

# STEFAN PUFF GESMBH GRAZ

## SERVICE MANUEL

MW Walzwerk WLB1 B320 230Volt 0,75kW

Nr. 44120032

Zelle 5,42 mm 5,1mm 4,9 mm 4,7 mm

Cylinder length 320 mm  
Cylinder diameters 63 mm  
Electric connection 230 volts, 50Hz,  
Electric performance 0,75 kilowatts  
Band speed approximately 2,8 m/min

Weight 45kg

Accessories: hand crank Rd to adjustment



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Apiarist's rollers WLB1 are designed to produce an artificial comb foundation of beeswax. Two steel rollers coated with tin alloy and in a honey-comb pattern are mounted in bearings in a frame of aluminium and driven with an engine and a worm transmission via gear set fixed at both ends of the rollers.

**The rollers are designed to produce only an artificial comb foundation of beeswax adequately prepared for this purpose. Another material put through the machine may damage the rollers' surface. Rags, paper, cardboard, etc. should not be rolled and the rollers should not be cleaned with a wire brush.**

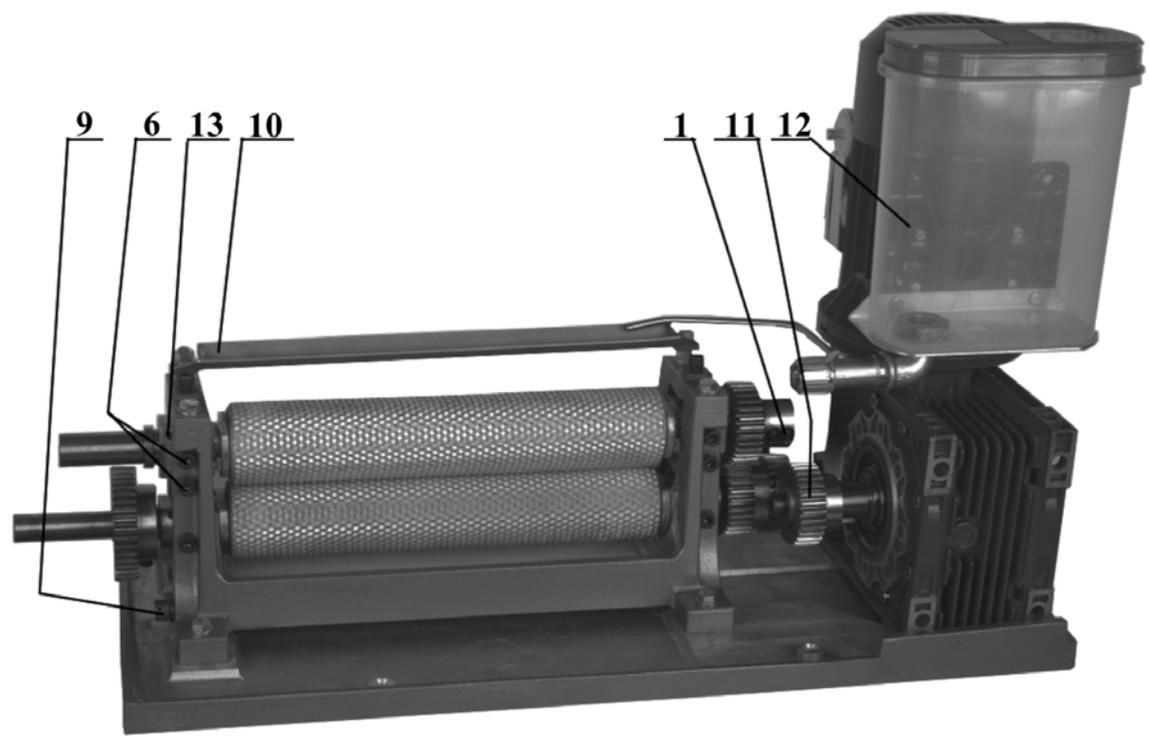
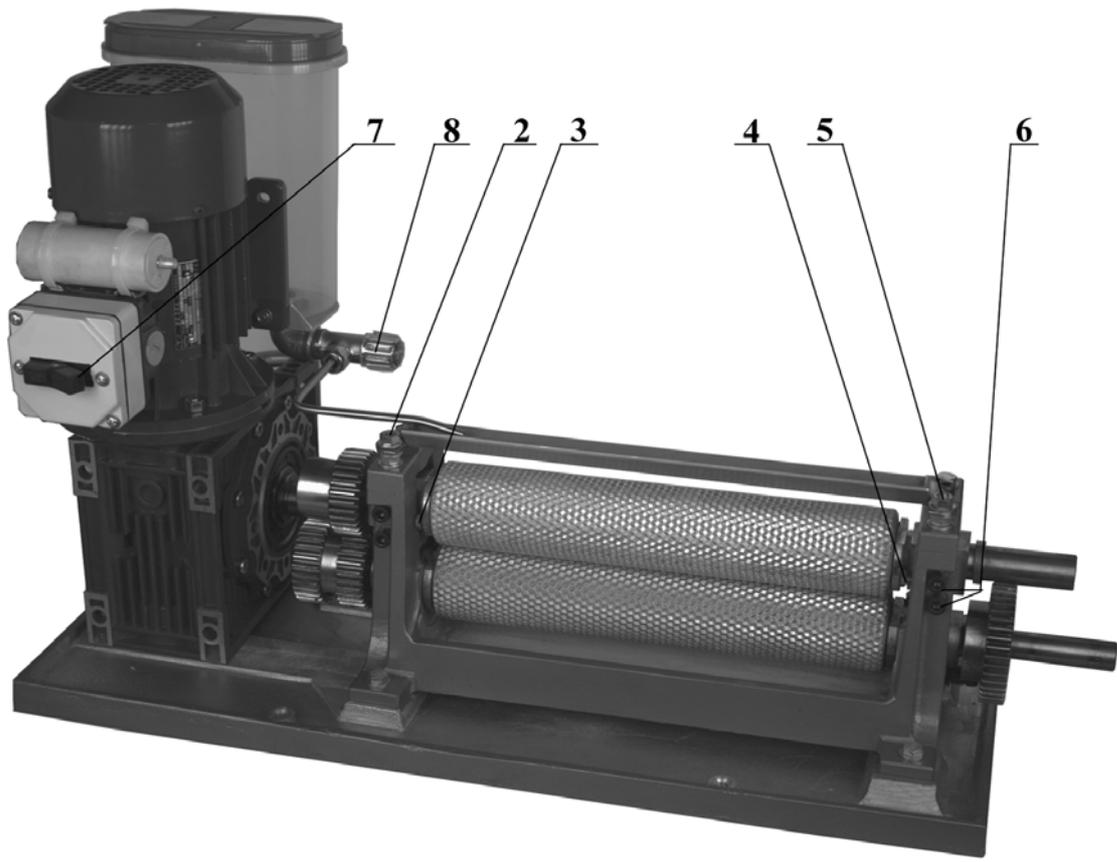
**Do not grasps into continously machine**

