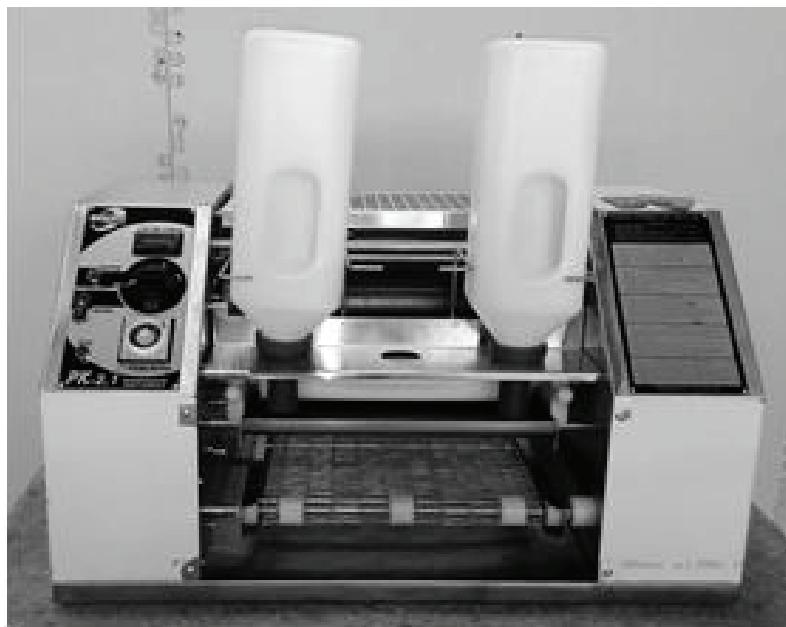


**Produced by**  
**THE NORTH ENGINEERING COMPANY**  
**St. Petersburg**

**PANCAKE AUTOMATIC MACHINE  
(ELECTRIC FRYER)  
TRADEMARK SIKOM  
FOR PUBLIC CATERING ENTERPRISES  
TYPE PK  
MODEL PK-2.1.3**

**Specification TY 5151-019-48956771-2010**

**OPERATION MANUAL**



**Russia  
St. Petersburg**

## **Read this Operation manual carefully.**

**Remember the requirements set forth therein and do not violate them. It is essential for your safety and a longer service life of your Automatic machine.**

**This article is a complex professional equipment. Please mind that rigid and accurate adherence to operation instructions consistently presented in sections of this manual is one of the major conditions of your successful work with Automatic machine.**

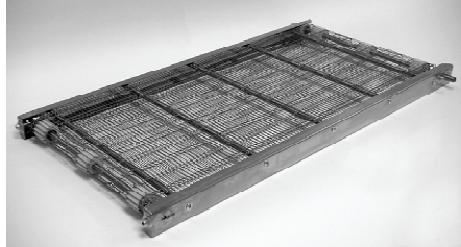
### **TABLE OF CONTENT**

	<b>REMOVABLE PARTS</b>			<b>3</b>
<b>1.</b>	<b>PURPOSE</b>			<b>4</b>
<b>2.</b>	<b>DELIVERY SET</b>			<b>4</b>
<b>3.</b>	<b>DESIGN AND OPERATING PRINCIPLE</b>			<b>5</b>
<b>4.</b>	<b>BEFORE YOU BEGIN</b>			<b>6</b>
<b>5.</b>	<b>WORKING PROCEDURE</b>			<b>7</b>
<b>6</b>	<b>SERVICING DURING OPERATION</b>			<b>11</b>
<b>7.</b>	<b>APPENDIX 1. Cooking pancakes</b>			<b>13</b>
<b>8.</b>	<b>APPENDIX 2. Formulas of pancakes for Machine PK-2.1.3</b>			<b>14</b>
<b>9.</b>	<b>APPENDIX 3. Cook-chill - stuffed pancakes</b>			<b>18</b>
<b>10</b>	<b>TROUBLESHOOTING</b>			<b>22</b>
<b>11.</b>	<b>INSTRUCTION BOOKLET FOR OPERATOR</b>			<b>23</b>

## REMOVABLE PARTS



**Photo 1. Tray**



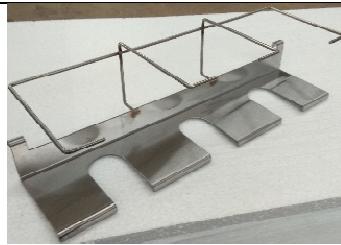
**Photo 2. Conveyor**



**Photo 3. Bath**



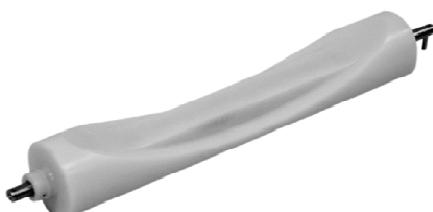
**Photo 4. Container with dispensing tip**



**Photo 5. Shelf for containers**



**Photo 6. Bolster**



**Photo 7. Master form Ø 300**



**Photo 8. Master form 300 x 300**



**Photo 9. Adjusting inserts**



**Photo 10. Funnel**

## **1. PURPOSE**

The electric fryer, trademark SIKOM, for public catering enterprises (canteens, cafés, fast food restaurants, etc.), type PK, model PK-2.1.3, hereinafter referred to as Machine, is intended for continuous one-side frying of unfermented dough pancake intermediates. The machine is designed for reasonably intense operation, but not on an industrial scale. The time of Machine operation shall be 12 hours a day max. The machine shall be operated indoors only, in a room protected against wind, with preventing any danger of moisture condensation. Besides, it shall be installed on a perfectly firm table, with foreseeing relevant means of protection, for example, those preventing the access of unauthorized persons to devices of Machine.

