
Laying battery cages for chicken — Specification



Table of contents

1 Scope 1

2 Normative references 1

3 Terms and definitions 1

4 Requirements..... 2

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Introduction

Chicken eggs are one of the most important sources of animal protein globally, due to its competitive price and high nutritive value. The increase in demand for food has led to more efficiency in the production and processes of livestock and poultry. Therefore, with regards to poultry housing, the laying hen cage system has become the most important facility as it guarantees the welfare of birds while laying hence the need to develop welfare guidelines. Cage farming can raise more birds than flat (slatted floor and deep litter system) farming, hence saving manpower and material resources while increasing egg production.

Cages for laying hens are essential in poultry production to ensure their profitability. They shall comply with this standard to maintain animal welfare and optimize production performance.

Laying battery cages for poultry— Specification

1 Scope

This Committee Draft African Standard specifies minimum requirements for chicken laying battery cages.

This standard covers the types, materials, construction, test methods and other requirements of laying battery cages.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

laying chickens/layer

birds (*Gallus gallus*) reared, kept, and managed for egg production, but do not include birds being reared and managed for purposes of breeding laying chickens

3.2

broiler

bird (*Gallus gallus*) species kept for meat production

3.3

chick

young of a domestic fowl

3.4

feeder

feeding vessel used to hold and provide feed for birds

3.5

drinking nipples

water outlets with pressure-controlled flow to provide few drops to a bird at a desired time

3.6

battery cage

wire-based production system used for egg laying hens

3.7

feeding system

mechanism designed for the controlled distribution of feed giving birds equal chance to eat

3.8

drinking system

device used to provide easy control of the flow of fresh and clean water to chickens

3.9

egg collection system

mechanism used to gather eggs

3.10

CD-ARS 1241:2025(E)

environmental control systems

equipment and procedures designed to regulate temperature, humidity, ventilation, lighting and air quality within poultry housing facilities

3.11

manure removal system

Mechanisms or set of equipment designed to efficiently and hygienically remove manure from poultry facilities

3.12

cage configuration

layout of cages within a poultry housing system

3.13

feed

any material (single or multiple) whether processed semi processed or raw which is intended to be feed to livestock and fish except bees

3.14

tier

group of adjoining cages at the same level

4 Requirements

4.1 The battery cages shall be complemented with the following welfare measures:

- a) Birds shall have access to healthy and nutritious diet.
- b) Birds shall have appropriate and friendly environmental design to promote comfort.
- c) Staff shall be trained on the use of the battery cages so as to provide good care to the chickens.
- d) Balanced environmental conditions shall be adhered to at all times to avoid problems such as heat stress, strong winds, or excessive humidity.
- e) Fecal matter and food waste shall be cleaned frequently.
- f) Control of insects (disease vectors), rodents and wild birds shall be monitored.
- g) Egg-producing hens shall have an available area of 450 cm² inside the cage to guarantee their comfort and movement.
- h) Chicken cages shall have a feeder that can be available at all times to provide adequate feeding, which shall provide a space of 10 linear cm for each bird housed in the cage.
- i) Chicken cages shall be fitted with the supply of clean portable water. The nipple shall be 10 linear cm containers for each bird housed.
- j) Battery cages for chickens shall have an ideal height of 40 cm.
- k) Floor of chicken cages shall be strong enough to safely support the legs. Its inclination shall not exceed 8 degrees to avoid discomfort to the birds.
- l) Cage floors shall be made of 14-gauge welded wire.
- m) Floor of the cages shall be of a grid size that is large enough to allow the free fall of feces through the holes.
- n) Grid of the floor shall be appropriately sized to prevent the legs of the hens from coming out or getting caught in them.
- o) Layer cage shall have good elasticity, with no deformation or sagging within its lifespan.
- p) Design of chicken layer cage shall be prominently done to reduce the damage of eggs to under 0.2 % and effectively reduce chicken fatigue.
- q) Enough space for each chicken shall be provided for easy access to feed and water.
- r) Cage shall be constructed to minimise diseases outbreaks and mortalities rates.

- s) Cage shall consist of feeding, drinking, egg collection, manure removal and climate control systems.
- t) Cages shall have smooth surfaces to avoid injury to the birds.
- u) Cages shall be restricted to 3-4 tiers to ensure its well balanced.

5 Type of battery cages

5.1 The lying battery cage shall be of the following three types:

5.1.1 **Type A:** Single tier cages.

5.1.2 **Type B:** Cages of more than one tiers placed above the other with intervening dropping trays as shown in Figure 1.

