



Operating and maintenance instructions

***Machine for the production of
dough crusts for burek and various pies
Smaller machine***

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1. INTRODUCTION

The line is intended for the production of dough crusts for making bureks and various pies. The application of the line is for the needs of the food industry, primarily in the bakery industry. It is possible to produce the most different types of bureks and various pies, both from the crusts of standard dimensions and rolled crusts, using the most different types of fillings or without them, using oil or fat.

2. TECHNICAL CHARACTERISTICS

2.1. Composition of line elements

The main elements of the line are shown on the Diagram of the line in the Annex (section 12.1.). and they are:

1. Dough basket – 1 pc.
2. Upper rollers – 2 pcs.
3. Lower rollers – 2 pcs.
4. Tape 1 – 1 pc.
5. Satellite 1 – 1 pc.
6. Tape 2 – 1 pc.
7. Satellite 2 – 1 pc.
8. Tape 3 – 1 pc.
9. Satellite 3 – 1 pc.
10. Band before the trapeze (slingshot) – 1 pc
11. Roller before the trapeze (slingshot) – 1 pc
12. Trapeze (slingshot) – 1 pc
13. Trapeze (slingshot) – 1 pc
14. Desk – 1 pc.

The line is additionally equipped with a system with a container for oil and fat, an independent pump for oil and a filling dosing device.

2.2. Line layout

The line occupies an area of about 5m² with its dimensions, what with the additional working space around it, necessary for unhindered access to all elements, occupies a maximum area of 15 m². In working the environment of the line should provide all the conditions foreseen for the food industry and food production. The operation of the line itself does not require any specific conditions related to temperature and air humidity. The temperature of the working environment should be within the limits of the working temperature but not more than 24 C. The operation of the line is very stable and long-lasting.

2.3. Line description

Bearing in mind that the line is used in the food industry, the legal regulations in this sense are satisfied, and all the materials from which it is made do not have any harmful effects for humans and the environment.

The line is made of galvanized steel and chrome with plastic elements.

The bark production process is carried out with very little control and assistance from the user, if the necessary adjustment of all its elements has been made initially. In order to obtain the highest quality finished product, it is necessary to prepare an adequate dough (knead) which, along with setting the line, is one of the most important steps. The pre-prepared dough (dough) is inserted into the Dough Basket shown on the Diagram in Attachment 12.1. In the basket itself and below it there is a group of upper and lower plastic rollers that extrude dough 350 mm wide and 10-12 mm thick on Belt 1 (Appendix 12.1) which rotates around plastic rollers driven by an electric motor located in the line housing. At the end of Track 1, Satellite 1 (Appendix 12.1) is located above, which contains 10 plastic rollers that are also driven by an electric motor located in the line casing. Between Satellite 1 and Track 1 there is a gap that defines the thickness of the test that is transferred to Track 2 (Appendix 12.1). At its end there is also Satellite 2 (Appendix 12.1) with a predetermined gap. The same operating principle applies to the Band 3 - Satellite 3 and Band 4 - Satellite 4 groups (Annex 12.1). Each of the mentioned groups, by reducing the gap, simultaneously thins the dough in order to achieve the necessary thickness at the beginning of the strip before the trapezoid (Appendix 12.1). The dough reaches the entrance of the trapezoid (slingshot) via a slanted and flat belt of different lengths, which has the function of laterally stretching the dough to a width of 750 mm of useful surface.

(Attachment 12.1). At the end of the Trapeze, a dough is obtained - a crust with its final thickness and width, which passes to the oblique Strip after the Trapeze (Appendix 12.1). From it, the crust is further redirected to the Work Table (Appendix 12.1), where the final operations are performed to obtain the finished product, depending on the type of desired final product - cutting the crust to the desired length, inserting the filling, rolling - wrapping, cutting the rolled pie with a guillotine to a certain length, greasing the crust with oil/grease regulated by the oil/grease control cabinet and flow valves at the end of the oil/grease pipeline (Appendix 12.2), packing and folding of the bark for making burek... Speeds of operation of all electric motors, rotation of rollers, movements of all Strips and Trapezoids, lengths of bark cutting, work table temperature, oil temperature in the greasing system, clearances between rotating elements and other things are regulated by electrical elements located on two control cabinets - one located above the work table and one located in the oil/grease system (Appendix 12.2). The greasing system consists of a cauldron where the oil/grease is placed and heated to a certain temperature. The electric motor drives the oil pump which drives

the flow of oil in the system through pipelines that end at the beginning and end of the work table where a predetermined amount of oil is released onto the crust with the help of a valve.

