



Big Dutchman®



NATURA Step

The animal-friendly aviary system
for barn, free-range and organic egg production

NATURA Step

The stepped aviary that is well-accepted by the hens and easy to access

Big Dutchman has more than 30 years of experience with aviary systems – an advantage that we use for our customers' benefit.

NATURA is a management system that is focused on the welfare of the birds, without disregarding functionality and efficiency, which are very important to egg producers. Our goal as a developer of egg production systems is designing a system whose functional structure is easy to understand for the layers, in which they can exhibit their natural behaviours and where they stay healthy and can lay their eggs under hygienic conditions.

Our NATURA Step aviary meets these requirements in an ideal manner. However, this does not release us from our job of further developing and optimising our systems, which we continuously do, together with our customers.

Not only do we look at the aviary itself, but also at such important factors as the best lighting concept for ideal light distribution and the appropriate ventilation system. NATURA Step is a very versatile system and can be used in barn and free range

egg production, for traditional and organic egg production, and in large as well as smaller houses.

NATURA Step is therefore always the right concept for animal-friendly egg production.



Important features of NATURA Step – animal welfare, functionality and efficiency form a

- ✓ both the staff and the birds can easily access the aviary, nest inspection is made simple;
- ✓ tiers of different widths create a

- stepped design in which all three levels are easy to reach, especially the integrated nest level;
- ✓ nipple drinkers directly in front of the

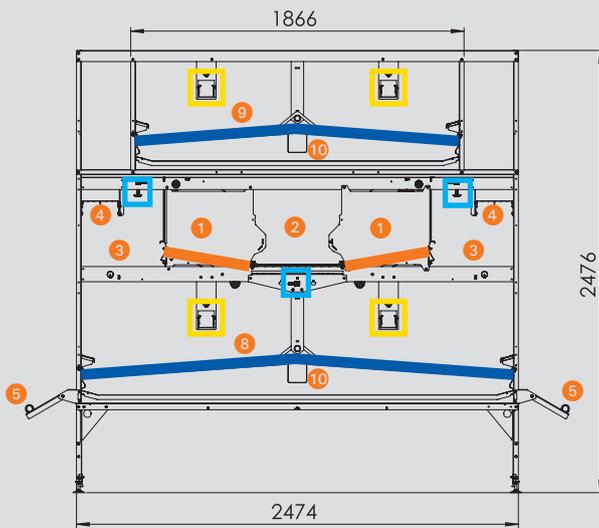
- nest increase nest acceptance;
- ✓ the separate nest level has a double nest and a central egg belt;



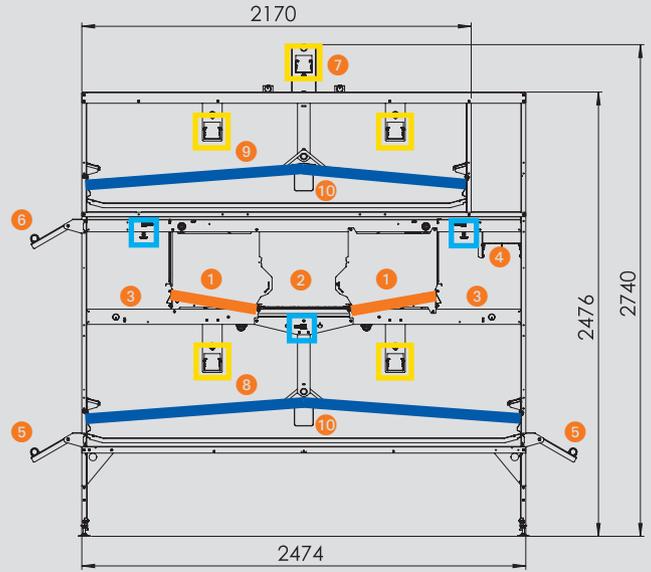
Cross sections and arrangement of the individual elements

NATURA Step 24-18

NATURA Step 24-21



Stepped on both sides for maximum bird movement



Stepped on one side for additional usable area

Key

- ① Nest
- ② Central egg belt (500 mm)
- ③ Wire flooring in front of the nest with approach perch
- ④ Integrated "hop and turn" plate
- ⑤ Approach perch
- ⑥ Additional approach perch (optional)
- ⑦ One or two additional feed lines (optional)
- ⑧ Manure belt level 1
- ⑨ Manure belt level 2
- ⑩ Air duct

The different areas of activity are arranged in a way that animates the hens to move around in the system.

