Sk Resident

RoboLabs

Incredible machines for fastfood & funfood

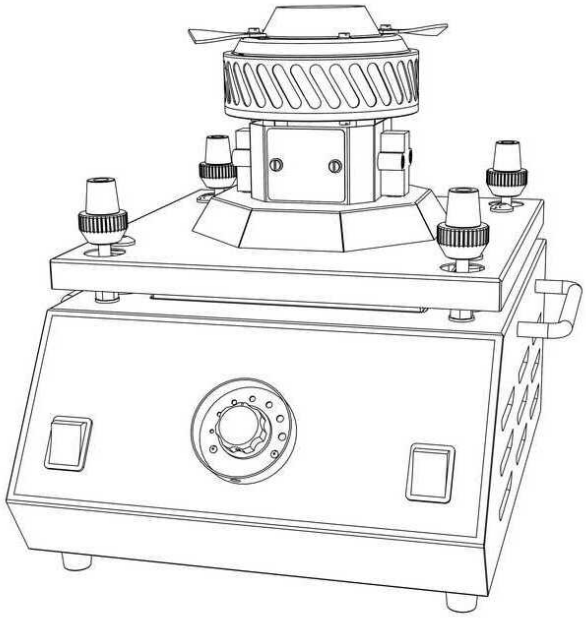
OPERATING MANUAL

COTTON CANDY MACHINES

TWISTER-M2 (ACB-02E) 230 V

TWISTER-M2 (ACB-02U) 120 V

MONSTER (ACB-07) 230 V



CAUTION: READ THE INSTRUCTIONS BEFORE USING THE MACHINE!

PDF version of this manual is available on www.robolabs.pro

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Safety requirements

READ THE ENTIRE MANUAL BEFORE OPERATING!
ONLY ALLOW TRAINED PERSONNEL TO OPERATE THE ROBO JETFLOSS!

1. DO NOT TURN ON until transport fastening nuts are fully RAISED.
2. DO NOT OVERFILL spinning head with flossugar.

3. WEAR eye protection during operation.
4. DO NOT TOUCH head while it is still rotating.
5. Spinning head remains HOT after use - DO NOT TOUCH until cool.
6. Avoid OVERHEATING, motor should rest 15 min. per hour of operation.
7. Do not MODIFY the design of the machine.
8. UNPLUG the power cord before cleaning or servicing.

In accordance to EN 60335-1:2012 standard the machine can be used by children aged 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

1. Overview

1.1. Purpose

Cotton candy machines Twister and Monster (hereinafter “machine”) are intended to produce cotton candy using sugar with or without added flossine. Machine has classic horizontal setup where cotton candy leaves spinning head horizontally and should be caught with stick inside floss pan.

1.2. Technical specifications

MODEL	Twister-M2 (ACB-02E)	Twister-M2 (ACB-02U)	Monster (ACB-07)
Productivity	up to 3 kg/h	up to 3 kg/h	up to 8 kg/h
‘Cold start’ time	<30 sec	<30 sec	<30 sec
Rated current, not more	6.5 A	16 A	9 A
Operating voltage	230 Vac, 50 Hz	120 V, 60 Hz	230 Vac, 50 Hz
Dimensions	670x670x470 mm	670x670x470 mm	700x680x480 mm
Weight, not more	15 kg	15 kg	18 kg
Ingress protection	IP21	IP21	IP21

1.3. Delivery set

Cotton candy machine	1 pc
Plastic floss pan[1]	1 pc
Mesh screen with clips set	1 pc
Power supply cord	1 pc
Operation manual	1 copy

1.4. Power requirements

Twister-M2 (ACB-02E) and Monster (ACB-07)

Input current does not exceed 6.5 A (Twister-M2) and 9 A (Monster). The machine is equipped with 3 m 16 A Schuko plug power cord. The machine uses standard 230 V power supply. Voltage tolerance of +/-10% of nominal voltage is

[1] The floss pan is an integral part of the machine and must be installed for safe operation!

allowed.

MACHINE MUST BE CONNECTED TO A GROUNDED OUTLET!

IF THE SUPPLY CORD IS DAMAGED, IT MUST BE REPLACED BY THE MANUFACTURER, ITS SERVICE AGENT, OR SIMILARLY QUALIFIED PERSONS IN ORDER TO AVOID HAZARD!