## **2. DELIVERY SET**

The following is included into the delivery set of Machine:

• Machine as a unit .....	1 pcs.
• Certificate.....	1 pcs.
• Operation manual .....	1 pcs.
• Packing set .....	1 pcs.
• Removable parts:	
• Tray (Photo 1) .....	1 pcs.
• Conveyor (Photo 2) .....	1 pcs.
• Bath (Photo 3) .....	1 pcs.
• Container for dough with dispensing tip (Photo 4) .....	2 sets
• Shelf for containers (Photo 5) .....	1 pcs.
• Bolster (Photo 6) .....	1 pcs.
• Master form for round pancake intermediates, 300 mm dia. (Photo 7) .....	
• Master form for square pancake intermediates, 300×300 MM (Photo 8) .....	
• Adjusting inserts (Photo 9):	
1 mm thick .....	2 pcs.
2 mm thick .....	2 pcs.
• Funnel (Photo 10) .....	1 pcs.
• Spares and tool kit:	
• Tension spring (dia. 10) .....	1 pcs.
• Tension spring (dia. 7) .....	1 pcs.
• Belt .....	1 pcs.
• Probe (metal plate) 0.55 mm .....	1 pcs.
• Probe (metal plate) 0.7 mm .....	1 pcs.
• Knife .....	2 pcs.

NOTE: As an option, at Customer's request the Machine can be equipped with an additional master form for two rectangular pancake intermediates 130 x 300 mm.

### 3. DESIGN AND OPERATING PRINCIPLE

3.1 The following components are engaged into the technological process of pancake frying: frying drum 1, system of dough feed and pancake intermediate formation, knife 6 and conveyor 5 for pancakes stacking (see Fig.1).

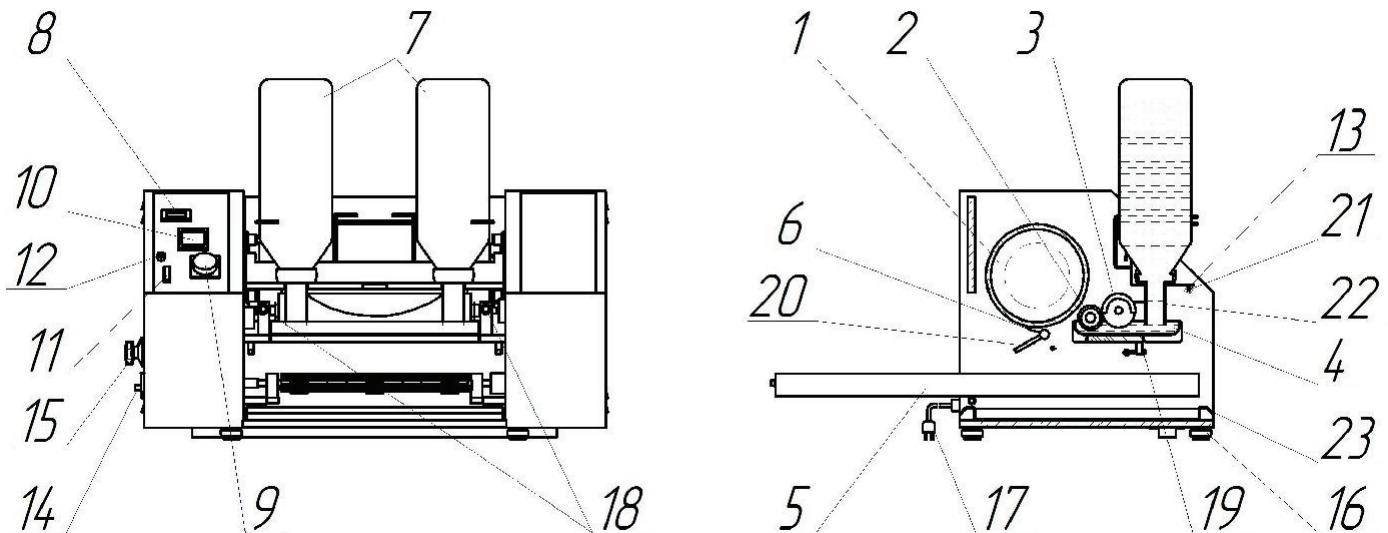


Fig.1. Pancake automatic machine PK-2.1

3.2 The system of dough feed and pancake intermediate formation consists of :

- container 7 wherefrom dough is fed;
- dispensing tip 22;
- shelf 21 for allocating containers;
- bath for dough 4 that, together with dispensing tip 22, serves for maintaining the needed amount of dough (adjusting inserts 13 are used for adjusting the dough level in the bath);
- bolster 2 for transferring dough from bath to frying drum;
- master form 3 for setting the needed shape for a pancake intermediate.

3.3 During formation of a pancake intermediate, the bath (jointly with the rotating bolster and master form) approaches the rotating frying drum; dough is transferred on the frying drum. Upon completing of formation, the bath is moved aside and the frying drum stops rotation. After the time preset for frying of a pancake, the frying drum begins to rotate again, whereas the next pancake intermediate begins to be formed, while the fried pancake, which is withdrawn with the knife, is fed onto the moving conveyor. As soon as the pancake has been fully laid on the conveyor, the latter is retreated into its initial position. Each next pancake is stacked onto the previous one, and so a stack of pancakes is formed on the conveyor.

3.4 The following elements are located on the Machine front panel: "Pancake counter" 8, "Frying time" timer 9, temperature controller with "Heating" indicator 10, "Frying" button 11 and "Power" indicator 12.