- Nest surface area
- Water
- Feed
- Usable area

All dimensions in mm

a successful unit

- ✓ the required nest surface area can be adjusted to meet the stocking density due to the combination of sections with nest and sections with passage;
- ✓ a large usable area ensures good utilisation of the house surface;
- ✓ system eggs can be collected by an automatic system (optional);

- ✓ the nest curtain and the back wall can be removed for thorough cleaning;
- ✓ two manure belt levels guarantee that most of the manure is transported out of the barn, decreasing the ammonia content in the air and improving hygienic conditions;
- ✓ even as a single row, the aviary is fully functional;
- ✓ the entire house floor surface is used as a scratching area.



Integrated "hop and turn" plate

The integrated "hop and turn" plate is an important advantage of NATURA Step:

- ✓ makes moving between the levels easier for the hens;
- ✓ can be used both in length- and crosswise direction;
- ✓ is not in the way during nest inspection.



Resting zone

The top level is used as a resting zone. Equipped with both feed lines and perches, it is possible to install one or two additional feed lines as an option, depending on the stocking density. The accumulating manure drops onto the manure belt below and can be dried by means of an optional central air duct.



Colony 2+ group laying nest

Our Colony 2+ group laying nest guarantees good results due to high nest acceptance and a low number of dirty and cracked eggs. The nest is integrated into NATURA Step. It is easy to enter, has a soft nest insert and a divided tilting floor. Before this tilting floor closes the nest at night, all eggs roll off backwards onto the egg belt. The hens cannot sleep in the nest, which prevents soiling and increases nest hygiene.



Lower level

The lower level is equipped with two feed lines and a central drinker line. The hens can eat without being disturbed. The entire level is lit by our FlexLED tube lamp, providing even and flicker-free illumination. The accumulating manure drops onto the manure belt below and can be dried by an optional air duct that is installed in the centre.

Sheet metal perches, optionally made of stainless steel, guarantee a secure foothold for the birds.



Scratching area

The hens can use the entire house floor as a scratching area. Our FlexLED tube lamp illuminates the areas below the system with even, flicker-free light. Hens therefore lose interest in laying eggs here. Our litter reduction system removes manure and excess litter automatically, if desired, which also helps reduce dust.



Egg collection with a vertical conveyor and automatic system egg collection by means of an elevator



Egg collection

We can offer many different options for egg collection, including vertical conveyors and rod conveyors, elevators and lift systems. Vertical conveyors are the standard solution wherever there is little space between the nests and the cross collection. Elevators are well-suited for the automatic collection of system eggs because the eggs need to be collected from two levels. The lift system is designed for especially gentle egg transport as there is only one transfer point. The production system is fully accessible at all times because once all eggs have been collected, the lift moves into its parking position.



Manual system egg collection



Automatic system egg collection

System egg collection

Due to the slight gradient of the wire floor, eggs mislaid in the system (system eggs) roll towards the sheet metal perch. They remain safely under this perch until they are collected manually.

As an option, we offer an automatic system for collection of these eggs.



Central, 500 mm wide longitudinal egg belt with triangular holes for a stable position of the eggs

Central longitudinal egg belt

The central egg belt with its high share of triangular holes ensures that eggs stay clean; the three-point bearing increases the egg's stability on the belt. The optional cover above the egg belt protects the eggs from dirt that may drop from the returning manure belt.

A special gap (option) allows the hens to poke their heads out of the nest should it become overcrowded.



Reinforced egg belt drive

EggTrax

The EggTrax transfer unit ensures a safe and smooth transfer of the eggs from the longitudinal to the cross belt or to the vertical or rod conveyor at a speed of 2.6 m/min. EggTrax has the following advantages:

- ✓ anti-crack fingers ensure a controlled egg transfer to the cross belt or the vertical conveyor;
- ✓ the integrated egg belt brush keeps the

egg belts clean;

- ✓ the transfer unit can be removed single-handedly, thus facilitating cleaning with a high-pressure cleaner;
- ✓ the rope transfer (optional) transfers the eggs very smoothly while simultaneously allowing feathers, dust and eggs without shell to fall down between the unit's individual threads.

