

# RoboLabs

Incredible machines for funfood & fastfood

## OPERATION MANUAL

### ROBOSUGAR TWIN AUTO 20

### CARAMELIZER

(CPA-20EU)



2018

# SAFETY REQUIREMENTS



DO NOT DISASSEMBLE CARAMELIZER OR REMOVE SEPARATE COMPONENTS WHILE EQUIPMENT IS CONNECTED TO THE MAINS!



READ CAREFULLY THE MANUAL BEFORE START!  
ONLY INSTRUCTED PERSONNEL ARE ALLOWED TO OPERATE THE MACHINE!



IT IS PROHIBITED TO RUN THE MACHINE WITH EMPTY KETTLE! IT WILL LEAD TO MACHINE OVERHEATING AND FAILURE!



DO NOT USE THE MACHINE FOR MIXING HEAVY OR ABRASIVE PRODUCTS!



MANY PARTS ARE HOT WHILE IN OPERATION!  
BURN HAZARD!



BEWARE OF MOVING PARTS OF THE MACHINE WHILE IN OPERATION!

	<b>WARNING</b> RISK OF FIRE OR ELECTRIC SHOCK DO NOT OPEN	
WARNING, TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK) NO USER-SERVICEABLE PARTS INSIDE REPAIR SHOULD BE DONE BY AUTHORIZED SERVICE PERSONNEL ONLY		

# 1. OVERVIEW

## 1.1. DESIGNATION

RoboSugar Twin Auto 20 caramelizer is intended for making various kinds of coated popcorn, including caramel or cheese coating and other tastes. The machine cooks caramel or cheese mixture, coats popcorn with it and cool down coated popcorn.



THE MACHINE IS INTENDED ONLY FOR POPCORN COATING!

## 1.2. TECHNICAL SPECIFICATIONS

Productivity <sup>1</sup>	up to 30 kg/h
Operating volume	70 L
Rated voltage	3 phase 400 V
Rated frequency	50/60 Hz
Rated power	up to 13 kW
Power consumption	up to 6.5 kW·h
Dimensions (LxWxH)	2100x1000x1750 mm
Weight	230 kg

## 1.3. DELIVERY SET

RoboSugar CPA-20EUcaramelizer	1 pc
Plastic bucket for popcorn	1 pc
Plastic box for ready-to-eat product	1 pc
Scrap tray with 2 guides	1 pc
Kettle lid	1 pc
Documentation	1 set

<sup>1</sup> Depending on recipe and supplies used

## 2. INTENDED USE

### 2.1 PROTECTORS AND LOCKUPS

On the front panel there is an EMERGENCY STOP button that immediately shuts off the machine.

There is a voltage relay included in the beginning of the circuit, which won't let to turn on the machine in case if voltage in the mains is too low or too high (the range set on the relay), excluding any risk of machine failure due to improper hookup or surges.

There is an emergency temperature regulator located in heating elements area. In case of excessive or uncontrolled heating it will cut off power supply to the heaters.

### 2.2 AMBIENT CONDITIONS

The equipment must be operated at the ambient temperature from +5° to +40°C and relative humidity not more than 45% at 40°C. The temperature decreasing related to RH increasing, for example, 90% of RH at 20°C. Altitude above sea level should not exceed 1000 m. Ingress protection rating IP22 (IEC 60529).

While in operation, RoboSugar CPA-20EU emits a lot of water vapour and heat energy, which is not good for popcorn taste. It is very important to provide 1000 m<sup>3</sup>/h purge ventilation with 800x800 mm hood is recommended to install above the kettle of the machine.

Amongst other factors, the end product quality depends on ambient conditions. See section 2.5 for details.

## 2.3 POWER REQUIREMENTS AND CONNECTION



ATTENTION!  
EQUIPMENT MUST BE GROUNDED!



ATTENTION!  
MAINS CONNECTIONS MUST BE DONE  
BY QUALIFIED ELECTRICIAN ONLY!



ATTENTION!  
IT IS PROHIBITED TO CONNECT MACHINE TO MAINS WITH RATING,  
TYPE, AND VOLTAGE OTHER THAN MENTIONED!

It is recommended to use 32A 3P+N+E plug for mains connecting. Follow the wiring diagram sticker attached to the cord, see the Fig.2.

