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*भारतीय मानक मसौदा*

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*Draft Indian Standard*

**MATING NUCLEUS HIVE FOR APIS**

**MELLIFERA — SPECIFICATION**

ICS 65.140

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Apiary Industry Sectional  
Committee, FAD 03

Last date of comments:  
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**FOREWORD**

*(Formal clause will be added later)*

Beekeepers rearing queen bees *en masse*, typically produce their queen bees in small hives called queen mating nucleus hives, i.e. gynes are left emerged after sealed queen cells in these hives are transplanted and these gynes after their mating and start of egg laying, are introduced in nucleus or full-strength colonies or are utilized as per the requirement. Prior queen cell transplantation, a sufficient bee population in these mating hives is ensured which is known as the establishment of the mating nuclei. Nucleus hives are much smaller than full size bee hives. Under mass queen bee rearing, a queen cell is transplanted into a queen mating nucleus hive by the beekeeper about two days before the queen emerges as an adult. Productive queens come from good genetic lines, the breeder colonies, and receive complete nutrition and care in cell builder colonies and are subjected to selective mating to high-quality drones while taking off nuptial flights from the mating nuclei, generally under isolated mating yards.

The queen mating nucleus hive is a queen less colony set-up to care for a developing queen bee. Typical nucleus hive has 5 Langstroth type frames/ combs arranged in normal orientation with respect to hive entrance. The nucleus hive contains combs of nurse bees and brood. Capped brood contains pupae that will soon emerge as adults. These young adult workers produce desired quality food for the emerged and laying queen. Combs of honey and pollen ensure that the new queen receives nutritious food for its proper development. When mating is successful, a compact brood pattern can be seen on the combs of the mating nucleus hive. Successfully mated queens are caged and shipped to be used as production queens by beekeepers.

This Indian Standard is developed in order to provide guidance to concerned stakeholders regarding various requirements of a good quality mating nucleus hive. Conformance to this standard will ensure the improvement in quality of mating nucleus hives as well help in retain the required quality of queen bee grown using the hive, which in turn will help beekeepers.

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.

## **1 SCOPE**

This standard prescribes the material, design and dimensions requirements of mating nucleus hive for *Apis mellifera*.

## **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 277 : 2018	Galvanized steel strips and sheets (Plain and Corrugated) — Specification ( <i>seventh revision</i> )
IS 1141 : 1993	Seasoning of timber — Code of practice ( <i>second revision</i> )
IS 1150 : 2000	Trade names and abbreviated symbols for timber species ( <i>third revision</i> )

## **3 TERMINOLOGY**

For the purpose of this standard, the following definitions shall apply,

### **3.1 Bee Space**

The optimum distance between two adjacent surfaces of the two combs in a beehive essential for the normal movement and functioning of the bees.

### **3.2 Frame**

A frame of wood onto which the bees will build a comb.

NOTE — The frames are so constructed that a series of them may be placed in a mating nucleus hive as to leave space (bee space) in between every adjacent two of them for bees to move.

### **3.3 Entrance Gate**

A suitable slot in the front plank of the hive.

### **3.4 Bottom Board**

A wooden floor board on which chamber is fixed.

### **3.5 Reinforcement**

A wire parallel to the top bar and attached to the sides of frames to reinforce the comb.

### **3.6 Top cover**

A wooden cover with four extended hanging sides and a top, placed on the top of the mating nucleus chamber to cover.

### **3.7 Feeder**

A wooden frame with container made from galvanized sheet and having a wooden plank inside the feeder to act as float.