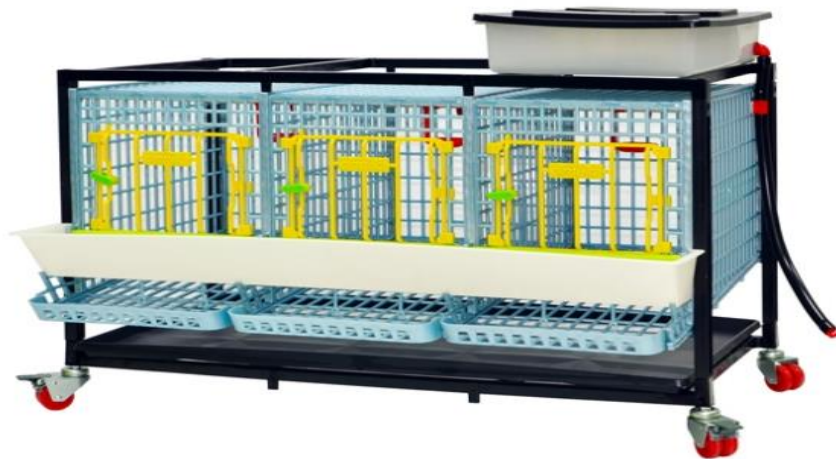


Figure 1 — Type B battery cages

5.1.3 **Type C:** California type in which the tiers are placed in a step deck arrangement as shown in Figure 2.



Figure 1 — Type C battery cages

5.2 Materials

The battery cages are made of steel wire on all six sides, feed troughs and conveyor shall be made galvanized sheet metal to be robust and weatherproof of 0.5 to 1mm thickness. Watering system shall be of PVC, material pipe, nipple drinkers shall be made of stainless steel and fine quality plastic material to ensure durability and efficient delivery of water. Egg collector and conveyor shall be made of soft bottom pad. The manure removal belt shall be made of polypropylene.

6 Material specifications

6.1 Cages

Battery cages shall be made of galvanized steel wires to ensure resistance to rust and corrosion.

6.2 Feed troughs

6.2.1 Feed troughs shall be made from durable plastic or stainless-steel metal with a thickness ranging from 0.5 mm to 1 mm.

6.2.3 Troughs shall be securely attached to cages.

6.2.2 The design shall facilitate easy access to feed whilst minimizing wastage.

6.3 Watering system

6.3.1 The watering system shall be made of PVC material.

6.3.2 Nipple drinkers shall be made of stainless steel and fine quality plastic material to ensure durability and efficient delivery of water.

6.4 Egg collector and conveyor

The egg collector and conveyor shall be made of soft bottom pad.

6.5 Manure removal belt

The manure removal belt shall be made of polypropylene.

7 Capacity

7.1 Capacity of the laying battery cage shall be declared by the manufacturer.

7.2 Based on the type and number of tiers, the capacity shall not significantly vary between manufacturers.

8 Construction

8.1 The cage system shall be designed to be strong against earth movements.

8.2 The primary structural component of the cage system shall consist of the legs, located at intervals of 84 cm lengthwise.

8.3 The wide-based connection units shall be adjusted with bolts.

8.4 Cage configuration shall have the following:

- a) Flat floor shall be simple cage installations, they shall be placed together without a service corridor.
- b) Single-floor shall have a row of cages; which is simple and practical in open-sided houses.
- c) Double-decked shall constructed to have the upper deck balanced allowing for evacuations through the wire mesh of the house floor without touching the bottom floor of the cage.
- d) Triple Triple or Quadruple Story: To further conserve space, three or four tiers shall follow the construction design of the double-decked cage.
- e) Cages with three (3) tiers shall have the dimensions of 2200 mm in height and 1250 mm in width
- f) Cages with four (4) tiers shall have the dimensions of 3500 mm in height and 1250 mm in width. The table below gives the dimensions of different cage systems according to tiers.

Table 1 — length of the tiers

Tiers	3	4	5	6	7	8
Height (mm)	2 200	2 850	3 500	4 800	5 450	6 100
Width (mm)	1 250	1 250	1 250	1 250	1 250	1 250

9 Systems specifications

9.1 Drinking system

- 9.1.1** Watering system shall consist of water tanks, PVC pipes, and plastic nipple drinkers or cups.
- 9.1.2** Nipples drinkers shall provide uninterrupted supply of drinking water.
- 9.1.3** Drinker shall be adjustable in height to accommodate birds of different ages.
- 9.1.4** Drinker shall release a few drops of water to chickens to avoid wetting the manure on floor.
- 9.1.5** Drinker shall not leak. If leakages are noticed they shall be attended to immediately.

9.2 Feeding system

- 9.2.1** Feeding system may consist of a silo and feeding equipment.
- 9.2.2** Feeders shall serve and distribute feed hygienically, homogeneous, mixed and equally to all birds.
- 9.2.3** Feeders shall be designed to distribute feed equally to all tiers without scattering feed outside the trough.

9.3 Egg collection system

- 9.3.1** Egg collection shall function to prevent the falling and breaking of eggs.
- 9.3.2** Broken eggs shall be limited to less than 0.2% of the total production.

9.4 Manure removal

- 9.4.1** Manure shall be removed from the poultry building on time to prevent ammonia buildup.
- 9.4.2** Manure removal shall be simple and fast to reduce stress on birds.

10 Marking and packaging

10.1 Marking

Each laying battery cage shall be legibly and indelibly marked on its outer surface with the following information:

- a) manufacturers name;
- b) manufacturers model or types reference;
- c) year of manufacture;
- d) any essential operating instructions; and
- e) numbering of birds per cage.

10.2 Packaging

Laying battery cage shall be packed as agreed to between the purchaser and the suppliers.

11 Test methods — Visual examination and inspection

Each laying cage shall be examined and inspected for general construction, materials and other requirements. There shall be no signs of rusting, sagging, deformation and loosening of joints.

