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भारतीय मानक मसौदा

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Draft Indian Standard

ROTARY ANIMAL RESTRAINER — SPECIFICATION

ICS 65.040.20

Slaughter House and Meat Industry
Sectional Committee, FAD 18

Last date of comments:
11 February 2025

FOREWORD

(Formal clause will be added later)

Rotary Animal Restrainers are devices that are used to immobilise the animals and control them during the slaughtering process. They are also known as Slaughter Boxes/ Killing Boxes as the heads are separated from the body of the animals in this device. It is a hygienic method of slaughtering the animals as there is a passage where the blood can be passed off. The use of a slaughter box/ rotary animal restrainer is important in ensuring compliance with animal welfare requirements, as its use, reduces stress experienced by the animal to very minimal levels. It also ensures the animal slaughtered cannot see other animals slaughtered or dressed.

The boxes can be cleaned and maintained easily, so they can be used repeatedly without getting damaged. Its robust construction and well-designed features allow it to keep animals safely and stably in place without causing them any harm. They can be used on animals of different sizes ranging from small to large animals.

In order to address the above, it was felt necessary to develop a standard for slaughter boxes so that effective slaughtering can take place. India has much potential to export the meat to other countries by ensuring the correct slaughter procedures which yield quality meat. The standardization of slaughter boxes will help to put hygiene slaughtering process in place.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

ROTARY ANIMAL RESTRAINER — SPECIFICATION

1 SCOPE

1.1 This standard specifies requirements in respect of material, design and dimensions and other requirements of rotary animal restrainer.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<i>IS No.</i>	<i>Title</i>
IS 302 (Part 2/ Sec 75) : 2018	Safety of household and similar electrical appliances Part 2 Particular requirements Section 75 Commercial dispensing appliances and vending machines
IS 2062 : 2011	Hot rolled medium and high tensile structural steel — Specification (<i>seventh revision</i>)
IS 6911 : 2017	Stainless steel plate, sheet and strip - Specification (<i>second revision</i>)
IS/ IEC 60529 : 2001	Degrees of protection provided by enclosures (IP Code)

3 RAW MATERIAL REQUIREMENT

3.1 The rotary animal restrainer shall be made of stainless-steel SS 304 (Austenitic X04 Cr19 Ni9) conforming to IS 6911.

3.2 The landing area (Landing grate) attached to the rotary animal restrainer shall be made of stainless-steel SS 304 (Austenitic X04 Cr19 Ni9) conforming to IS 6911.

3.3 The frames shall be made of hot dip galvanised structures or Stainless-steel SS 304 (Austenitic X04 Cr19 Ni9) conforming to IS 6911.

3.4 The drainage system attached to the base of the box that is connected to the outer drainage system for blood collection shall be made of stainless-steel SS 304 (Austenitic X04 Cr19 Ni9) conforming to IS 6911.

3.5 The motors used in rotary animal restrainer shall conform to the safety requirement as per IS 302 (Part 2) Sec 75. Electrical motors shall also have a degree of protection rated as a minimum of IP 65 as per requirements mentioned under IS/ IEC 60529.

4 DESIGN REQUIREMENTS

The design of a typical rotary animal restrainer is provided at Fig. 1 A and the isometric view of the same has been provided at Fig. 1 B for reference.

