level nests. Eggs are collected simultaneously per tier in all rows. The lift system is an egg collection unit specially designed for a gentle egg transportation as there is only one egg transfer. The production unit is fully accessible because once the egg collection is finished, the lift is moved up to its stand-by position which can be at a height of > 2 m (78.7’). Another advantage is that it requires only little space in the end-set area.

Table drive and manual collection table without drive
Manual egg collection

Table drives are designed for maximum smoothness during egg collection because there are virtually no transfer points. The longitudinal egg belt runs over the table which also means that no additional drive units are needed.

Manual collection tables (without drive) are mainly used for small units or if several houses are planned but not finished yet. In this case a manual collection table is used until it can be replaced by a cross collection with farm packer.

EGGO
Compact egg collection units for two-tier double nests

EGGO II

EGGO II is designed for manual collection. The eggs are collected per nest tier at a manual collection table. The collection can be carried out either to the left or to the right hand side. Both collection sides can be adjusted in height.

EGGO VI

EGGO VI can be used both with a manual collection table and with a farm packer as the 400 mm (15.7”) wide curve conveyors can be directly connected to a farm packer.
Curve conveyors
Custom-made egg cross transportation

Different house designs as well as differences in height often require customized individual solutions for egg transportation. The conveying capacity is determined by the conveying speed and the effective width of the curve conveyor. With Multi-Tier it is possible to utilize the entire width of the curve conveyor. With elevator and lift system, deflectors reduce the effective width by 100-120 mm (3.9-4.7”) in the transfer area. With a conveying speed of 6.5 m/min (21.3 ft/min) the following results can be achieved with different conveyor widths:

<table>
<thead>
<tr>
<th>Width</th>
<th>Conveying capacity MultiTier</th>
<th>Elevator/Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 mm (7.9”)</td>
<td>24,000 eggs/h</td>
<td></td>
</tr>
<tr>
<td>350 mm (13.8”)</td>
<td>34,000 eggs/h</td>
<td>50,000 eggs/h</td>
</tr>
<tr>
<td>500 mm (19.7”)</td>
<td></td>
<td>80,000 eggs/h</td>
</tr>
<tr>
<td>750 mm (29.5”)</td>
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<td></td>
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</tbody>
</table>

Advantages

- ✓ accurate recording of all eggs;
- ✓ with the amacs management system the operator can easily retrieve and analyze the data of all installed EggCams in real time;
- ✓ with infrared light EggCam also works reliably in the dark.

Innovative management systems for collecting eggs

**EggCam**
High counting accuracy

The egg counting system from Big Dutchman records every egg. This is possible by an innovative camera technology with image processing integrated in the sensor. EggCam overlooks a complete area of the conveying path in high resolution and is thus able to record every single egg. EggCam can be installed at the longitudinal egg belt on every tier or at the cross belt. It works on up to 14 cm (5.5”) wide fabric or rod belts in cage systems and on up to 35 cm (13.8”) wide rod conveyors in floor production. The Big Dutchman product range includes additional egg counting systems. Let our experts help you to find the perfect solution for your individual requirements.