**Power-supply plugs pull at cleaning and adjustment**

### 1. PREPARATION OF WAX

Pure beeswax (strained and cleared) should be placed into a big stainless or enamelled pot, put on an electric cooker and slowly heated up to the temperature of 120°-130° C. Wax should be kept in such temperature for half an hour during which water evaporates and all germs are killed. Evaporation of water if one of the essential condition of manufacturing a high quality comb foundation. During the process of water evaporation a lot of scum is formed, so care should be taken to turn the electric cooker off in time, before wax boils over. Wait for the scum to go down. Do not skim the scum from the wax. Do not add any pieces of wax not melted yet, because wax may boil over. When the wax cools down to the temperature of 75° -80° C, it should be poured out to some trays of width corresponding to the width of the comb foundation.

The trays may be made of metal or wood. They should be covered with a very thin layer of a warm honey. The trays, exactly levelled and put in warm water, non-draughty place, should be filled with wax to obtain cakes 8-12 mm thick. Do not pour any more wax once the trays are filled. In case plain rollers are not used, the cakes of shaped wax should be 2-4 mm thick.



## 2. PREPARATION OF ROLLERS

The rollers should be placed on a table in front of an operating person in such position to have the engine on the left. The rollers should be screwed or fixed to the table with clamps.

A tank (12) should be filled with weak water solution of wax separates concentrate BIO-WL. Water solution of honey also can be used.

## 3. WAX ROLLING ON ENGRAVED ROLLERS

The strip of wax wound up in reels should be placed horizontally in a dishful of water heated up to the temperature of 35°-40° C and left there for about half an hour. Then the strip should be put through the well soaped engraved rollers.

**The pan under the rollers must be filled with wax separates concentrate solution, and the lower roller should touch its surface.**

Before the rolling process one end of the strip can be coated with a band of soft, thin (0,05 mm) plasticized polyvinyl chloride foil 3-4 cm wide as to enable the operating person to seize the end of the comb foundation coming out of the rollers.

While receiving the foundation from the rollers, the operating person should be careful not to pull it too strong and thus lengthening the cells.