Turn the machine on by turning the switch in CAMEL position, and then press blinking HEATING button. Check to see if the mixer inside the kettle turns clockwise. If not, turn off the machine, take the plug and swap two phases as shown on Fig.3. Turn the machine off after checking rotation direction.

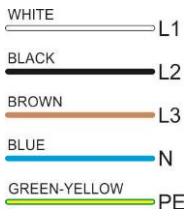


Fig.2 Mains connection diagram



Fig.3 Phase change

## 2.4 OPERATION

The operation process has the following stages:

1. Caramel mixture cooking. The mixture in the kettle is being heated till caramel is ready.
2. Popcorn coating with caramel. The mixer operates continuously for 1.5 minutes, providing smooth coating.
3. Cooling down and separation. Caramel coated popcorn needs to be cooled down. Once cooling is completed, the ready-to-eat product is discharged automatically into dedicated container.

The RoboSugar Twin Auto 20 has the following controls (see Fig.4):

- Temperature regulator;
- CHEESE—OFF—CARMEL (3-position) main switch;
- HEATING button with light indication;
- MIXING button with light indication;
- COOLING button with light indication.

Each button actuates one of the named stages. Corresponding backlights indicates current stage of operation. While in operation, the machine switches the stages automatically, however, any stage may be actuated manually by pressing a button.

### HEATING STAGE

The mixture in the kettle is being heated till caramel is ready. Kettle mixer operates occasionally at this stage, providing proper blending of all ingredients. Almost all water will be evaporated at this stage. Once caramel is ready, popcorn will be automatically dumped into the kettle. Upon completion of heating stage machine will give an audible audio alarm.

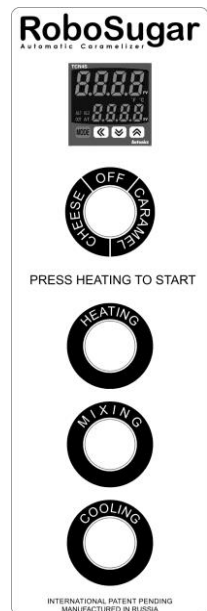


Fig.4 Controls

## MIXING STAGE

Once popcorn is dumped into the kettle, the mixer operates continuously for 1.5 minutes, providing smooth coating. Once time is expired, coated popcorn will be dumped to the cooling belt automatically. Upon completion of mixing stage machine will give an audible audio alarm.

Once the kettle is empty, it will automatically get back in the initial position, and HEATING button will be blinking, so an operator will know that the machine is ready for the next batch (see STARTING NEXT BATCH paragraph below).



ATTENTION! DO NOT GET POPCORN CONTAINER BACK UNTIL THE KETTLE IS EMPTY AND IS BACK IN STARTING POSITION!

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## COOLING STAGE

Caramel coated popcorn needs to be cooled down and separated. Cooling conveyor belt operates continuously, providing popcorn cooling down and separation. In the beginning of cooling stage, conveyor belt moves quite fast in order to separate popcorn. After 1.5 minutes it slows down, minimizing mechanical impact to the product.

Cooling stage takes 8 minutes. Once cooling is completed, the ready-to-eat product is discharged automatically into dedicated container. Upon completion of cooling stage machine will give an audible audio alarm.

It is possible to finish cooling before time. To do this, press and hold COOLING button for 5 seconds, then the belt will stop and the product will be dumped to the container.

While cheese program is operated, no cooling is required for cheese coated popcorn, so the only purpose of the belt is to transport popcorn to the container.



ATTENTION! THERE MUST BE NO OBSTACLES FOR MOVING PARTS OF THE MACHINE!

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WARNING! BEWARE OF MOVING PARTS! SAFETY HAZARD!

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## *CARAMEL COATED POPCORN*

Turn the main switch to CARMEL position. HEATING backlight will be blinking. Bring popcorn container to initial position by pulling it down until magnet lock snapped.

Use up and down arrow keys on temperature regulator to set the temperature. The temperature can be set from 90°C to 200°C. Common values are within 170-180°C. Refer to section 2.5 to get more information on temperature setting.

Put popped popcorn in popcorn container next to the kettle. Put all ingredients of caramel into the kettle and then press HEATING button. The machine will do the rest automatically.