Twister-M2 (ACB-02U)

Input current does not exceed 16 A. The machine is equipped with 6 ft power cord with NEMA 5-20 standard plug. The machine requires standard 120 V power supply. Voltage tolerance of +/-10% of nominal voltage is allowed.

MACHINE MUST BE CONNECTED TO A GROUNDED OUTLET!

RISK OF FIRE AND ELECTRIC SHOCK!
REPLACE ONLY WITH MANUFACTURER'S CORD SET, PART NO. PF52012C1972

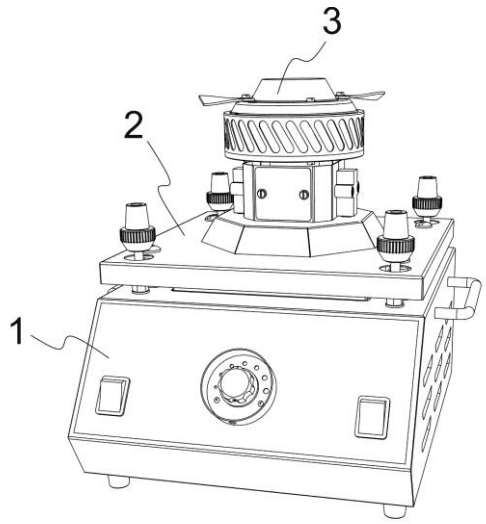
1.5. Ambient conditions

The equipment may be operated in temperatures ranging from +5°C to 40°C (+41°F to +104°F) with relative humidity not exceeding 50% at 104°F.

As temperature and humidity increase above these ranges, cotton candy can still be produced, but it will be very dense and heavy. Importantly, being a sugar product, it may begin to melt shortly after being production. Altitude above sea level should not exceed 1000 m (3280 ft).

1.6. Machine design and operation principle

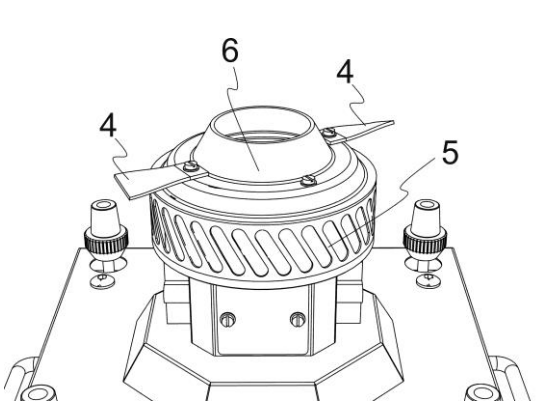
The machine includes the following main components: Housing (1); Chassis (2) with electric motor and Spinning Head (3). The spinning head and electric motor are mounted on the chassis, which itself is connected to the housing by four spring-mounted supports. These spring supports dampen vibrations and allow the motor to self-balance during operation:

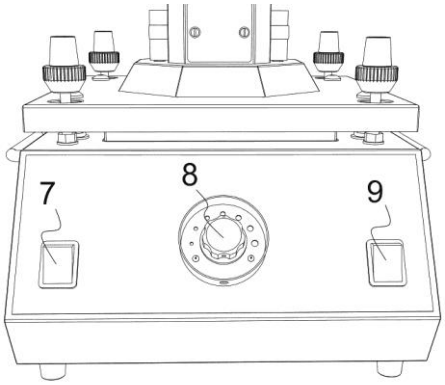


Plastic floss pan (12) is not shown.

An electric motor drives the spinning head at a high rate of speed (see datasheet). The Spinning Head has the following main parts: Sidewall with heating element (5) and Cover (6) with Tabs (4).

Machine has the following controls located on the front panel: Motor switch that turns on the electric motor which rotates the spinning head; Heating switch that turns on the heating element; Adjustment Knob that regulates power to the heating element and thus controls its temperature; and Voltmeter that indicates actual voltage supplied to the heating element (Monster only).





Operating principle

The spinning head rotates with the sugar mix inside where the heating element warms the sugar up. When the sugar rises above 160°C/320°F, it starts to melt. Due to centrifugal force, the melted sugar escapes through the holes in the sidewall, where it instantly cools and crystallizes turning into candy floss, which to be collected and taken out of the floss pan. Tabs on the head create airflow that helps the cotton floss to be brought onto pan’s sidewall.