During the rolling process the operating person should put the end of the next strip on to the end of the previous strip of wax and in this way he will receive a long strip of comb foundation wound up on a reel with a longitudinal groove.

Ready comb foundation should be unreeled and cut into appropriate sheets.

## 4. MAINTENANCE

On completion the rolling process:

1. pour out the water of the pan (9)
2. rinse the water with cold water
3. fill oil holes of the bearing shells and gear wheels with glycerine oil (13 and other bearing shells)

**Be careful not to smear the rollers with oil !**

4. switch the machine for a while with a switch (7)

**Do not wipe the rollers !**

## 5. DEFECT IN OPERATION

**a) If wax does not come off the rollers, you should:**

- rinse the rollers with boiling water, then smear them with diesel oil or extraction naphtha
- wait for the rollers to cool down
- soap the rollers with a paint brush for a few minutes then rinse them with cold water.

If, after rinsing, there are still drops of water on the rollers, the wash should be repeated because the rollers are still oily.

## 6. ROLLERS CONTROL

Every machine is precisely set and does not require any further adjustments. However if after some time the quality of comb foundation lowers then the rollers should be adjusted according to the following guidelines.

Before the regulation begins it is necessary to move wheel 11 out of mesh. To do so loosen a bolt on the wheel and move it towards the transmission. Then mount gears and a crank shown in Fig. 2. The rollers should look as in Fig. 3.



Fig. 2

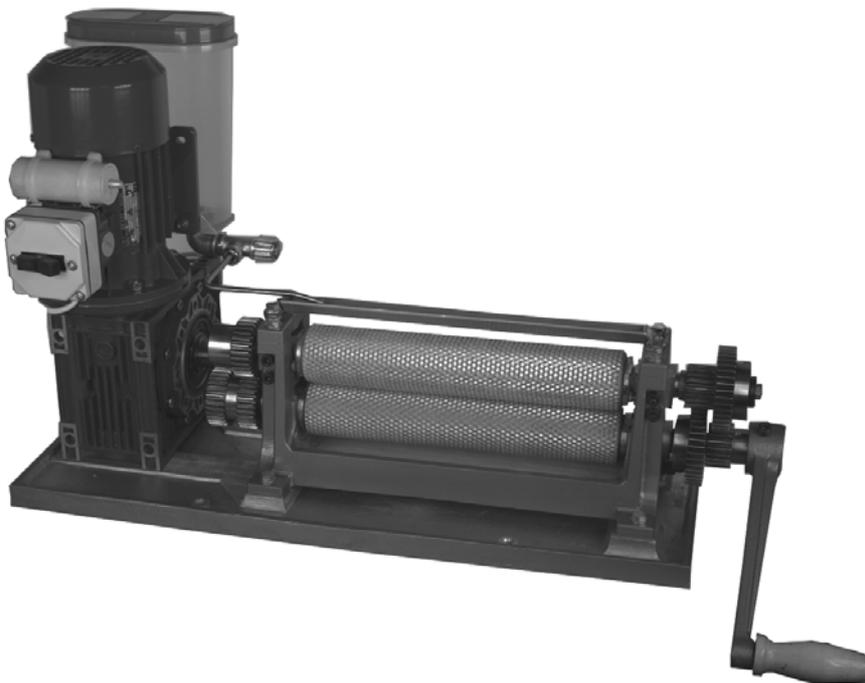


Fig. 3

The crank should be turned clockwise.

After the necessary adjustments the crank and gears should be removed, and the gear 11 should be moved back into mesh.

### a). Comb foundation thickness control

Thickness of comb foundation can be regulated with bolts 2 and 3 from Fig.1

Prepare some identical pieces of wax (ex. 20x50x5 mm) heated up in water to the temperature of 35°-40° C.

Put one piece through the soaped rollers at the left side and another one at the right side of the rollers. Comparing two received pieces of comb foundation in respect of their length, you can easily state that the longer piece is thinner. Turn the bolts 2 and 5 until the received pieces of comb foundation are of the same length both at the left and the right side of the rollers.

Comb foundation too thin-unscrew the bolts 2 and/or 5 by 1/4 of a revolution.

Comb foundation too thick-turn the bolts 2 and/or 5 tight turning round the crank at the same time. If the rollers start to be stiff, the bolts 2 and 5 should be unscrewed a little.

**Do not turn the bolts while rolling wax !**

### b) Cell walls thickness control

High quality comb foundation should have cells with walls of identical thickness. To check it a piece of comb foundation should be looked against daylight. The comb foundation should be held with its beginning pointing upward and the upper surface towards an observer. Thicker walls are darker, thinner ones are lighter. In this way one could observe one of four main errors of adjustment. They are depicted in Fig. 4.