## **4 MATERIALS**

### **4.1 Wood**

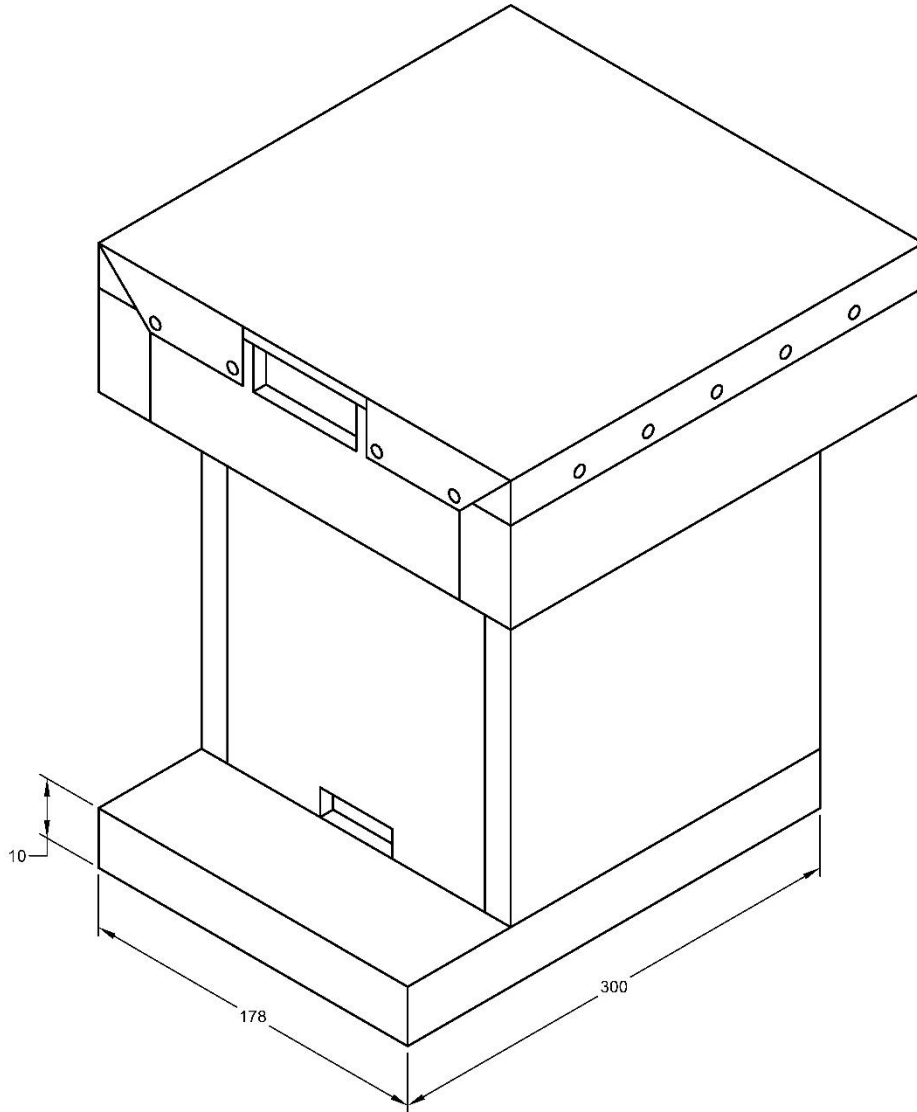
For the purpose of mating nucleus, well-seasoned timber (*see* IS 1141) such as pine and teak (*see* IS 1150) shall be used. It shall be free from decay, insect-holes, dead knots, snakes and splits. The slope of the grain shall not be more than one in eight.

### **4.2 Wire**

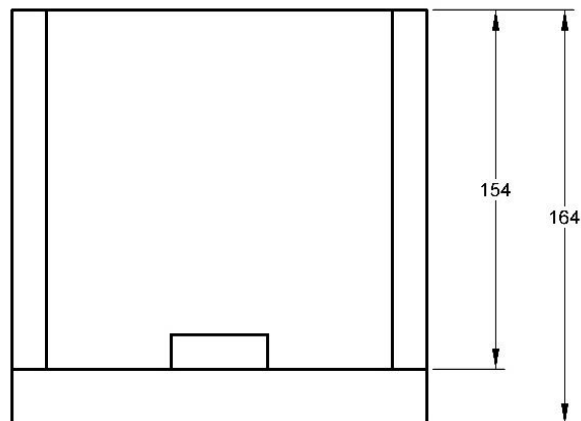
Wire used for reinforcement shall be of galvanized mild steel conforming to IS 277 of diameter 0.4 mm and shall be suitably anchored in the side of bars by nails.

## **5 CONSTRUCTIONAL REQUIREMENTS**

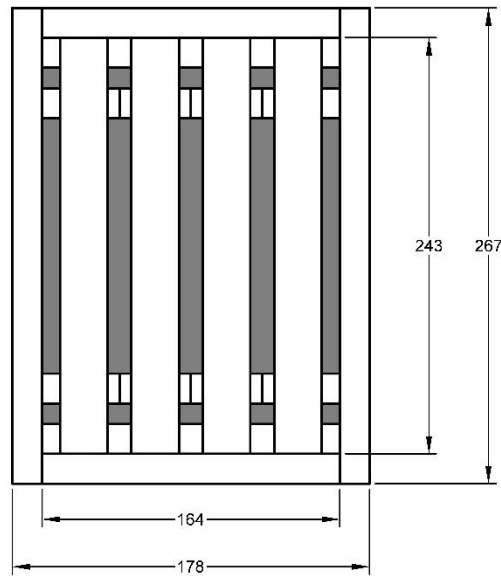
**5.1** A typical mating nucleus hive diagram is given under Fig.1.