3.5 To the left, on the Machine lateral surface, "Power" switch 14 and "Start - Stop" knob 15 are located. By rotating the knob into "Stop" position, the bath is fixed in the position drawn apart from the frying drum, so dough cannot fall on it.

#### **4. BEFORE YOU BEGIN**

##### **ATTENTION!**

THE FIRST ANNEALING OF THE FRYING DRUM AND THE TRIAL BAKING HAVE BEEN PERFORMED AT THE MANUFACTURING PLANT DURING ACCEPTANCE TESTS. A MARK ABOUT PERFORMING OF THESE TESTS IS PUT INTO PRODUCTS' CERTIFICATES.

- 4.1 Install the Machine on its place of operation, assuring its horizontal position by adjusting of feet 16 (see Fig.1). Remove protective film (if any) from Machine body parts and wipe accessible surfaces with a slightly wetted clean cloth.
- 4.2 Wash dough containers, dispensing tips, shelf, master form, bolster, bath and tray.
- 4.3 Install the conveyor on its standard place by inserting the protruding axle (without groove) into the plastic support on the right wall (Photo 11) until full stop, thereafter the axle with groove – into the metal coupler on the left wall (Photo 12). By rotating the conveyor axle, perform its engagement with the coupler. At the same time, the conveyor rear part shall be lowered into cavities of the appropriate rear supports.

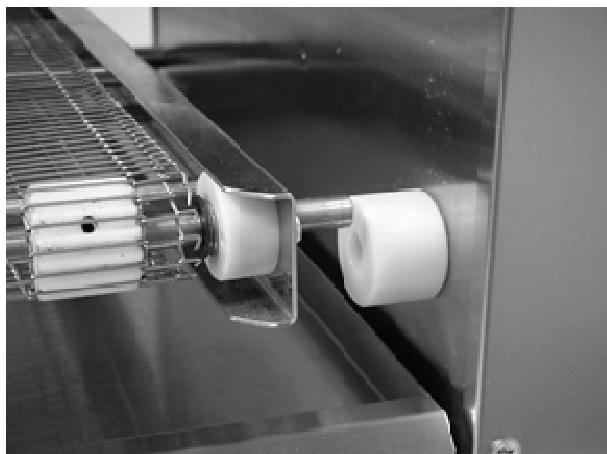


Photo 11



Photo 12

Install the tray and bath on their places (Photo 13).

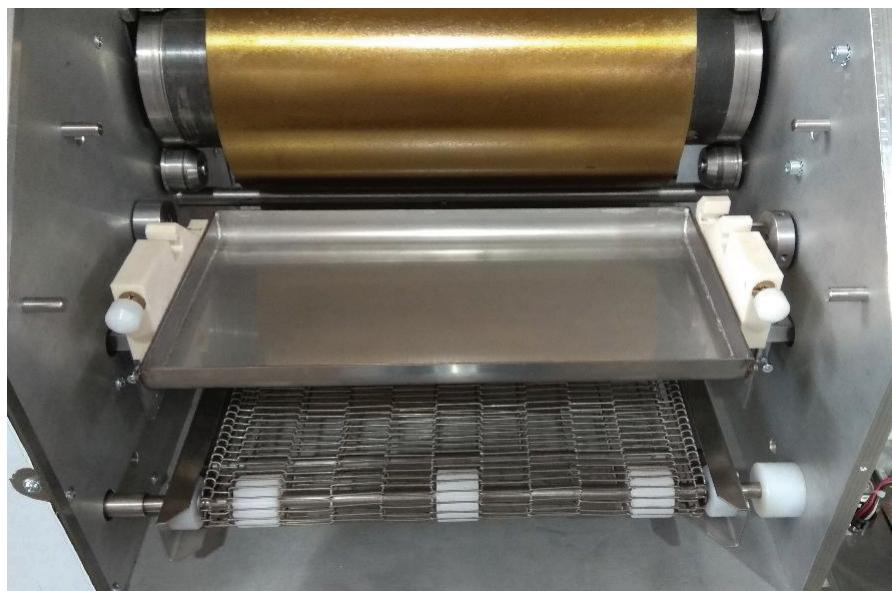


Photo 13

## 5. WORKING PROCEDURE

- 5.1 Make dough in accordance with the selected formula from those shown in Appendix 2 (see pp.14 - 17).  
 5.2 Set "Power" switch into "Off" position (Photo 14), "Frying" button into "0" position (Photo 15), and "Start-Stop" knob in "Stop" position (Photo 16).



Photo 14



Photo 15



Photo 16

- 5.3 After checking for absence of damages, insert the power cord plug of Machine 17 (see Fig.1) into a power outlet. You will need a one-phase three-wire AC mains (PE wire is a must). The connection parameters depend on the claimed rated power, power supply voltage and frequency.  
 5.4 Set "Power" switch into "On" position (Photo 17). At the same time, illumination of "Power" indicator begins to gleam (Photo 18) and the bolster coupler begins to rotate (Photo 19).



Photo 17



Photo 18



Photo 19

- 5.5 By rotating the dial scale, set "Frying time" timer for 30 seconds and switch "Frying" button in "I" position (Photo 20). At the same time, rotation of the frying drum and forward and back movement of the conveyor will occur.

- 5.6 Set the temperature of frying drum heating on the temperature controller (in 190...210°C range). To do it, press "MODE" icon for a short time and select the needed value using "▲" "▼" icons. At the same time, "Heating" indicator on the temperature controller will be on, and the process of heating of the frying drum begins (Photo 21).