CAUTION! IT IS PROHIBITED TO RUN THE MACHINE WITH EMPTY KETTLE! IT WILL LEAD TO MACHINE OVERHEATING AND FAILURE!

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## *RECOMMENDED<sup>2</sup> RECIPE*

By default, it is recommended to use the following recipe for caramel mixture (per 70 liters of popped 'Mushroom' popcorn):

- Caramel premix or similar — 2800 g
- Sugar (beet or cane) — 2000 g
- Coconut oil or butter — 240 g
- Water<sup>3</sup> — 1000 g

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<sup>2</sup> The stated recipe is not the only one. Feel free to experiment with different ratios of ingredients, or even with different ingredients. This way you will be able to get the result that suits your needs in the best way!



To avoid excessive stickiness it is recommended to use Free-N-Easy liquid lecithin from Gold Medal Co. Lecithin should be sprayed on popcorn already coated with caramel, in the ending of mixing stage, before cooling.

## STARTING NEXT BATCH

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ATTENTION! IT IS REQUIRED TO GET THE INGREDIENTS READY BEFOREHAND!

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Once the first batch of caramel coated popcorn went to the cooling conveyor belt, and the kettle got back to initial position, the machine is ready for the next batch. HEATING button will be blinking.

Since the kettle is quite hot, it is strictly required to put all ingredients at the same time; put oil first, then dry ingredients and then water. Once you put all ingredients, press blinking HEATING button immediately, to actuate the mixer, thus avoiding burning of ingredients or early evaporation of water.

Starting next batch before finishing previous one will maximize overall productivity.

## CHEESE COATED POPCORN

Turn the main switch in CHEESE position.

HEATING backlight will be blinking. Get the popcorn container back to initial position by pulling it down until magnet lock snapped.

There is no need to adjust temperature in this mode. The machine will heat the kettle automatically to 50-70°C.

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ATTENTION! MAKE SURE THAT KETTLE TEMPERATURE IS BELOW 70°C! EXCESSIVE HEAT WILL RUIN THE TASTE OF CHEESE!

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<sup>3</sup> The main purpose of adding water is to provide smooth blending of the rest ingredients; almost all water will be evaporated during caramel cooking stage. It should be noted while calculating the output.

Load popped popcorn. Put oil into the kettle, and press blinking HEATING button. Wait until oil completely melted. Only then you may add cheese mix. The machine will do the rest automatically.

For the recipes refer to the information provided by a manufacturer of cheese or other seasoning mix.

## *MAINTENANCE MODE*

Maintenance mode helps an operator to clean the kettle. To enter the mode, turn off the machine, then turn the main switch to CAMEL position while holding HEATING button pressed.

All three backlights will be blinking. In this mode the buttons controls the kettle movement:

HEATING — stop

MIXING — tilt down

COOLING — lift up

Kettle's edge positions are watched by induction sensors. Kettle moves like the following.

Upon MIXING button is pressed once, kettle will be tilting until the lowest position is reached or HEATING button is pressed. The same behavior is for upward movement of the kettle.

Magnet lock is disabled during maintenance mode. Whenever kettle is moved or stopped in intermediate position, the machine gives an audible alarm.

To exit the operation mode, press EMERGENCY STOP button. The machine will be shut down. After this, release the button by turning it clockwise.

## 2.5 PRODUCT QUALITY

### TEMPERATURE SETTING

Due to constructive features, temperature value set on the thermoregulator may be different, depending on recipes used. The goal is to get good taste rather than reach some temperature value.

The following recommendations will help you to find out the right temperature that should be set on the thermoregulator.

Make a batch of caramelized popcorn with default temperature setting (180°C) and try it.

If caramel is sticky to the tooth, it means that caramel is *undercooked*; therefore, the temperature value must be *increased*.

If caramel has bitter taste with hint of burnt, it means that caramel is *overcooked*; therefore, the temperature value must be *reduced*.

Caramel that cooked with normal temperature and properly cooled is crunchy and doesn't stick to the tooth.

### POPCORN CRUNCHINESS

Crunchiness of caramel coated popcorn comes mostly from caramel layer. To be crispy, caramel should be properly cooked, which means that there is virtually no water left in the mix.

However, even if caramel is cooked properly, the result may be not so good. Popcorn is highly hygroscopic product. It is very important to make sure that popcorn you put into the machine has not more than 1.0—1.5% of moisture. Otherwise, excessive moisture will ingress into caramel layer after coating and make it sticky.