All dimensions in millimeters.  
FIG.1 (A) MATING NUCLEUS HIVE



All dimensions in millimeters.  
FIG.1 (B) MATING NUCLEUS HIVE (FRONT SIDE, WITHOUT TOP COVER)



All dimensions in millimeters.  
FIG.1 (C) MATING NUCLEUS HIVE (TOP SIDE, WITHOUT TOP COVER)

The mating nucleus hive shall consist of the following parts with the constructional details given as under:

- a) *Bottom Board*
- b) *Entrance Gate*
- c) *Chamber*
- d) *Top Cover*
- e) *Feeder*

#### **5.1.1** *Bottom Board*

The bottom board shall be made of a minimum of 12 mm thick wood and its dimensions should be as given in Table 1. It shall be made of single piece of wood. [See Fig. 1 (A)]

#### **5.1.2** *Entrance Gate*

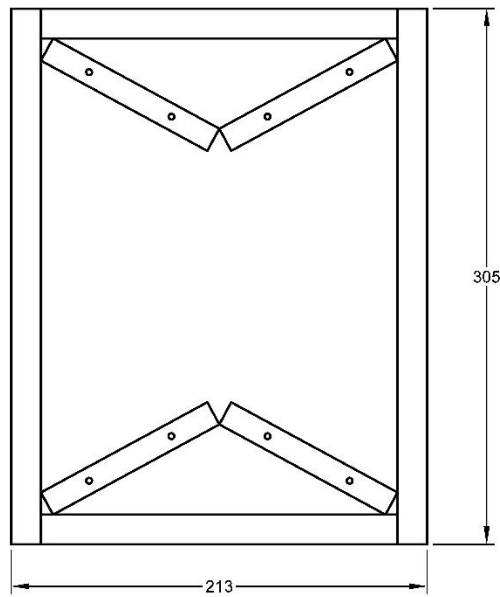
The entrance gate shall be made as a slot of  $9 \times 9$  mm at the center of the bottom of the front plank of the mating nucleus hive.

#### **5.1.3** *Chamber*

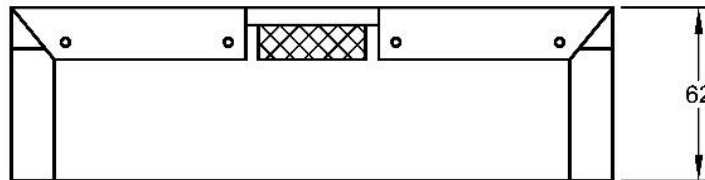
The dimensions of the chamber shall be as given in Table 1. A rabbet, 10 mm wide and 16 mm deep, shall be cut in the front and back walls of the chamber. The frames shall rest on these rabbetted walls. The walls of the chamber shall be made of 12 mm thick seasoned wooden planks.

**5.1.4 Top Cover**

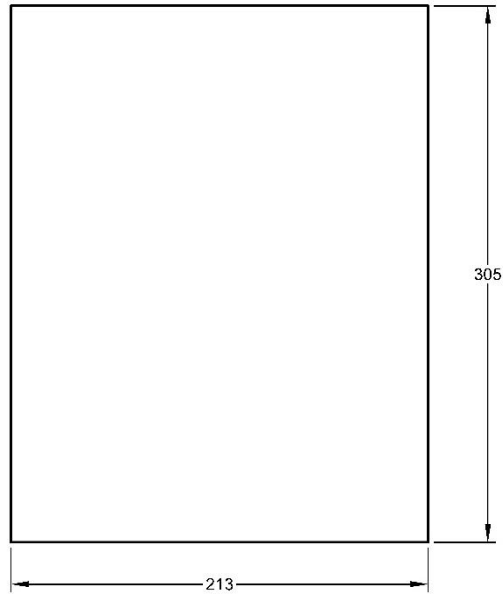
The dimensions shall be as given in Table 1 (*see* Fig. 2). The wall of the top shall be of 12 mm thick wood. The top cover shall be covered from top with the galvanized sheet to protect it and the hive from rain.