2.4. Line characteristics

Characteristic	Unit of measure	Size
Dimensions (length x width x height)	mmm	3,900 x 1,300 x 1,800
Weight	kg	1,900
Power connection - voltage	V	3x380
Current strength	A	16
Frequency	Hz	50

During operation, all aggregates and line heaters consume about 6 KW.

2.5. Pneumatic elements

The line contains two pneumatic systems with corresponding elements, which are shown in more detail in the appendix (Appendix 12.3). One system is manual and refers to the control of raising and lowering the work table, and the other is regulated via an electro-valve to the operation of the guillotine for cutting off the rolled bark.

2.6. Electrical elements

All electrical elements are listed in the tables below and are followed by the electrical diagram in the appendix of the Instructions (Attachment 12.2.). Through them, it is defined how the complete line is started, which element of the line refers to each of the elements - switches, potentiometers, clarification of work with frequency regulators, what each display refers to and which parameters it shows.

Attached to the Instructions are diagrams of the Line Control Cabinet, which is located above the work table of the line, as well as the Oil/Grease System Control Cabinet, which controls the operation of that system. Each element on the first Command Cabinet is marked with numbers from 1 to 28 and on the second with numbers from 29 to 34. On the cabinets, there are plates located above each individual switch with inscriptions in Serbian and English. The switch plates contain the positions 0 - off and 1 - on, the potentiometer plates contain the markings - / + which show in which direction the potentiometer should be turned and thus reduce or increase the length of the bark or rolled barrel.

Control cabinet lines viewed from left to right

1	Main switch
2	Main STOP / EMERGENCY
3	Main power supply
4	Knife activation switch
5	Switch for activating the guillotine
6	Display
7	STOP/START switch
8	Potentiometer for defining the length of the bark
9	Potentiometer for defining the length of the rolled barrel
10	Switch for activating the heating of the work table
11	Switch for activating the winding roller
12	Switch for activating the filling dispenser
13	Workbench ribbon start switch
14	Switch for starting the trapeze (slingshot)
15	Switch for starting the hairline and the straight band before the trapeze (slingshot)

16	Switch for the winding roller
17	Satellite launch switch 3
18	Lane 3 Start Switch
19	Satellite launch switch 2
20	Lane 2 Start Switch
21	Satellite launch switch 1
22	Lane 1 Start Switch
23	Switch for starting the lower basket rollers
24	Switch for starting the upper basket rollers
25	Frequency regulators a - I
26	Workbench temperature display

1 - Main switch that enables the power supply of all elements of the line 2

- Main STOP / EMERGENCY that serves to interrupt the power supply of the complete line in case of some problems 3 - Main power switch that enables the power supply of the Control cabinet and the complete line

4 - Switch that activates the knife that cuts the bark to a defined length

5 - Switch that activates the guillotine that cuts the rolled barrel to a defined length 6 -

Display on which the defined parameters of the length of the bark and the length of the rolled

bureka 7 - 0-STOP / 1-START switch that enables starting and stopping of all elements of the line, enables or stops the power supply of switches, potentiometers, frequency regulators...

8 - Potentiometer that defines the length of the bark with a cutting knife

9 - Potentiometer that defines the length of the rolled barrel with a guillotine for cutting 10

- Switch that activates the heaters of the work table 11

- Switch that activates the rotation of the roller for rolling the barrel 12

- Switch that activates the functioning of the rollers located in the dispenser with stuffing

13 - Switch that activates the conveyor belt located on the work table 14 - The

switch that activates the conveyor belt located after the trapeze (slingshot)

15 - The switch that activates the function of pulling the dough into a trapezoid (slingshot)

16 - The switch that activates the conveyor belt located before the trapeze (slingshot)

17 - The switch that activates the satellites

3 18 - The switch that activates the conveyor belt 3 located between satellites 3 and 2 19

- The switch that activates the satellites 2

20 - The switch that activates the conveyor belt 2 located between the satellites 2 and 1