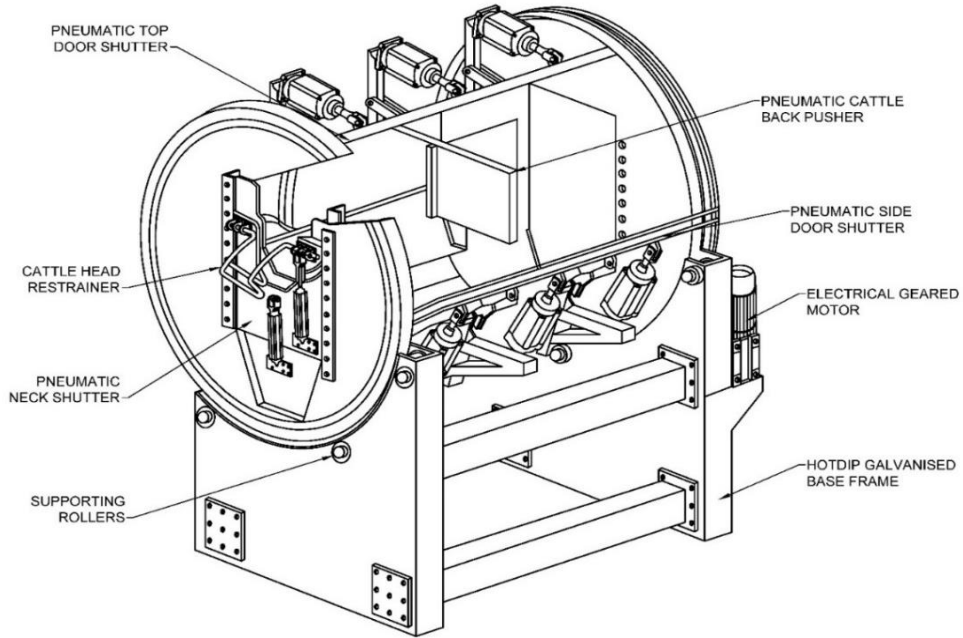


FIG. 1A SINGLE ROTARY ANIMAL RESTRAINER

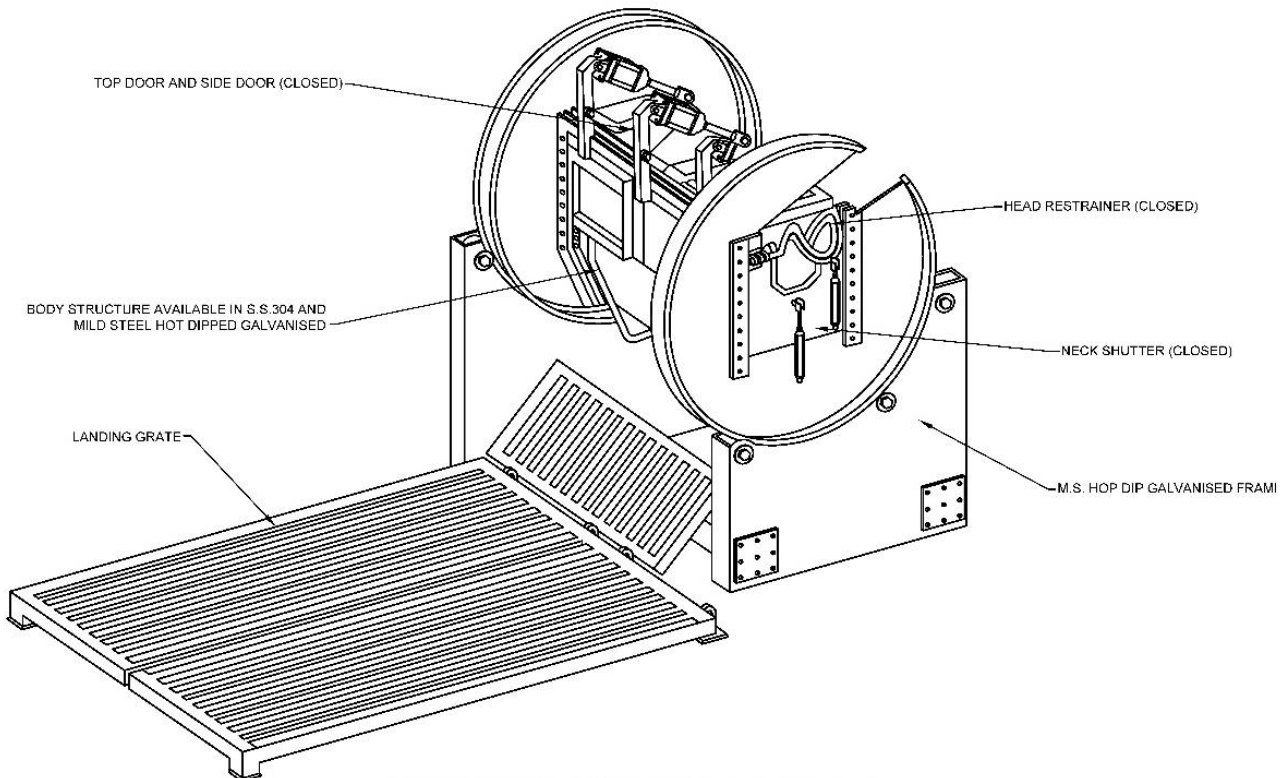


FIG. 1B ISOMETRIC VIEW OF ROTARY ANIMAL RESTRAINER

4.1 The side walls of the platform shall be fixed in the V-shaped frame, and it shall withstand the minimum weight of 1 ton.