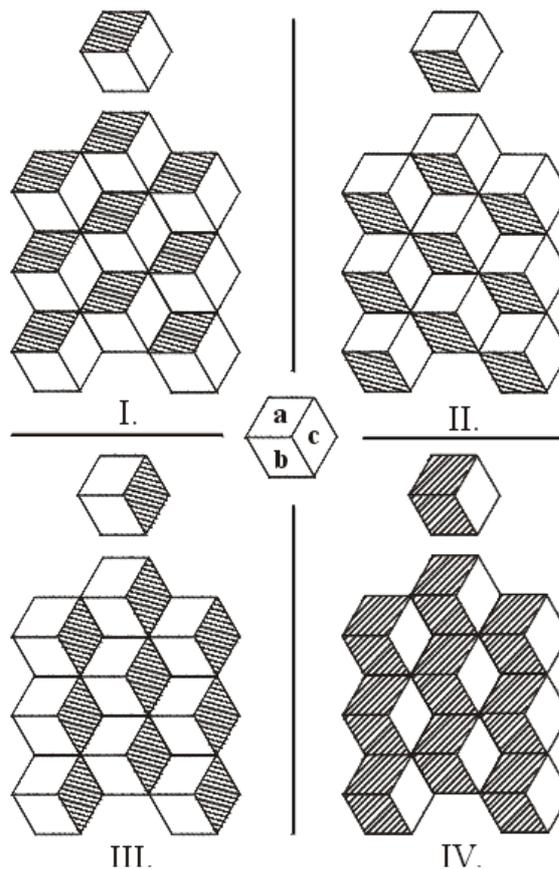


Fig. 4

◆ **Cells of the received comb foundation have light and dark walls on its left side**

The received comb foundation resembles point I or II in Fig. 4. Top and bottom wall of a cell (a and b) have different brightness (thickness). To regulate those errors screws marked 1 in Fig. 1 should be used. In case of variant I, screws marked T in Fig. 5 should be unscrewed first, and then screw S should be tightened as shown in Fig. 5.

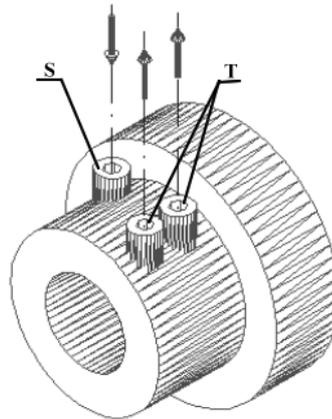


Fig. 5

In case of variant II, screw defined as 6 in Fig. 6 should be unscrewed first, and then screws T should be tightened as shown in Fig. 6.

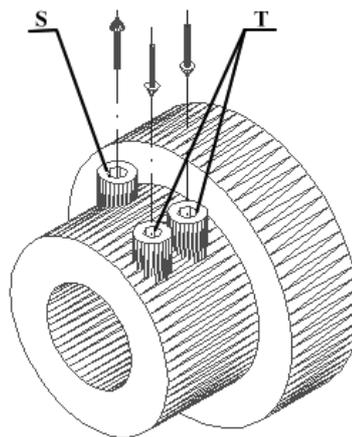


Fig. 6

That part of regulation is finished when walls a and b have the same thickness.

◆ **Cells of the received comb foundation have light and dark walls on its right side**

To correct that error screws denoted as 6 in Fig. 1 and screws, which are at the opposite side of the rollers should be used.

If the received comb foundation resembles variant II in Fig. 4, turn loose (1/4 of a revolution) two upper screws on the right side of the rollers frame (6) and turn tight (slightly) two screws on the opposite side. Thus moving the bearing shell with the upper roller towards the person feeding the roller with wax. If the comb foundation got worse or in case of variant I, try the opposite direction.

**Every time you turn the screws, be sure the crank turns easily.**

◆ **Cells of the received comb foundation have light and dark walls throughout its whole width**

To correct that error screws marked 3 and 4 in Fig. 1 and screws, which are at the opposite side of the rollers should be used.

If the received comb foundation resembles variant III in Fig. 4, the upper roller should be moved right. Turn tight (1/4 of a revolution) two screws 4 on the right side of the rollers frame and unscrew (1/4 of a revolution) two screws 3 on the opposite side.

If the received comb foundation resembles variant IV in Fig. 4, the upper roller should be moved left. Turn tight (1/4 of a revolution) two screws 3 on the left side of the rollers frame and unscrew (1/4 of a revolution) two screws 4 on the opposite side.