Photo 20

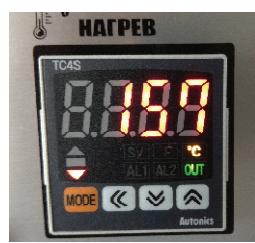


Photo 21



Photo 22

- 5.7 Appr. in 15 minutes after heating has been switched on, carefully lubricate the frying drum and knife with sunflower oil using a paper (or other heat-resistant) napkin.

Be careful! The frying drum is hot!

Use of cotton gloves is absolutely necessary.

To make lubrication easy, do the following:

- Set "Frying time" timer in "0" position (Photo 22), the frying drum begins continuous rotation. Carefully lubricate the frying drum (Photo 23) and set "Frying time" timer in its initial position - 30 seconds;
- As soon as the conveyor resumes its initial position (the conveyor coupler stops to rotate), switch "Frying" button in "0" position (the frying drum stops to rotate and the conveyor stops moving) and carefully lubricate the knife (Photo 24).



Photo 23



Photo 24

5.8 Check that "Frying" button is in "0" position and de-energize the Machine by turning "Power" switch in "Off" position (Photo 14). Install the bolster (Photo 25). To do it, insert its right axle (without the rod) into the farther saddle of the right support, and locate the left axle on the horizontal section of the left support. Move the bolster to the left until it stops, and the left axle tip will enter into the coupler hole. Rotate the bolster around its axis in such a way that the stud on the left axle would get engaged by the coupler catch (Photo 26).



Photo 25



Photo 26

5.9 Install the master form on its place (Photo 27). To do it, locate it on the supports with the stud to the right, pull holder knobs 18 one by one (see Fig.1) and put axles of the master form into saddles. At the same time, the master form stud should be located between the coupler pins (Photo 28).



Photo 27



Photo 28

5.10 Install the shelf for dough containers on its place (Photo 29).



Photo 29



Photo 30

5.11 Set "Power" switch in "On" position (Photo 17), set "Frying time" timer for 10 seconds and "Frying" button in "I" position (Photo 30). At the same time, periodic rotation of the frying drum and movement of the conveyor will resume.

5.12 Install the container filled with dough on the shelf (to prevent dough leakage, squeeze the dispensing tip tube, see Photo 31). The dough will fill the bath to the needed level (2 – 3 mm from the bath upper rim) and lubricate the bolster. (When necessary, adjust the dough level in the bath using adjusting inserts from the delivery set, laying them under the dispensing tip support part, see Photo 32.) To make filling the bath quicker, lift the container above the shelf.

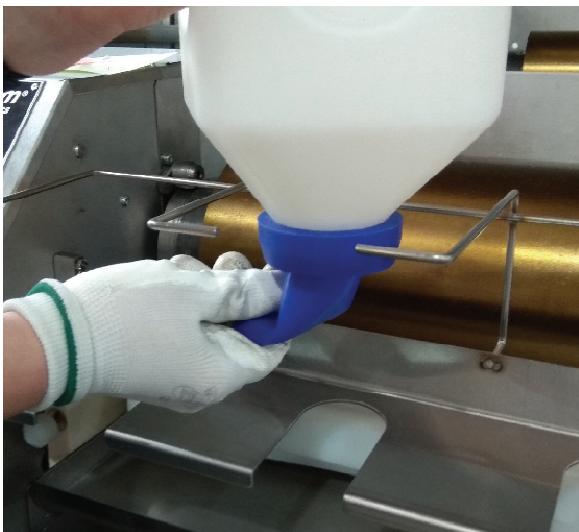


Photo 31



Photo 32

5.13 As soon as the frying drum is heated ("Heating" indicator on the temperature controller goes off, see Photo 33), you can begin frying. To do it, just turn "Start - Stop" knob in "Start" position (Photo 34).

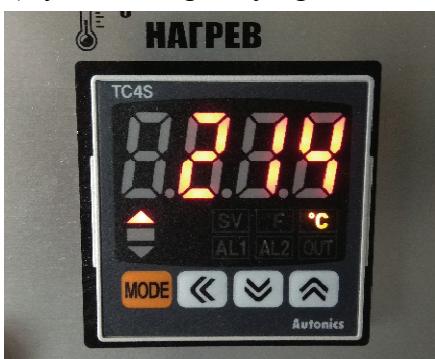


Photo 33



Photo 34

5.14 The process of a pancake intermediate formation is wholly determined by the dough viscosity. Please adhere to recommended formulas of dough specified in Appendix 2 (pp. 14 - 17).

5.15 When necessary, adjust the gap between the bolster and frying drum by screws 19 (see Fig.1, Photo 35). It should be appr. 0.6 mm. To control this gap, two probes 0.55 and 0.7 mm thick are applied to the Machine (Photo 36). Turning screws clockwise will increase the gap, turning screws counter-clockwise will reduce it. If there are rips in a pancake intermediate (too small amount of dough is transferred from the bolster to the frying drum) you may reduce the gap. If there are excess flows of dough and the pancake intermediate is too thick (too much dough) you may increase the gap.



Photo 35.

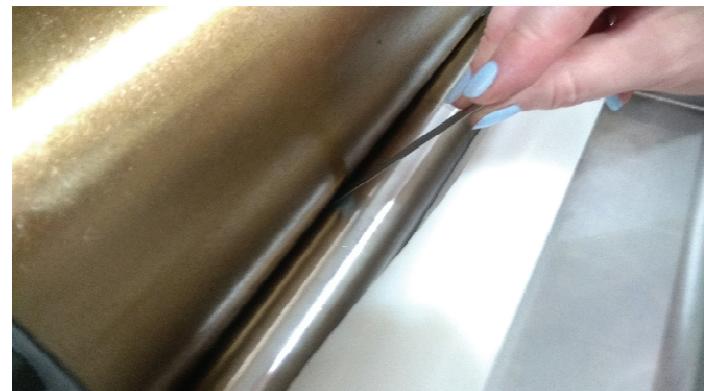


Photo 36.

