

BeeBox Finland Professional EPS lightweight hive series

BeeBox Finland EPS- lightweight beehive is the result of 35 years of beekeeping experience from the biggest honey producer in Scandinavia - Paradise Honey Ltd.

BeeBox Finland EPS-lightweight beehive is based on long term experience in beekeeping and technical knowledge about suitable materials for good bee hive in different environments and apiarys in Northern Europe **and arctic Russia.**

The BeeBox EPS hive material has been tested for about 30 years in Finnish winters colder than -35 C and in summers heats over + 30 C. In recent years the hives have been tested with good results also in extreme weather conditions of Siberia.

The BeeBox hives are manufactured with ISO quality certified process and materials. Specially formulated raw material 'Cell EPS polystyrene' is pre-treated and the boxes are manufactured by casting the material in moulds with special automatic machines.

The body material in BeeBox hive system is especially hardened EPS polystyrene with density over 100 Kg/ m3. The boxes will last for decades with proper management.



BeeBox Finland EPS- lightweight hive series and optional accessories

Hive net bottom with aluminum net. Optional varroa test board and entrance closing gate.

Boxes for honey and brood equipped with special plastic frame rests. Optional frame rests equipped with spacers for 8, 9 or 10 frames

Queen trap system: queen excluder with plastic frame and entrance closing gate.

Hive plastic on top of frames in top box

Top feeder 10 litres, with a clear plastic wall to separate the bees from the food.

Hive top, for closing the top normally. Can be turned upside down to make extra ventilation 'tunnel' on top of the hive.

Hive belts 2m or 3,5 m

BeeBox series is made for many kind of frames

All Dadant and Langstroth frames used in Europe, Americas and in Russia

In Europe

Other common frame sized used in Great Britain, Ireland, Germany, Portugal, Belgium, Netherlands, Poland, Sweden, Norway etc.



Assembling BeeBox hives

BeeBox hive body is made from 4 EPS parts (white) and 4 plastic end pieces (yellow)

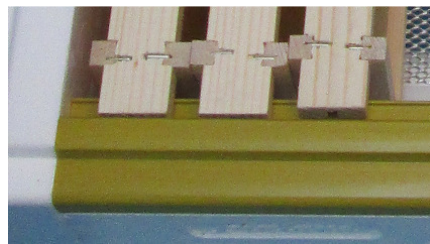
Assemble the hive parts on a flat surface, like wooden pallet.

First push the yellow plastic end pieces in to the grooves on the box end pieces (shorter ones). Then put glue into the holes on the side pieces and push the pivots in the end piece into the holes. After both side pieces are about in right place, push sides down, and secure joints by hitting gently with a piece of wood until the pivots are fully in the grooves and there is no gaps in the corners.

The joints should be secured with good quality water resistant wood glue to maximise the structural strength of the joint.

The special frame rests/end profiles of BeeBox hive

The special frame rests/end profiles protect the box structure when boxes or frames are separated with a hive tool. The 6 mm high notch secures all hives parts when hive is moved. At the same time it is shallow enough to make the opening of the hive easy. It also increases the strength of the box, and protects it from the damages made by hive tools. Plastic profiles increase the durability of the hive and secure minimum problems with the boxes for tens of years in use.



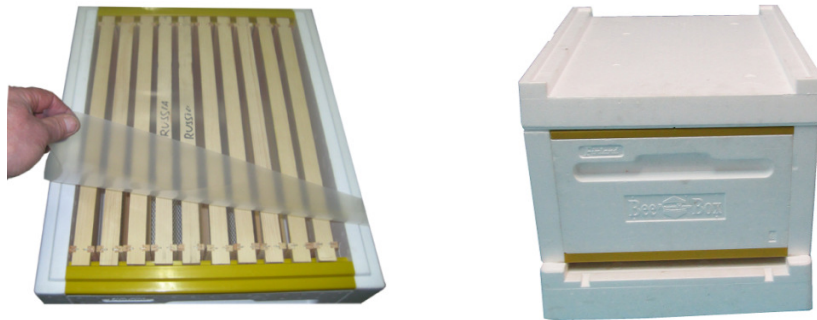
The special handles of Beebox hives

All boxes in BeeBox have designed handles. They enable lifting the boxes in a balanced way when putting on the boxes on hives or when removing heavy boxes for extracting. During migrations the slanted handles allow good, easy grip of the hives and easy lifting from the right height.

