

## The Importance of Mechanizing the Extractor in Honey Extraction

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**Annotation:** The article provides information on honey extraction technologies in beekeeping farms, the types of extractors, and their operating processes. It emphasizes the need to enhance the role of mechanization in honey extraction.

**Key words:** Honey, beekeeping, extractor, propolis, wax, transmission, mechanization.

For centuries, beekeepers have used traditional methods to collect this precious product. However, with the advancement of technology and scientific research, innovative methods that simplify and improve honey extraction have emerged. Traditional methods of honey extraction involve the use of wooden or woven hives, where bees build combs and store honey. To collect honey, beekeepers open the hive, carefully cut out the honey-filled combs, and extract the honey using squeezing or pressing devices. These methods require skill and caution to avoid harming the bees and to preserve the quality of the honey.



With the development of beekeeping and agriculture, innovative methods of honey extraction have been introduced. One such method involves the use of special frames with combs inside the hives. This allows beekeepers to easily remove individual frames of honey without disturbing the entire hive. These frames can be placed in honey extractors, where the honey is extracted with minimal effort.

Another innovation is the use of modern hand-operated honey extractors. These devices enable more efficient and faster extraction of honey from the combs. Specialized equipment has also been developed for removing propolis and wax from the frames, simplifying the process of preparing combs for honey extraction.

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Innovative honey extraction methods increase efficiency and convenience for beekeepers while reducing the impact on bees and honey quality. These methods open new prospects for the development of beekeeping and ensuring sustainable honey production in the modern world.

A honey extractor consists of a round container and a rotating drum inside it. Frames with combs are inserted into the drum. Different honey extractors feature drums with various designs. There are different types of honey extractors, which vary in design. Vertical and horizontal honey extractors are available.

They, in turn, are divided into radial and tangential types within the horizontal category. All types of



honey extractors share a working principle based on centrifugal force.

A tangential honey extractor features a drum made of a tin mesh or a strong wire grid. The central axis and bottom of the drum in a tangential honey extractor are mounted on bearings of the outer tank. In such a drum, the comb frames are installed tangentially at an angle, with one side directed toward the wall of the tank. This arrangement allows for the optimal extraction (or removal) of honey from the cells.

Tangential honey extractors can hold between 200 and 600 square frames, depending on their size. These extractors can be operated manually or driven by an installed electric motor.



This type of honey extractor has one significant drawback: to extract honey from both sides of the comb frame, they must be manually turned 180°. A rotating device has been specially designed to eliminate this drawback. This device features movable pockets that are held in a radial position by special springs when the drum is stopped. The design allows the comb frames to be rotated without removing them from the drum. Depending on the drum's rotation direction, the comb frames are pressed against one side of the drum's grid.

The operating principle of radial honey extractors differs from tangential ones, as the comb frames in radial extractors are arranged in a star-shaped, radial direction. In radial honey extractors, honey extraction occurs due to the strong vacuum and force generated between the planes of adjacent combs

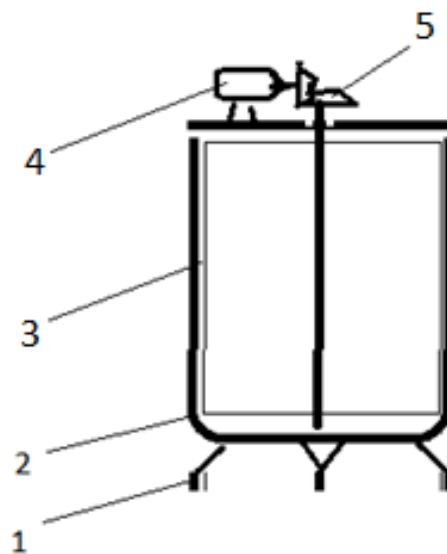


when the drum spins at high speed. The drum of a radial honey extractor can hold 12 to 60 or even 100 square frames, depending on the tank's diameter. This type of honey extractor is often used in large-scale farming operations.

There is no need to flip the frames since honey is extracted from both sides simultaneously. However, radial honey extractors should not be used to extract honey from virgin combs with low water content, as the high rotational speed can damage the cells. Honey extraction in such extractors takes about 25 minutes, but the combs are emptied less thoroughly compared to tangential extractors.

Honey extractors are designed so that the drum can be replaced. For this reason, many large beekeeping farms use both tangential and radial drums, switching between them depending on the type of honey currently being extracted.

Nowadays, most beekeeping farms utilize the centrifugal method for honey extraction. This honey production technology is based on the use of a honey extractor. Honey masks made from honey extracted in this manner are highly efficient. The centrifugal method is crucial for mechanizing the honey extraction process, offering convenience for beekeeping farms.



1-Support, 2-Container, 3-Frame, 4-Electric motor, 5-Reducer

### Extractor diagram

A honey extractor uses centrifugal force to extract honey from the combs, with the honey being collected in a drum or container. This is achieved by spinning the combs. This process occurs during the extraction phase, which is the final step in honey production.

Using a honey extractor offers several advantages that should be considered. The main advantage of this method is that it accelerates the process of reprocessing the combs for increased honey production. By mechanizing this process, even greater efficiency can be achieved. Mechanization primarily depends on how the frames are held in the basket and the speeds of the transmissions, both in the clockwise direction and in reverse.

**Conclusion:** In conclusion, it can be said that traditional methods of honey extraction in beekeeping remain important and relevant. However, innovations in this field are improving the honey harvesting process, enhancing efficiency and convenience for beekeepers, and increasing the safety and sustainability of bees. Modern and mechanized technologies open up new opportunities for the development of beekeeping and ensure the future sustainability of honey production.

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