5.16 After the first 3 - 5 pancakes, when the stable frying regime has settled, set the most acceptable values of temperature and frying time for your formula of pancakes. Please mind that too high temperature will result in burning of a pancake surface with the inner part underdone, whereas too long-drawn frying will result in a pancake shrinkage due to drying. Moreover, insufficient frying may occur due to failure to adhere to a recommended formula or due to low voltage in the mains.

5.17 Do not put "Frying" button in to "0" position when a pancake intermediate is on the frying drum! It may lead to sticking of the pancake to the frying drum and getting of the Machine out of order. If, for this or that reason, a pancake has stuck to the frying drum, perform the following immediately:

- put "Start - Stop" knob into "Stop" position (Photo 15);
- press arm of knife 20 (see Fig. 1) down (Photo 37) and hold it in this position until the stuck dough is completely removed;



Photo 37.

- carefully remove the stuck dough from the frying drum by a metal sponge (for convenience, you may set "0" on "Frying time" timer, in this case the frying drum will rotate continuously) and release the knife arm;
  - if fragments of stuck dough fall in the bath, on the bolster or master form, set "Frying time" timer for 10 seconds. After the conveyor assumes its initial position and stops, switch "Frying" button to "0" position, and "Power" switch to "Off" position. Remove and wash the bolster, master form and bath, filtering dough out of it into the container, and begin the frying process anew;
  - if fragments of stuck dough did not fall in the bath, on the bolster or master form, you may continue frying. For it, set "Frying time" timer for 10 seconds and rotate "Start - Stop" knob into "Start" position.
- 5.18 Take away a stack of fried pancakes from the conveyor periodically, which is convenient to do during frying of a successive pancake or during stopping of the frying process. The recommended quantity of pancakes in a stack: 10 -15.
- 5.19 To stop frying pancakes for a time, rotate "Start - Stop" knob into "Start" position. During the interruption you may clean the knife. To do it, just after taking away the last pancake from the frying drum and returning the conveyor in the initial position (the conveyor coupler stops rotation) switch "Frying" button into "0" position and withdraw the remaining pancakes from the conveyor. Press the knife arm down (Photo 36), carefully clean the knife with a napkin and lubricate it with sunflower oil. Move the knife arm down and switch "Frying" button onto "I" position. To resume frying, turn "Start - Stop" knob in "Start" position.
- 5.20 Before dough in the container on the Machine shelf is out, install the next container with dough into a vacant aperture in the shelf. When dough in the previous container is out, take it away from the Machine shelf. If using one container only, add dough into the container in a timely manner.
- 5.21 To complete operation of the Machine, turn "Start - Stop" knob into "Stop" position. After 3 - 5 minutes, when the frying drum is cooled down and the conveyor returns into the initial position, turn "Frying" button in "0" position, and "Power" switch in "Off" position.

## 6. SERVICING DURING OPERATION

- 6.1 Upon completion of work, withdraw dough containers and the shelf from the Machine. Carefully (do not burn yourself!) remove the master form and bolster, and then the bath and tray; wash them.
- 6.2 After the frying drum has cooled down, remove (when necessary) residues of baked dough with a cleaning sponge, then wipe dry with a clean cloth. It is forbidden to wash the frying drum and the Machine body under water jet or by dipping окунанием.
- 6.3 Clean the knife with a napkin by pressing the knife arm down.
- 6.4 Clean the conveyor with a soft brush. If it requires more thorough cleaning, dismount it and wipe with a wet cloth. To dismount the conveyor, slightly lift its rear part above rear supports, shift tot the right releasing the axle end with the groove from the metal coupler, slightly lift it and then shift to the left releasing the axle opposite end from the plastic support.
- 6.5 Wipe outer surfaces of the Machine body with a soft cloth.

- 6.6 Preserve the Machine against shocks, water and dust, and its removable parts from falling.
- 6.7 During intense operation of the Machine, carbon deposit can be formed on the frying drum surface deteriorating the quality of produced pancakes. For this reason, periodic cleaning of the drum is essential. Use soap solution as a detergent for cleaning the frying drum. In case of severe contamination, use dry salt for removing stuck fragments. To remove residues of the detergent after cleaning, wipe it with a clean cotton cloth soaked in warm water, and then wipe with a dry cotton cloth to remove moisture.
- 6.8 To remove carbon deposit, it is recommended to periodically perform complete cleaning of the frying drum with a stiff metal brush, with further calcination of the drum and application of a thin film of sunflower oil which contributes to recovery of its antiadhesivity.

## Cooking pancakes

General. Pancakes are made from top or first grade wheat flour with adding milk, sugar, fat, eggs, kefir and some other food products.

Consumption of wheat flour in formulas is specified with the basic moisture content 14.5%. When using wheat flour with the basic moisture content under 14.5%, its consumption will be reduced in amount 1% per each percentage unit of flour humidity reduction. At the same time, consumption of moisture (milk, water) will be increased by the same amount.

Formulas are composed on basis of usage of the 1<sup>st</sup> category cooking hen eggs.

Requirements to raw stock. The following requirements are presented to raw stock used for cooking pancakes:

1. In cold seasons, if flour is quite cold, it should be held in a warm room until its temperature reaches 12°C at least. Before usage, flour is sieved through special sieves or manually.
2. Hen eggs are tested for freshness and treated in accordance with valid sanitary norms for public catering enterprises.
3. To make dough, eggs shall be cooled; other food products shall have the room temperature.
4. The dough temperature shall be about 20°C.