Except providing proper ambient conditions (see section 2.2), some additional equipment may be required in order to keep popcorn in good condition at intermittent stages as well as finished product.

### 3. TECHNICAL MAINTENANCE

The maintenance purposes are to keep the caramelizer operable during the entire service life. The recommended<sup>4</sup> maintenance schedule with types of actions is presented below.

<i>ACTION</i>	<i>PERIOD</i>
Kettle cleaning	once a day
Scrap tray cleaning	once a day
Outer surface cleaning	once a day
Conveyor belt cleaning	once a week



DISCONNECT THE MACHINE FROM THE MAINS BEFORE TECHNICAL MAINTENANCE!



DO NOT USE SHARP TOOLS OR OBJECTS WHILE PROVIDING TECHNICAL MAINTENANCE!  
DO NOT USE ABRASIVE SOLUTIONS!



WAIT UNTIL MACHINE IS COOLED DOWN BEFORE CLEANING!

#### *KETTLE CLEANING*<sup>5</sup>

Pour *not more than* 5 liters of water in the kettle, close the kettle with lid provided in the delivery set, and turn the main switch in CAMEL position. Wait until water is started to boil; let it boil for a few minutes, so hot water steam will be able to fill the kettle properly. Turn off the machine and let the kettle to cool down.

<sup>4</sup> Period may be different. Maintenance procedures must be done as necessary.

<sup>5</sup> For kettle cleaning procedure it is required to plug the machine to the mains in order to get water boil.



DO NOT LET WATER TO BOIL OUT COMPLETELY!

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DO NOT REMOVE THE LID WHILE KETTLE IS HOT!  
HOT STEAM INSIDE! BURN HAZARD!

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Once kettle is cooled down, remove the lid and operate machine in the maintenance mode (see the same paragraph above) to remove wastewater. It is convenient to use a GN container placed on the conveyor belt.

### *SCRAP TRAY CLEANING*

Take out the scrap tray, remove scrap and wash the tray with warm water.

### *OUTER SURFACE CLEANING*

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DO NOT SPILL WATER ONTO ELECTRIC COMPARTMENTS AND MOTORS! IT MAY LEAD TO ELECTRIC COMPONENTS FAILURE!

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Use a cloth slightly dampened to clean outer surfaces of the machine. Strictly avoid water ingress to electric compartment and motors!

### *CONVEYOR BELT CLEANING*

Use a damp cloth to clean conveyor belt as necessary.

## 4. TRANSPORTATION AND STORAGE

The equipment may be transported by any kind of covered vehicle, in accordance with transportation rules for this kind of vehicle.

Ambient temperature during the transportation and storage must be between minus 25°C to +55°C.

## 5. TEST CERTIFICATE

Equipment is met mandatory requirements of the state standards, actual technical documentation, and approved for use.

<i>TEST CERTIFICATE</i>	
<u>CPA-20EU</u> <i>Product Name</i>	_____ <i>Serial No.</i>
<i>The equipment is made with accordance to mandatory requirements of the state standards, actual technical documentation, and approved for use.</i>	
<i>QC Engineer</i>	
<i>STAMP HERE</i>	
_____ <i>Signature</i>	_____ <i>Full Name</i>
_____ <i>DD.MM.YYYY</i>	

## 6. WARRANTY OBLIGATIONS

The manufacturer guarantees trouble-free operation of the equipment during 12 months from the date of receiving the equipment by dealer (in accordance with transport documentation); or, in case of purchase directly through Trapeza LLC, from the purchase date, given that terms of using, transportation, and storage are met.

The warranty repair is performed upon presentation of this manual and filled warranty card with the seller's seal and the date of sale.

Technical specifications of the equipment can be changed by manufacturer at any time due to improvements and/or other reasons. Technical specifications stated in this document are intended to act as a reference point, which is necessary to evaluate suitability of the equipment for the customer's needs, and are not the subject of warranty policy.

The information stated in this document has been thoroughly checked and considered as accurate one; nevertheless, the manufacturer is not responsible for any typographical errors or misprints.

**Due to constant improvement of the equipment, technical specifications are subject to change without prior notice!**

## 7. MANUFACTURER DETAILS

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Technical support is available:

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