21 - The switch that activates the satellites

1 22 - The switch that activates the conveyor belt 1 that is located between the satellite 1 and the test

basket 23 - Switch that activates the lower rollers located under the

basket 24 - Switch that activates the upper rollers located in the

basket 25 - Frequency regulators with displays that define, respectively, looking from left to right: a) the

speed of rotation of the rollers in the filling dispenser, which affects the amount of filling

b) the speed of the work table belt c) the

speed of the winding roller d) speed of

movement of the trapezoid

e) speed of movement of the belt before the trapezoid

- f) rotation speed of the rollers in satellite 3
- g) tape speed3
- h) rotation speed of the rollers in satellite 2
- i) speed of lane 2
- j) rotation speed of the rollers in satellite 1
- k) speed of movement of lane 1
- l) rotation speed of the lower rollers under the basket

26 - Display showing the temperature to which the working table is heated

Control cabinet for the oil/grease system

27	Oil/grease pump switch
28	Boiler oil/grease heater switch
29	Display
30	Oil level indicator lamp

27 - Switch that activates the oil/grease pump

28 - The switch that activates the oil/fat heaters in the boiler

29 - Display showing the oil temperature in the boiler or in the oil pump

30 - Signal lamp whose colors indicate the level of oil/grease in the system and the boiler

- GREEN – oil/fat level is sufficient
- YELLOW – the oil/grease level is at a minimum, a shrill intermittent tone is also heard, it is necessary to refill the boiler with a new amount of oil/grease
- RED – the oil/grease level is below the minimum when this system stops working automatically

3. LINE SIGNS

All markings on the line are given in the accompanying Diagrams found in the appendix of the Instructions. On each of the schemes, all important positions are shown numerically or in letters and are connected to the element to which they refer with directed arrows. On the line itself, there are plates with inscriptions in Serbian and English below or above the element to which they refer. On the case of the line there is a main plate with all important information - name of the manufacturer, address and email, CE mark, technical characteristics, name of the line, serial number and year of production. Stickers with the name of the element are pasted on the elements of the line to make it easier for users to find their way around. There are also stickers with warning signs on certain elements, which dangers the user should pay attention to, letting him know how he should approach and how to handle each of the elements of the line.

4. SAFETY MEASURES AND STANDARDS

Safety measures that neophdon has to follow as well as all the Certificates and tests of the components lines can be found in the Appendix of this Instruction.

5. TRANSPORT AND USE

The transport of the line does not require any special conditions, nor does it go beyond the dimensions of road traffic. The line can be transported on semi-trailers of adequate length, containers, and loading and unloading is done by forklifts with a capacity of at least 2.5 tons.

6. INSTALLATION AND CONNECTION

To set up the line, it is necessary to provide an adequate working environment that is defined for the food industry and food production. The floor surface should be flat in order to perform an adequate leveling of the line. Around the line itself, it is necessary to provide space for access and manipulation by the user.

After placing the line in the intended place, it is connected to the 3x380V electrical network. The cross-section of the supply cable should be 4x4mm².

7. PREPARATION FOR EMPLOYMENT

Before putting the line into operation, it is necessary to carry out a visual control of all elements in order to ensure smooth operation and functioning.

- Check that there is no mechanical damage to any element
- Check the correctness of the connection to the electrical network and the power supply
- Check the complete line to make sure there is no foreign object somewhere that would make it impossible to work or damage it some of the line elements during operation
- Check whether all the switches are off or in the zero position 0 - OFF
- Check the working environment and remove everything that can negatively affect the functionality of the line
- Prepare the oil/grease and pour the appropriate amount into the cauldron of that system, the fat melts until it becomes liquid conditions and must be filtered through a mesh or fabric
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8. OPERATING PROCEDURE AND NECESSARY SETTINGS

After the preparatory actions for putting the line into operation have been carried out, it can be started to be included in the electrical network, releasing the power supply of the line and enabling the operation of all necessary elements.

First, it is necessary to check the power supply by turning on the Main Switch Position 1 (Appendix 12.2.), which enables the power supply of all elements of the line. Then switches are turned on, which allow electricity to flow to all elements of the line - Position 3 and 7 (Appendix 12.2). Now it is possible to start and stop all elements of the line, work of all other switches, potentiometers, frequency regulators, movement of tapes, turning of rotating elements, heating of the work table and oil/grease, operation of electric motors and pumps, powering of displays that show the values of the corresponding parameters. On the left is a picture after turning on the mentioned switches.