Making dough. Dough texture is a critical parameter influencing stability of the machine operation and the weight of a pancake dough intermediate. Mind that adjusting a pancake thickness and weight is possible only by selecting the dough flowability. The denser dough is, the thicker the pancake, and the longer time for its frying, and vice versa.

When using ingredients different from those specified in the formula, adjustment of the formula can be needed (flour/liquid relation).

To prevent poor forming, you may add flour into too liquid dough, or milk into too viscous dough.

If ingredients do not vary while frying gives positive results, you may amend the mentioned formulas (see Appendix 2).

## Forming of stuffed pancakes

Rectangles. Allocate a pancake on the frying surface, lay the stuffing in the middle of it. Fold two sides in such a way that they touch each other in the middle. Then, fold the upper and lower margins to the middle and fold the pancake in half. Thereafter, fry from two sides and trim.

Triangles. Allocate a pancake on the frying surface, lay the stuffing in the middle of it uniformly (diagonally if the pancake is square), then fold in half once more to form a triangle.

Envelopes. Allocate a pancake on the frying surface, lay the stuffing in the middle of it. Then fold the opposite sides (or corners if the pancake is square) by more than on the middle; as a result, a candy-shaped pancake is produced. Fold the pancake margins from below and fry. Put on a plate and trim.

Pastries. Allocate a pancake on the frying surface, lay the stuffing on it uniformly and enroll. Fry from two sides and serve.

Cornets. Allocate a round pancake on the frying surface, fold in half and form a taper. Fill with stuffing and serve.

## APPENDIX 2

### Formulas of pancakes for Machine PK-2.1.3

#### “Classical” pancakes

Formula	Gross weight, g	Dry solids weight ratio, %	Weight in dry substances, g
“Predportovaya” top grade flour	1000	85,5	855
Eggs, category 1	192 (4 pcs.)	27,0	51,84
Granulated sugar	116	99,85	115,83
“Extra” salt	10	96,5	9,65
Milk, fat content 2,5%	1600	12,0	192
Sunflower oil	120	100	120
Total raw stock:	3038		1344,32

Calculation of dough moisture content:

$$(3038-1344,32) / 3038 = 0,557. \text{ Moisture content of dough} \sim 56\%.$$

How to make:

Mix eggs, sugar and salt in the tank of a beating machine with high speed until formation of foam. Add milk to the produced mass, then pour flour and go on mixing until the dough becomes uniform in consistence. At the end of mixing, add sunflower oil and beat with the maximum speed of the machine working head for 1 minute. Sieve the produced dough and check its consistence. Pour the finished dough in jars.

#### Frying round pancakes

Frying time*, s	15-20
Quantity**, pcs.	~35
Average weight***, g	55-60

#### Frying square pancakes

Frying time*, s	20-25
Quantity**, pcs.	~25
Average weight***, g	85-90

\* Value on “Frying time” timer in the settled regime.

\*\* Output of products per one mentioned formula.

\*\*\* Weight of pancakes depends on the dough consistence and frying time.

## “Home-made” pancakes

Formula	Gross weight, g	Dry solids weight ratio, %	Weight in dry substances, g
“Predportovaya” top grade flour	1000	85,5	855
Eggs, category 1	288 (6 pcs.)	27,0	77,76
Granulated sugar	80	99,85	79,88
“Extra” salt	10	96,5	9,65
Milk, fat content 2,5%	1000	12,0	120
Sunflower oil	100	100	100
Kefir, fat content 2,5%	1000	30,0	300
Total raw stock:	3478		1542,29

### Calculation of dough moisture content

$$(3478-1542,29) / 3478 = 0,556. \text{ Moisture content of dough } \sim 56\%.$$

### How to make

Mix eggs, sugar and salt in the tank of a beating machine with high speed until formation of foam. Add milk and kefir to the produced mass, then pour flour and go on mixing until the dough becomes uniform in consistence. At the end of mixing, add sunflower oil and beat with the maximum speed of the machine working head for 1 minute. Sieve the produced dough and check its consistence. Pour the finished dough in jars.

### Frying round pancakes

Frying time*, s	10-20
Quantity**, pcs.	~ 60
Average weight***, g	35-40

### Frying square pancakes

Frying time*, s	18-22
Quantity**, pcs.	~ 45
Average weight***, g	50-55

\* Value on “Frying time” timer in the settled regime.

\*\* Output of products per one mentioned formula.

\*\*\* Weight of pancakes depends on the dough consistence and frying time.

## “Special” pancakes

Formula	Gross weight, g	Dry solids weight ratio, %	Weight in dry substances, g
Top gr. wheat flour “Kudesnitsa”	1000	85,5	855
Eggs, category 1	288 (6 pcs.)	27,0	77,76
Granulated sugar	190	99,85	189,72
“Extra” salt	10	96,5	9,65
Kefir, fat content 2,5%	550	30	165
Milk, fat content 2,5%	1100	12,0	132
Sunflower oil	110	100	110
Baking soda	6	50,0	3
Acetic acid 9%	5	-	-
Total raw stock:	3259		1542,13

### Calculation of dough moisture content

$$(3259-1542,13) / 3259 = 0,527. \text{ Moisture content of dough } \sim 53\%.$$

### How to make

Mix eggs, sugar and salt in the tank of a beating machine with high speed until formation of foam. Add milk and kefir to the produced mass, then pour flour and go on mixing until the dough becomes uniform in consistence. Then add sunflower oil, and at the end of mixing add soda quenched with vinegar. Stir the dough and beat with the maximum speed of the machine working head for 1-2 minutes. Sieve the produced dough and check its consistence. Pour the finished dough in jars. It is allowed to substitute acetic acid with citric acid solving it in a small volume of water beforehand.