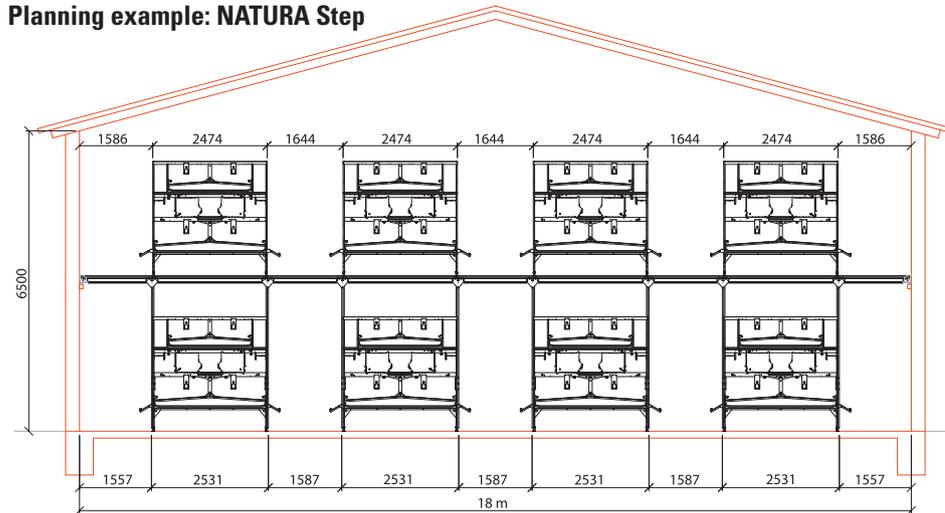
Two-level house with intermediate ceiling

NATURA Step is well-suited for use in two-level houses. Big Dutchman can also offer this aviary with an integrated intermediate ceiling. This ceiling may

consist of coated wood or, even better, a plastic material. A closed ceiling guarantees that the entire area is usable on the second level as well. Depending on the

system concept, aisle widths between 1.60 m and 2.50 m are possible.

Planning example: NATURA Step

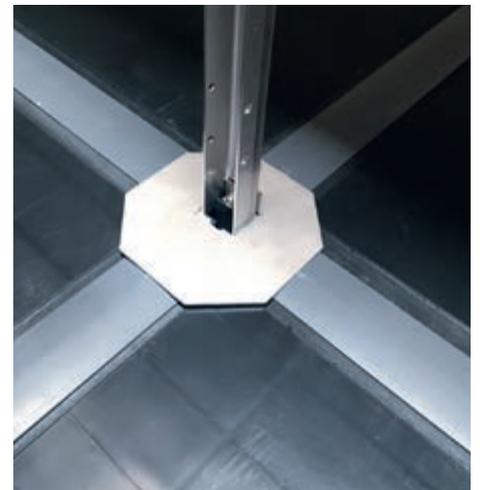


Advantages of the plastic ceiling

- ✓ the boards are made of polypropylene and therefore 100 percent resistant to water, i.e. wet cleaning is no problem;
- ✓ the boards are manufactured with the required dimensions, saving time during assembly because no cutting is necessary on site;
- ✓ no L-profiles are required in the longitudinal direction, allowing the fresh air to flow along the ceiling without obstructions;
- ✓ the white underside of the boards increases brightness in the lower level;
- ✓ the plastic boards are closed on all sides to prevent hotbeds for mites and other vermin.



View of an intermediate ceiling made of plastic boards before the system is installed on the second level



The system posts are mounted securely to the intermediate ceiling with feet made of stainless steel

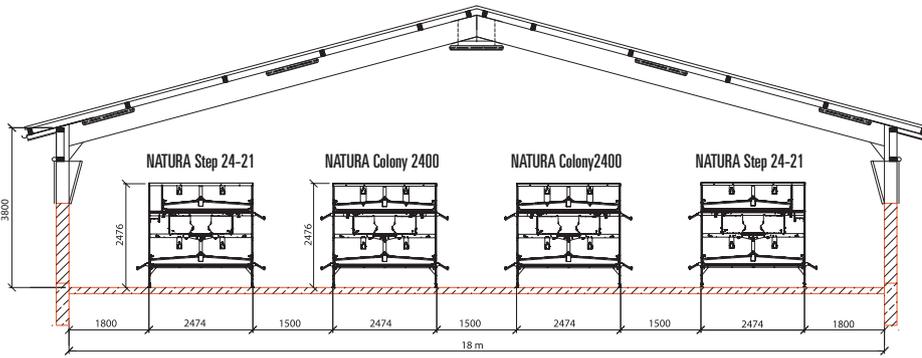


The smooth, white surface of the plastic boards allows the fresh air to flow crosswise through the barn without obstructions and also increases brightness in the lower level