The next step is to turn the switch to the right by turning it to position 1 - ON, which starts the motor to turn the take-up roller as shown. By controlling the direction of rotation of the winding roller

at the same time, the correctness of the direction of rotation of the other rotating elements and the movement of the tapes is controlled. The roller viewed from the far side opposite the reducer should rotate counter-clockwise.



The pictures below show all the switches and frequency regulators that are used to turn on a certain element of the line and set the value of the corresponding parameter. Between them are plates with an inscription indicating what the switch and the frequency regulator refer to. Each frequency regulator has a display that shows the value of the parameter to which it is connected. These are, for example, the speed of rotation of the rollers that make up the satellites, the speed of the tapes, the amount of stuffing that will be passed through the stuffing dozer and fall on the crust, the length of the crust that the knife will cut, the length of the rolled barrel cut by the guillotine, the load on the upper rollers of the dough basket, the temperature of the work table, the temperature of the oil/grease in the boiler and the oil pump.



After starting the line, it is necessary for it to work for 3-4 hours in "idle mode", i.e. without using dough and oil/grease, in order to even out the work and remain stable in continuity. It is necessary to visually monitor the operation of all elements, check all directions of rotation of the rollers, the roller for winding the bark and the movement of the tapes, starting from the Dough Basket (Appendix 12.1.) at the beginning, until the end point on the work table (Appendix 12.2.), the movement of the strips while checking whether they are in the middle of their bases, that they may not be wrongly directed to the left or right side, which needs to be corrected immediately. Below is a picture with an explanation regarding the lateral adjustment of the tape movement.





Lateral adjustment of the tape is done by tightening or loosening the inner nuts of the metal angle, which are located on the threaded rod on both sides of the tape support. There are also nuts on the outer sides of the angle, which determine the position of the inner nuts. This adjustment should be done patiently and with very small corrections, wait 4-5 minutes to determine if the tape is moving in the right direction.

Once made, the setting remains for each subsequent use of the line.

The following picture explains in more detail how the gaps between the satellites and the bands are regulated.



The threaded rod is threaded through the metal corner element, on which there are nuts on one side and springs on the other. Tightening and loosening the nuts increases or decreases the clearance. In this way, the roller is practically raised or lowered which defines a greater or lesser thickness of the dough - the crust.

The following is an explanation of the definition of the flow of oil/grease with the associated picture.



There are two valves on the lubrication system pipeline that regulate the oil-grease flow. One completely opens/closes the pipeline, thereby enabling or interrupting the flow, and the other regulates the amount of oil/fat that will be delivered through the hose to the crust. Piping with valves and a hose are located on both sides of the worktable, which allows greasing of the crust at the beginning and the strip of the worktable at its end. This ensures that the oil/grease is applied to the crust from both the top and bottom sides.

Below the boiler with oil there is a valve that serves to empty it after the end of work. At the end of the work, it is necessary to turn off all switches by turning them to the left to position 0 - OFF, as well as the main switch on the Control Cabinet.

9. CLEANING AND MAINTENANCE

Maintenance of the line and its elements includes a regular visual inspection before commissioning, during operation and after its completion. All belts, the work table as well as the metal parts of the structure must be cleaned of the rest of the dough and oil/fat, empty the dough basket and the oil/fat cauldron, cover the dough basket and the work table to protect them from dust and mechanical damage, cover the complete line if it will not be used for a long period of time.

For lubrication of all elements on the Machine, only use Lubricating Grease, which is stated in point 4 and which is prescribed by the legal regulations for the food industry.

10. TROUBLESHOOTING, REPAIR AND MODIFICATION

To eliminate all technical problems, faulty electrical elements, replacement of spare parts, overhaul or any modification of line elements, it is OBVIOUS to contact the manufacturer and do not do anything on your own without prior agreement with him.

11. DISASSEMBLY AND REMOVAL

Dismantling and removal of all elements of the line do not require a prescribed procedure from the point of view of disposal of hazardous materials. All materials included in the line are standard and meet all legal regulations related to the food industry.

12. ATTACHMENTS

In the Annex, i.e., the supplement to this Instruction, there are all accompanying Schemes and Pictures for marked positions for easier and faster navigation and handling of the line.