### Frying round pancakes

Frying time*, s	10-15
Quantity**, pcs.	~ 45
Average weight***, g	50-55

### Frying square pancakes

Frying time*, s	20-25
Quantity**, pcs.	~ 30
Average weight***, g	85-90

\* Value on “Frying time” timer in the settled regime.

\*\* Output of products per one mentioned formula.

\*\*\* Weight of pancakes depends on the dough consistence and frying time.

## “Lace” pancakes

Formula	Gross weight, g	Dry solids weight ratio, %	Weight in dry substances, g
“Predportovaya” top grade flour	1000	85,5	855
Eggs, category 1	288 (6 pcs.)	27,0	77,76
Granulated sugar	50	99,85	49,93
“Extra” salt	10	96,5	9,65
Milk, fat content 2,5%	2000	12,0	240
Sunflower oil	76	100	76
Butter	136	84,0	114,24
Total raw stock:	3560		1422,58

### Calculation of dough moisture content

$$(3560-1422,58) / 3560 = 0,60. \text{ Moisture content of dough } \sim 60\%.$$

### How to make

Mix eggs, sugar and salt in the tank of a beating machine with high speed until formation of foam. Add milk to the produced mass, then pour flour and go on mixing until the dough becomes uniform in consistence. At the end of mixing, add sunflower oil, stir the dough, increase the mixing speed and add hot butter. Beat with the maximum speed of the machine working head for 1 minute. Sieve the produced dough and check its consistence. Pour the finished dough in jars.

### Frying round pancakes

Frying time*, s	10-20
Quantity**, pcs.	~ 75
Average weight***, g	25-30

### Frying square pancakes

Frying time*, s	10-20
Quantity**, pcs.	~ 50
Average weight***, g	45-50

\* Value on “Frying time” timer in the settled regime.

\*\* Output of products per one mentioned formula.

\*\*\* Weight of pancakes depends on the dough consistence and frying time.

### Cook-chill – stuffed pancakes

The process scheme of cook-chill – stuffed pancakes:

1. preparing the raw stock;
2. making the dough;
3. preparing the Machine for frying pancakes;
4. frying pancakes;
5. making the stuffing;
6. filling pancakes with stuffing and forming pancakes.

You can make the following pancakes intermediates:

- |              |  |
|--------------|--|
| Slavonic:    | <ul style="list-style-type: none"> <li>- meat and onion pancakes</li> <li>- cabbage and egg pancakes</li> <li>- rice and egg pancakes</li> <li>- rice and mushroom pancakes</li> <li>- potato, mushroom and onion pancakes</li> <li>- potato, meat and onion pancakes</li> <li>- cheese pancakes</li> </ul>    |
| Russian:     | <ul style="list-style-type: none"> <li>- pot cheese and raisin pancakes</li> <li>- pot cheese, honey and nuts pancakes</li> <li>- pot cheese and marmalade pancakes</li> <li>- apple and cinnamon pancakes</li> <li>- caramelized milk pancakes</li> <li>- marmalade, jam and fruit butter pancakes</li> </ul> |
| Honey:       | <ul style="list-style-type: none"> <li>- honey, nuts and lemon pancakes</li> </ul>   |
| Traditional: | <ul style="list-style-type: none"> <li>- butter pancakes</li> </ul>  |

### Making the stuffing

To make stuffing from cabbage and eggs, mince fresh peeled cabbage, fry and cool it, add salt, pepper, passivated onion and hard-boiled chopped eggs.

To make stuffing from potato, meat and onion, cook potato, crumble it up, mix with preliminarily fried meat, passivated onion, salt and pepper.

To make stuffing from potato, mushrooms and onion, cook potato, crumble it up, fry together with mushrooms, mix with passivated onion, salt and pepper.

To make stuffing from meat and onion, fry meat with passivated onion, salt and pepper.

To make stuffing from rice and eggs, cook rice, add melted butterine, chopped eggs and finely chopped greenery (parsley and/or dill).

To make stuffing from rice and mushrooms, mix cooked and minced mushrooms with loose rice and passivated onion.

To make stuffing from nuts, lemon and honey, mince washed lemons and mix with crushed nuts and honey.

To make stuffing from pot cheese, add the following into pot cheese passed through pulping machine: eggs, raisin, sugar; or eggs, honey, nuts; or eggs and marmalade, and mix it well.

#### Stuffing formulas

Stuffing and raw stock	Qty of raw stock (gross weight) per 1 pancake, gr.
Meat:	20,0
meat	13,76
onion	6,0
salt	0,2
ground black pepper	0,04
Pot cheese, raisin:	20,0
pot cheese	15,0
raisin	2,2
eggs	1,0
sugar	1,8
Marmalade, fruit butter, jam:	15,0
Nuts, honey, lemon:	20,0
nuts	6,0
honey	11,0
lemon	3,0
Cabbage, eggs:	20,0
cabbage	16,0
onion	1,96
ground black pepper	0,04
salt	0,2
eggs	1,8

Mushrooms, potato, onion:	20,0
potato	14,36
mushrooms	3,6
onion	1,8
salt	0,2
ground black pepper	0,04
Potato, meat, onion:	20,0
potato	14,0
meat	3,96
salt	0,2
onion	1,8
ground black pepper	0,04

### Storage

Unfermented cooled dough (half-way product) shall be stored at temperature +2 ... +6 °C for 9 hours, beginning from the moment of the technological process completion.