Entirely closed plastic board, with a dark upper side and a light underside

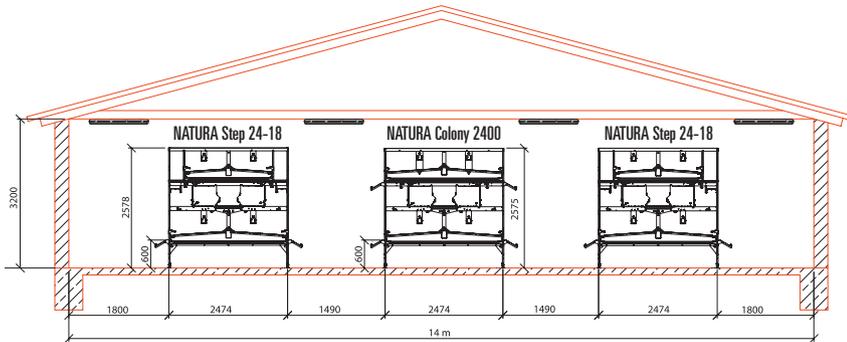
Combination of NATURA Step and NATURA Colony for ideal utilisation of the barn



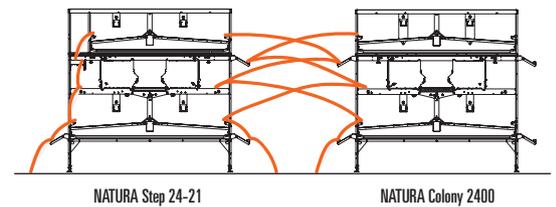
House utilisation can be improved further by combining NATURA Step 24-21 and NATURA Colony 2400

If the customer is most interested in a high stocking density, the NATURA Step and NATURA Colony 2400 aviaries, which come from the same product family, can be combined.

In contrast to NATURA Step, NATURA Colony 2400 has two manure belt levels of the same width. It is therefore slightly more difficult for the hens to reach the top level. This problem is handled by additional approach perches which make it easier for the layers to move between the tiers, and to access the NATURA Colony row when coming from the NATURA Step aviary.



Raising the system by a maximum of 150 mm facilitates bird inspection as well as cleaning after each batch, and also makes it easier to illuminate the scratching area below the system



The correct lighting concept for optimal light distribution in the barn

A customised lighting program for aviary houses significantly contributes to successful egg production. Big Dutchman therefore recommends using the following lamps, which work together when

controlled by a lighting program.

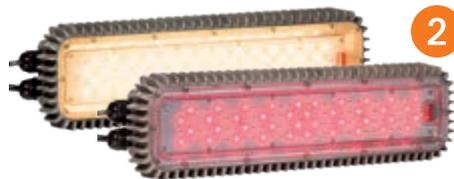
- 1 BD moisture-proof lamp for aisle lighting, installed crosswise
- 2 LED panel light Zeus for aisle lighting, optionally available with different LED