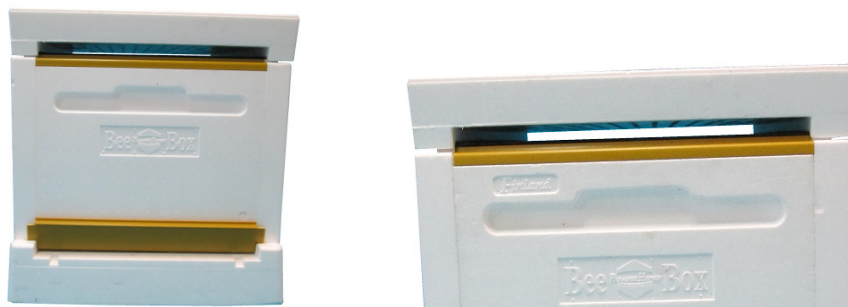


The top of the BeeBox hive

The top of BeeBox hive has normally a thin top plastic on top of frames and a hive top that protects the bees from rain snow and cold air.



When daily temperatures are over + 26 C, or when migrating with the bees, the top plastic can be pulled 10 cm back and the top turned upside down to create a ventilating tunnel on the top of the hive.

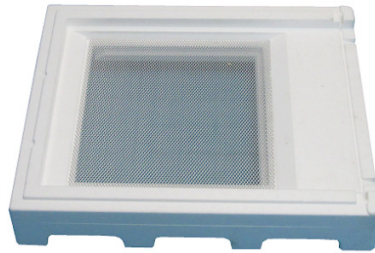


The hive top is secured in windy areas and while migrating with a hive belt. In summer the top can be kept in place with a stone or brick weighing 2 kg.

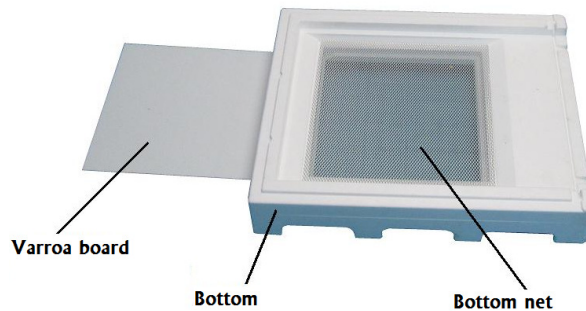
The bottom of BeeBox hive

The hives are kept on wooden pallets. Two hives in a 1200 mm long, 800mm wide ja 125-150mm high pallet. The pallet allows good air exchange through the bottom of the hive.

The bottom of BeeBox hive consists of 3 parts: bottom, bottom net and closing gate.



The bottom is 95 mm high and during summer the bees use full, 18 mm high entrance. From fall to spring the entrance height is reduced to 7 mm. The middle of the bottom has a large hole for which the aluminum bottom net is secured with few screws. A varroa board can be slid under this net for varroa treatments or testing, or to reduce the air flow in spring.



Management of BeeBox hive from winter to spring

The bottom net is kept open all winter for good ventilation. The 20 mm space under frames is enough to store dying bees during long inactive season. During winter the ventilation through bottom net keeps the hives in good condition even when snow covers the hive totally for long periods, or when ice blocks the entrance.

Late spring bees start brood production. At this point the inside temperature and moisture goes up. If moisture is too high water will condensate on walls and run away through the bottom net.

After cleansing flight in spring the bees start to collect nectar and pollen to produce lots of brood. At this time the bottom is temporarily closed with varroa board to help brood production in lower parts of frames until weather warms up.

Management of BeeBox hive in early summer, temperature around + 20 C

Remove varroa board when day temperatures are up to + 20C. At this time the colonies have produced so much young bees that they can control temperature in the brood area easily. The entrance gate is kept reducing the entrance height to 7 mm

Management of BeeBox hive in summer in temperatures warmer than + 26 C

Pull the top plastic 10 cm back and turn the top upside down to create a ventilating tunnel on the top of the hive. This natural airflow out will take fresh air into the hive through the net bottom. This way it is very easy for the bees to control the inside temperature to the optimum. This will also reduce the amount of fanning bees in entrance and the bee work needed to collect water for cooling.

Management of BeeBox hive in hot temperatures warmer than + 30 C

In hot climates the hives should be in shade, in well ventilated area away from buildings.

When temperatures are constantly over + 30 C replace hive plastic with propolis net. Keep top upside down to maximize ventilation.

In very dry and hot areas, bees can be helped by feeding water of diluted sugar solution with an entrance feeder. This saves a lot of water collecting work from bees and keeps the bees producing brood.

Migrating with BeeBox EPS-lightweight hives

When moving beehives, keep the hives with sufficient amount of boxes related to the amount of bees and brood. When possible, prepare the hives for transport one day before moving them.