Pancake intermediates shall be stored at temperature +2 ... +6°C for 24 hours.

Storage periods for half-way products (hours):

Cooled stuffed pancakes (from +2 to +6°C)

- with meat, pot cheese 12
- with meat, onion, potato 12
- with apples 12
- with cabbage and eggs 12
- with marmalade, fruit butter and jam 16
- with mushrooms and potato 18
- with honey, nuts and lemon 72

Frozen stuffed pancakes (from -10 to -18°C)

- with pot cheese 96
- with mushrooms and potato 96
- with meat, onion, potato 96
- with cabbage and eggs 30 days
- with marmalade, fruit butter and jam 30 days
- with meat, honey, lemon 30 days

In absence of cold, the products must not be stored.

### Dough organoleptic parameters

Parameters	Characteristics
Appearance	Liquid uniform plastic mass without clogs and stratification signs.
Colour	White with pale crème tint (top grade flour) White with yellowish tint (first grade flour)
Consistency	Liquid
Taste and odour	Pleasant, characteristic for this type of flour, without foreign flavours and odours

### Pancakes organoleptic parameters

Parameters	Characteristics
Appearance	Pancake shape: flat square or round (depending on the master form), fried from one side. Surface: smooth, soft, elastic, without getting dry, with fine uniform porosity. Without cracks, penetrating holes, tears and burned spots.
Taste and odour	Pleasant, characteristic for fried unfermented dough, without foreign flavours and odours.
View in section	Uniform in thickness, without gummy layers and undermixing signs.

### Stuffed pancakes organoleptic parameters

Parameters	Characteristics
Appearance	Pancake shape: flat. Surface: smooth, with fine uniform porosity, without cracks, penetrating holes, tears and burned spots. Stuffing does not exude on the surface.
Taste and odour	Pleasant, characteristic for this type of stuffing, without foreign flavours and odours.
View in section	Uniform in thickness, well baked, without gummy layers and undermixing signs, with uniformly stratified stuffing.

## TROUBLESHOOTING

1. Dough does not stick to the frying drum
  - Reduce amount of oil on the drum
  - Reduce amount of oil in the dough
2. Pancake poorly taken off from the frying pan
  - Apply a thin layer of oil on the frying drum and knife
  - Add oil or butter into dough
3. Finished pancake is dry
  - Add oil or butter into dough
  - Increase the number of eggs in dough
  - Reduce frying time
  - Reduce frying temperature
  - Lubricate a finished pancake with butter
4. Pancake too dense
  - Reduce the amount of eggs and flour in dough
  - Add raising agent in dough
  - Beat up eggs with sugar until foaming
5. Pancake too thin (while the gap between the frying drum and bolster is adequate)
  - Reduce moisture content in dough
  - Increase amount of flour
6. Whitish pancake
  - Replace water (some part of water) with milk
  - Increase amount of sugar in dough
  - Increase frying time
7. Pancake underdone
  - Increase frying time
  - Increase frying temperature (frying drum insufficiently heated)
8. Pancake with holes in it
  - Miz the dough well (to prevent stratification)
  - Reduce amount of raising agent
  - Reduce frying temperature (frying surface overheated)
  - Increase dough viscosity
  - Reduce the gap between the frying drum and bolster
9. Pancake is poorly formed on the frying drum
  - Increase the amount of dough in the bath
  - Pass dough through the sieve

FRAYING ON ROUND AND SQUARE PANCAKE MARGINS  
IS NOT A DEFECT.

## BRIEF INSTRUCTION FOR OPERATOR

### ATTENTION!

- The machine is designed for producing pancake intermediates in continuous mode.
- You can suspend the frying process by rotating “Start-Stop” knob into “Stop” position.
- Never leave unattended the Machine which is connected to the mains!

### HEATING OF FRYING DRUM

1. Set “Start – Stop” into “Stop” position.
2. Set “Frying time” timer for 30 seconds.
3. Set “Power” switch into “Off” position.
4. Set “Frying” button into “I” position.
5. Set temperature 220°C on the temperature controller.
6. Make the dough and check its viscosity.

### PREPARING FOR FRYING

1. After “Heating” indicator on the temperature controller is off, switch “Frying time” timer to “0 sec” position (the frying drum begins rotating in continuous mode).
2. Lubricate the frying drum.
3. Set “Power” switch into “Off” position.
4. Lubricate the knife.
5. Install the conveyor and tray (if they are absent).
6. Install the bath for dough.
7. Install the bolster.
8. Install the required master form.
9. Install the shelf for dough containers.

### BEGINNING OF FRYING

1. Set “Frying time” timer for 10 seconds.
2. Set “Power” switch into “On” position
3. Check that “Frying” button is in “I” position.
4. Install the dough container on the shelf above the bath with the tip downward.
5. After the bath is filled with dough, rotate “Start – Stop” knob into “Start” position.

### FRYING

1. After the first 3 - 5 pancakes, when the stable frying regime has settled, set the optimal values of temperature and frying time for this formula of pancakes.
2. Take away a stack of fried pancakes from the conveyor periodically (10 - 15 pcs).
3. Clean and lubricate the knife periodically.
4. Replace dough containers periodically.

### TO COMPLETE THE MACHINE OPERATION

1. Switch “Start – Stop” knob into “Stop” position.
2. Set “Power” switch into “Off” position
5. Remove the container, shelf, master form, bolster and bath from the Machine.
6. Begin cleaning of the Machine with power off and after the machine has cooled down!

PLEASE ADHERE TO RECOMMENDATIONS FROM THE OPERATION MANUAL!