All dimensions in millimeters.  
FIG.2 (A) TOP COVER (LOWER SIDE VIEW)



All dimensions in millimeters.  
FIG.2 (B) TOP COVER (FRONT VIEW)

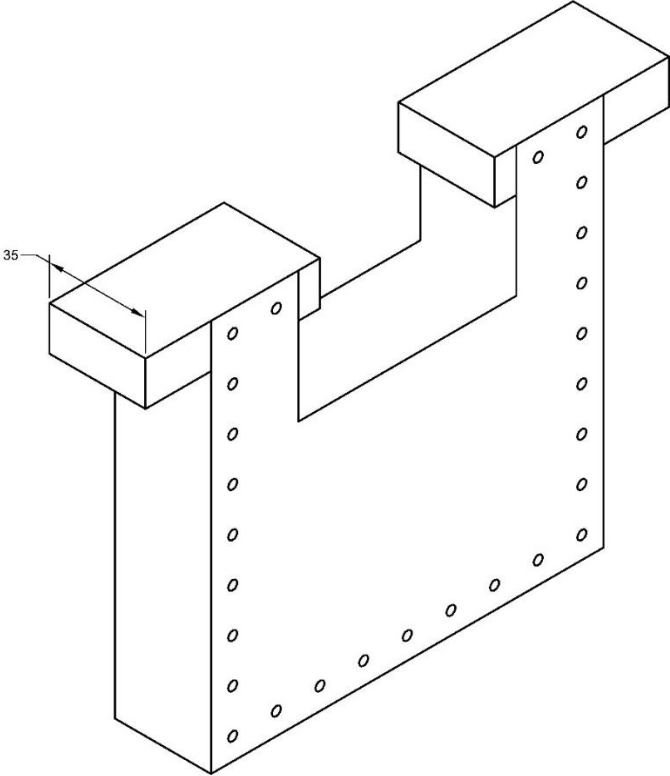


All dimensions in millimeters.  
FIG.2 (C) TOP COVER (TOP VIEW)

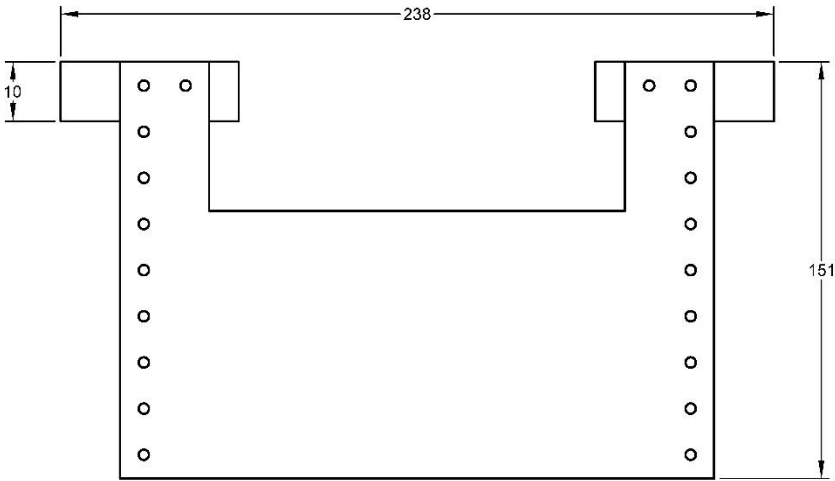
### **5.1.5 Feeder**

The dimensions of the feeder shall be as given in Table 1. (see Fig. 3)

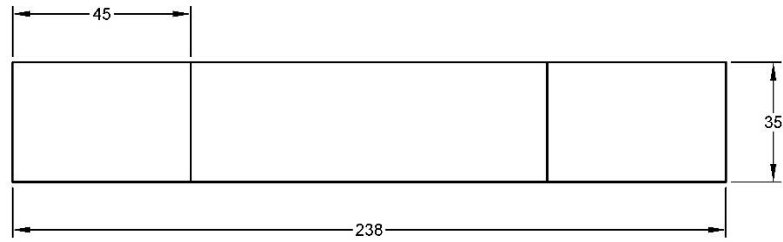




All dimensions in millimeters.  
FIG.3 (A) FEEDER



All dimensions in millimeters.  
FIG.3 (B) FEEDER (SIDE VIEW)