Consider weather conditions. In warm weather bees need more space inside boxes. Remove hive plastic from top of frames and replace it with propolis net. If needed, spray water on propolis net to calm the bees. Turn the hive top upside down to provide ventilation tunnel. Keep bottom net uncovered and close entrance with entrance gate.

Secure the hives with straps in pallets with slits for ventilation. To minimize frame movements line the hives so that frames are in line with movement of car.

Late evening is the best time to move the bees to allow time to calm them for work next day.

BeeBox 10 litres top feeder

BeeBox top feeder is an easy way to give winter food for bees. Pull hive plastic 10 cm back and place the feeder on top. The bees can enter the feeder through one side of the feeder. Transparent cover prevents the bees from drowning and from flying out during refilling. The insulated feeder keeps the sugar solution warm and easy to process for the bees. The bottom of the feeder is tilted towards the entrance, this way bees can empty it totally.



Feeder provides 6 mm high space between frames and feeder for the bees to move freely. The space makes it easy to place the feeder on, even with some burr comb on top of frames. This space makes also autumn varroa treatments with thymol or formic acid easy and efficient. It is safest to feed bees once with sugar before starting the treatments. The inside of the feeder has marks for 5 litres and 10 litres for precise filling.

Maintenance of Beebox hives

When starting with BeeBox EPS-lightweight hives, the factory transport packing is first opened and parts checked. If pieces are moist they are spread out to dry for a day. The boxes are assembled according to the instructions and painted to protect the boxes from uv-light. Painting can be made with water or oil based outdoor paints. In hot climates light colored colors are best.

Painting can be done by spray, brush or rollers. Boxes and feeders are easiest to paint in stacks. Bottoms, tops and feeders should be painted paint totally in order to facilitate cleaning. Enough time must be allowed for the paint to dry before stacking the hives in storage.

Cleaning and disinfection of BeeBox EPS-lightweight hives

BeeBox-hive parts are easiest cleaned by steam washing, or by soda water ($\text{Na}_2\text{CO}_3 + \text{water}$). The boxes tolerate normal washing with 100C steam.

Alternatively inside parts can be disinfected with disinfection chemicals. Virkon S is widely used in Europe. Active ingredients in this disinfection chemical are potassiumperoxide monosulfide 50%, sulphamine acid 5 % and anionic tensids as detergent. The chemical breaks up biologically.

In case of cleanup after outbreak of bacterial disease, the hives can be cleaned manually by brush. The cleaning is easy with 10 % Soda crystals ($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$) in warm water or with 1 machine dishwashing washing tablet in 5 litres of water. A 4 % lye (NaOH) solution is one option.

BeeBox Finland - Queens trapp system (QT)

QT-system allows less, and faster management visits to bee hives

QT-system adds laying area for queen in brood box

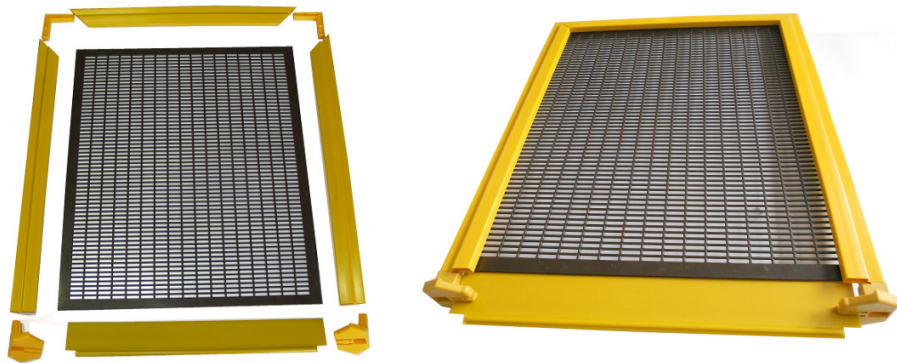
QT-system adds number of bees in bee hive

QT-system prevents swarming when used properly

QT-system gives bigger honey crops

Parts of QT-system

Queen Trap system is made from special plastic profile which is permitted for use in food industry. The Queen trap system includes 4 special profiles, 2 entrance boards (can be used also as landing board) and a full size queen excluder. When assembling the 3 profiles are fitted first in U-formation. The 3 mm high excluder slides in the U formation and the last profile is fitted into its place to form a rim around the excluder.



How to use QT-system

In early summer when bee colony has grown big enough to fill two boxes well, and bees have started collecting honey in frames, 2-4 foundations are added to both boxes. The queen is searched and placed in bottom box. QT system is placed on top of first box and on top of it a honey box with 9 frames (including 4 foundations) is placed.