4.2 The design should be such that it restricts both the lateral and vertical movement of the head of the animal.

4.3 For animals of bovine species, restraining boxes used in conjunction with a pneumatic captive bolt shall be fitted with a device that restricts both the lateral and vertical movement of the head of the animal.

4.4 The bottom part of the main body shall be of lesser width and the top shall be of wider width as the size of the animals.

4.5 The size shall be set according to the Murrah buffaloes. The body length of Murrah buffaloes varies from 120 to 162 cm, the front height varies from 116 to 148 cm and the animal depth varies from 55 to 72 cm. The dimensions of rotary animal restrainer should be according to these parameters and adjustable to be adapted to the size of the animal.

4.6 The front frame which has the head restrainer part shall be made of at least 12 mm thickness stainless steel SS 304 (Austenitic X04 Cr19 Ni9) conforming to IS 6911.

4.7 The frame at the bottom of the front frame shall be made of at least 10 mm thickness stainless steel SS 304 (Austenitic X04 Cr19 Ni9) conforming to IS 6911 or mild steel sheet conforming to IS 2062.

4.8 There shall be a provision of circular rotation of the box and the lever mechanism shall be provided to move the animals to the landing grate easily.

4.9 Essential components

4.9.1 *Head Restrainer*

The slaughter box shall consist of the head restrainer with a V-shaped structure. It is used to hold the animal's head effectively. It shall be operated pneumatically.

4.9.2 *Neck Shutter*

Neck Shutter shall have a V-shaped structure. It is operated pneumatically and is used to hold the animal's neck firmly and gently so that the animal doesn't feel any stress.

4.9.3 *Back Pusher*

The back pusher shall have a shape of an animal butt and be enforced with a rubber material so that animals don't feel any stress. It is pneumatically operated, which prevents the animals from going in a backward direction.

4.9.4 Squeezer

The squeezer shall squeeze the small animals entering the slaughter box and is used to hold the animals firmly.

4.9.5 Electric Gear Break Motor

The electric gear break motor shall be waterproof and is used to control the speed of rotation of the box.

4.9.6 Landing Grate

The area where the animals are landed after slaughtering is the landing grate. It shall have an area greater than the area of slaughtered animals.

5 OPERATION AND MAINTENANCE REQUIREMENTS

The operation and maintenance requirements of the rotary animal restrainer is provided at Annex A for guidance purpose.

6 PERFORMANCE REQUIREMENTS

6.1 The rotary animal restrainer shall be able to rotate a minimum of 120 rotations in 1 hour.

6.2 The number of animals slaughtered using rotary animal restrainer should not exceed more than 90 heads per hour.

7 HYGIENE REQUIREMENTS

7.1 The operator operating the slaughter box shall be free from any diseases and must be of sound health.

7.2 The operator should cover their head with a head cover, wear gloves and clean clothes during the operation.

7.3 The operator should wash the slaughter box with water at the interval of 1 hour or when the animal species are changed, whichever is lower.

7.4 The slaughter box should be washed using the chlorine solution of 200-250 ppm for disinfection after using for 8 hours a day.

8 MARKING

8.1 Each rotary animal restrainer shall be marked with the following particulars:

- a) Manufacturer's name and recognised trademark, if any
- b) The capacity of rotary animal restrainer (Number of animals slaughtered per hour).
- c) Batch or code number and year of manufacture
- d) Buyer's logo or identification mark
- e) Material of Construction
- f) Any other markings which may be required by the purchaser and agreed upon between the supplier and the purchaser.

8.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the Bureau of Indian Standards Act, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

9 SAMPLING REQUIREMENT

As agreed between manufacture and the purchaser.

ANNEX A
(Clause 5)

A-1 OPERATION AND MAINTENANCE REQUIREMENTS

The manufacturer should provide the operation and maintenance requirements of rotary animal restrainer to the purchaser during its supply. An indicative operation and maintenance requirements is provided as follows:

- a) The operator shall wash the slaughter box with water using a high-pressure jet before using the slaughter box.
- b) The operator shall check and record that all the components are in working condition before slaughtering.
- c) The operator shall ensure that animals are not placed in restraining equipment, including head restraints, until the person in charge of bleeding is ready to bleed them as quickly as possible.
- d) The operator shall ensure that the animal is restrained properly before proceeding for slaughter.
- e) The operator should verify that the circular rotation is done and the throat is cut and is allowed to bleed for 50-60 seconds.