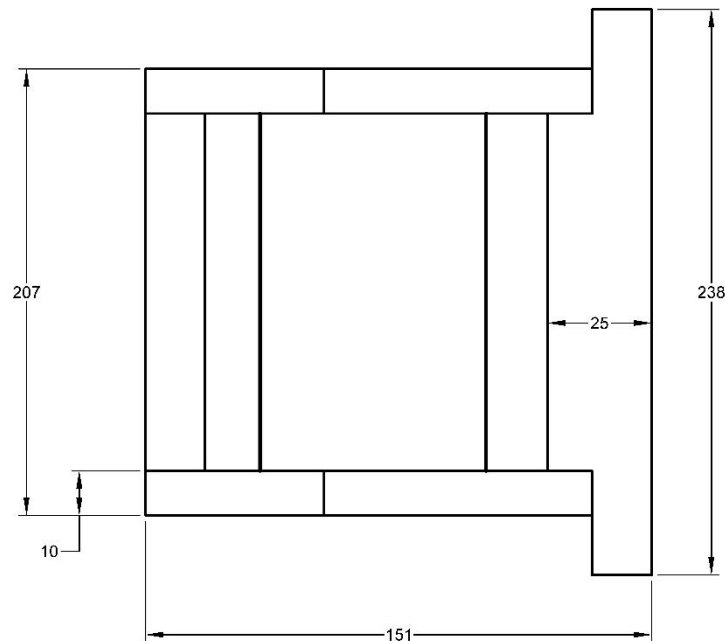
All dimensions in millimeters.  
FIG.3 (C) FEEDER (TOP VIEW)

### 5.1.6 Alighting Board

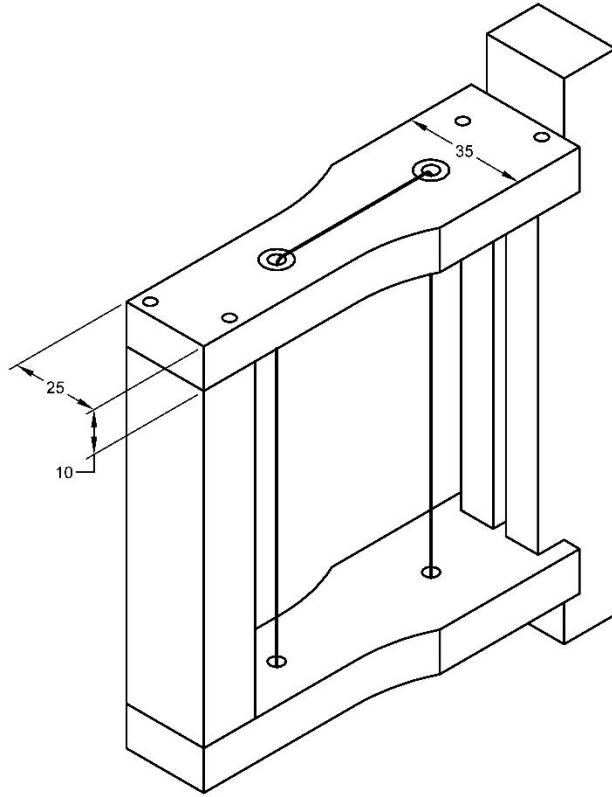
The bottom board shall be extended towards front by 33 mm from the front plank to provide the alighting board to take off and landing by the foraging bees.

### 5.1.7 Frame

The dimensions of the frame to hold the comb shall be as given in Table 1. (See Fig. 4)



All dimensions in millimeters.  
FIG.4 (A) FRAME



All dimensions in millimeters.  
 FIG.4 (B) FRAME VIEW



All dimensions in millimeters.  
 FIG.4 (C) FRAME SIDE BAR

**Table 1 Dimensions of Mating Nucleus Hive**  
 (Clause 5.1.1, 5.1.3, 5.1.4, 5.1.5 and 5.1.7)

Sl. No.	Description	Length (mm)	Width (mm)	Height/Thickness (mm)
i.	<b>Bottom Board</b>	300	178	10
ii.	<b>Chamber</b>			
	Outside	267	178	164

	Inside	243	164	152
iii.	<b>Frame</b>			
	Top bar	238	25	10
	Bottom bar	207	25	10
	Side bar	242	35	10
iv.	<b>Feeder</b>	207	35	97
v.	<b>Top cover</b>	305	213	62

## **6 MARKING**

**6.1** The mating nucleus hive shall be marked with the following particulars:

- a) Name of the part and its size;
- b) Trade-mark, if any;
- c) Batch or code number;
- d) Name of the manufacturer; and
- e) Date of manufacture.

### **6.2 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.