boards, installed crosswise

- 3 tube lamp FlexLED for system lighting



BD moisture-proof lamp, dimmable

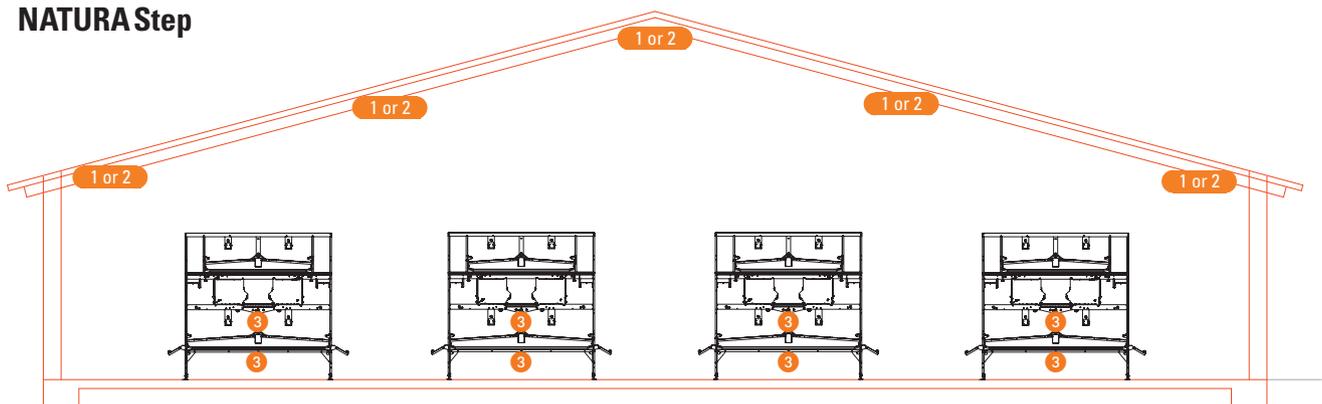


LED panel light Zeus, dimmable

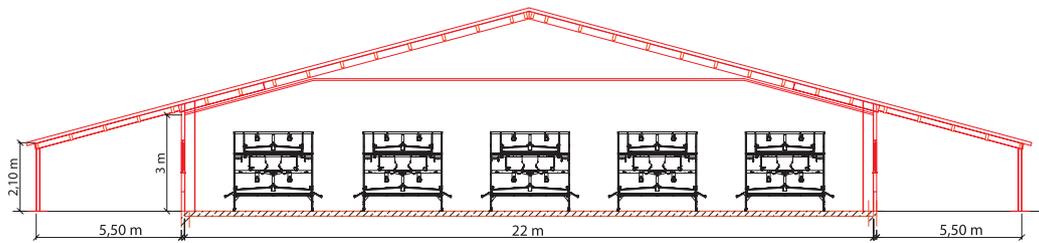


FlexLED tube lamp, dimmable

NATURA Step



NATURA Step with winter garden – gradual transition from the barn to the free range



- ✓ the layers can use the roofed winter garden as an additional scratching area when the weather is bad;
- ✓ a concrete floor stops nutrients from entering the soil uncontrolled;
- ✓ the winter garden can be cleaned easily and thoroughly after each batch for increased hygiene.

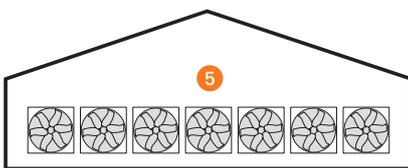
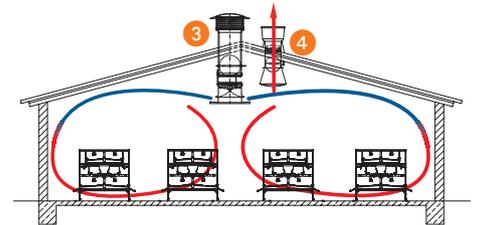
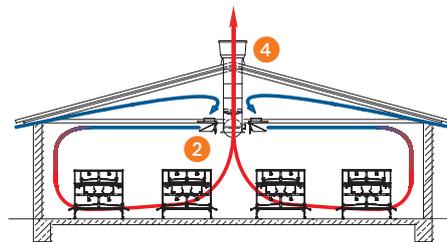
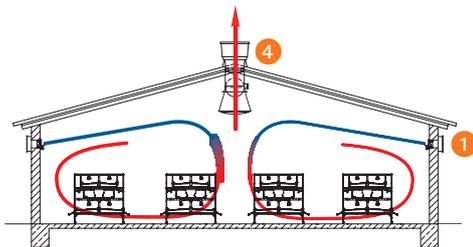
The adequate ventilation concept for ideal climate conditions in the barn

A tailor-made ventilation concept in aviary houses is an important factor in successful egg production. Big Dutchman can provide the best solution for every customer. The negative-pressure ventilation systems for

barns with and without intermediate ceiling described below create ideal climate conditions. The following fresh and exhaust air elements can be used:

1 CL 1200 or CL 1900 wall inlet

- 2 CL 1540 ceiling inlet
- 3 FAC or Fumus fresh air chimney
- 4 CL 600 or CL 920 exhaust air chimney
- 5 AirMaster wall fan



In addition to exhaust air chimneys, wall fans are also an option. They are installed in the gable end and draw the air lengthwise through the barn.

In case of free range egg production, the

pop holes are open during the day, making pure negative pressure ventilation difficult to realise. Instead, switching to equal pressure ventilation may be an alternative during these periods.



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