QT system provides the bees another entrance with landing board between first and second box. The landing board can be used as gate to close the entrance when hives are moved.



The second entrance gate is used to close the original entrance of the hive under the first box.

Now the bees use only the entrance between first and second box. When coming back from collecting flights they take nectar directly to honey boxes. Water and pollen for brood is taken to first box.



Added foundations will suppress swarming, but still some hives will try to swarm by raising new queens. In these cases Queen trap system will prevent swarming by not allowing old or new queen to fly out of the hive with the swarm.

About 14 days after the bees tried to swarm the hives has only one queen –old or young - in the first box. In this time the bees have stopped swarming mood and they start collecting nectar again. At this point hive is checked and if the first box has no brood a new queen is in the box. The original entrance under first box is opened to allow mating flights for the new queen. Bees continue to collect nectar and they place the new honey in upper boxes.

If the weather is bad and no nectar is coming in, the bottom entrance cannot be opened as it would create a risk of swarm leaving with young queen. Change the new queen in before next season as it inherited the swarming tendency from the original queen.

BeeBox series Nuc & Mate

Why Nuc & Mate ?

Nuc & Mate Finland is a multi function tool for making new colonies or to raise new queens. This is done by placing needed amount of frames with brood to nuc& mate box. The box can be divided into two 3 –frame parts to mate 2 queens at the same time . Later the dividing wall can be removed if beekeeper wishes to winter colonies with 6 frames.

The BeeBox hives are manufactured with ISO quality certified process and materials. Specially formulated raw material ‘ Cell EPS polystyrene’ is pretreated and the boxes are manufactured by casting the material in moulds with special automatic machines.

The body material in Nuc&Mate Finland hive system is especially hardened EPS polystyrene with density over 100 Kg/ m³. The boxes will last with proper management for decades.

The boxes of Nuc&Mate hive system are assembled from 4 parts. All boxes have 6 mm high notch and groove system to secure the boxes, bottoms and lids to each others.

A lot of engineering planning has been made to make Nuc & Mate-hive to perform and ventilate well and for easy working with them in different situations.

The bottom is 593 mm long, 333 mm wide and 90 mm high. The outside of the bottom has air channels for ventilation when hives are transported. The bottom is 35 mm thick and it has a groove for the dividing wall. The bottom has 30 mm high edges, 2 entrances on opposite ends, each 115 mm wide and 20 mm high.

The bottom has a ventilation hole in the middle, covered with a metal net. Under the bottom is 30 mm high pace for air exchange. The corners have sturdy legs and good handles for lifting and moving the hives.

The walls of the boxes are 30 – 36 mm thick, and the ends have a vertical groove for the dividing wall. The side walls have grooves for end pieces to use for different frame sizes.

The sides and ends of boxes have designed handles for well balanced grip of the box for many kind of beekeeping needs.

The hive top of the Nuc & Mate hive is 44 mm thick, and it has 22 mm high sides bringing the total height to 66 mm. The top has a place for strap fir transporting the hives, and it has a groove on the underside for the dividing wall

In hot weather and when transporting the hives, the top can be turned upside down. This way a 22mm high ventilation tunnel is created between the top and the frames. A propolis net or other ventilation net is placed of the top of the frames to keep the bees inside. This extra ventilation and other special designs secure that Nuc & Mate system is best choice for bees and for beekeepers.

The top of the hive is secured in transport and in windy areas with a hive strap. In summer a 2 kg stone can be used on the top of the hive.

General

Nuc & Mate hive has been designed to be a multi purpose hive for queen breeding, making divisions or for selling bees.

With Nuc & Mate hive 2 queens can be raised simultaneously in one box with dividing wall. Both sides are provided with one brood frames with hatching bees + pollen. One frame of honey or a feeder frame and one foundation is added as well as some young bees. A queen is placed on both sides as a ripe queen cell or as newly hatched queen.

In fall when enough queens has been mated, the dividing wall can be removed to create a strong 6 frame colony, which can be overwintered after winter feeding. Next spring this new colony grow in few weeks into normal colony and will provide a normal honeycrop. With this method it is easy for the beekeeper to enlarge his operation.

Nuc & Mate series is produced in Dadant and Langstroth frames used in Europe, Americas and in Russia with heights of 310, 240 and 170 mm.

Nuc & Mate is sold as set or as individual pieces.

Bottom with net and 2 entrance gates.

Box in 4 interlocking pieces with 2 plastic frame rests.

Hive top

Options .

- dividing wall for queen rearing
- Hive plastic to the top of the frames
- propolis net/ ventilation net