1.7. Safety components

Four nuts secure the spring-loaded chassis during transportation in order to prevent damage to the motor. They are located on the threaded support studs at each corner of the deck.

Rubber legs and a spring suspension support the chassis in order to minimize vibration and allow the spinning floss head to balance itself at high speed.

2. Intended use

2.1. Raw material requirements

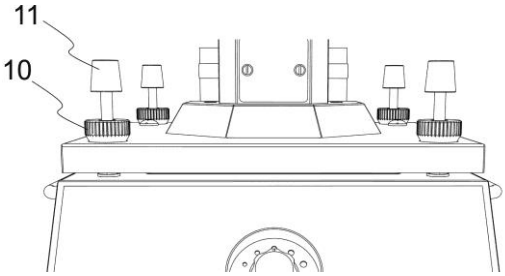
Use only 100% pure sugar (beet or cane) with flossine or ready to use flossugar. Do not use sugars with starch, dextrose or similar additives as they can result in poor quality floss and/or clog the heater coil assembly.

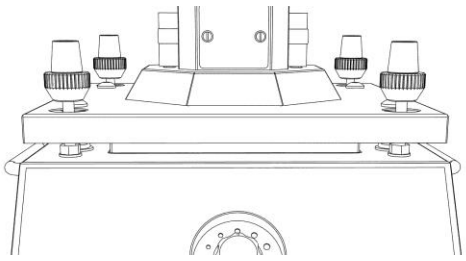
2.2. Getting started

Unpack machine and save materials for future shipping needs.

Place the machine on a stable table or cart.

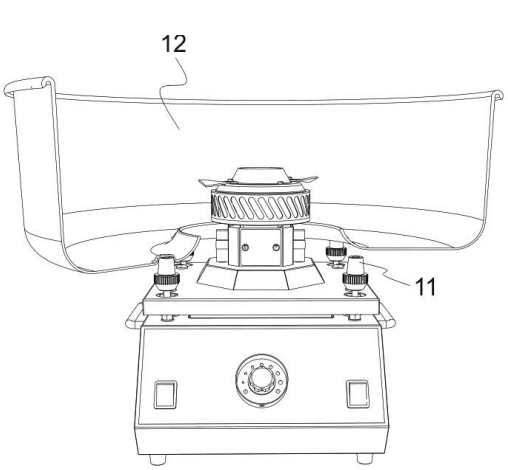
Before attaching power cord, fully raise all four transportation fastening nuts (10) until they reach the rubber support legs (11):

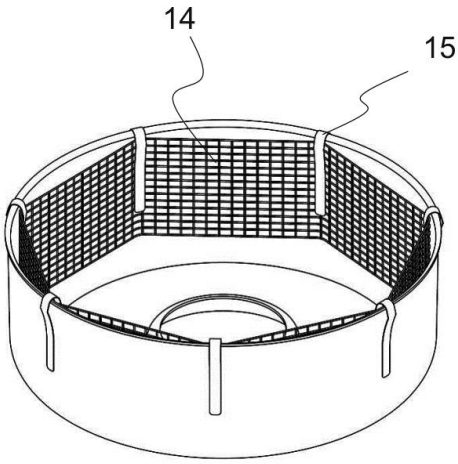




TURNING ON THE MACHINE WITHOUT RAISING FASTENING NUTS WILL RESULT IN MACHINE FAILURE!

Next, remove the thin protective film from the Floss Pan (12) and wash with dish soap. Place the pan on the machine making sure the indentations rest on the four rubber support legs (13):





After this, put the mesh screen (14) into the pan (12) and fix it with clips (15) as shown above.

2.3. Operation

Before turning on the machine, first add flossugar to the spinning head, approximately ¾ full. The minimum recommendation is 1/3 full at all times. Manually rotate the head in order to distribute the sugar evenly.

You will need sticks, rods or cones to spin above the machine to collect the cotton floss as it is produced. These can be made of wood, paper or plastic. Wood sticks and plastic straws should be soaked in water first in order to create better adhesion for the floss.

Turn on the motor switch and the spinning head will begin to rotate.

VIBRATION OF THE SPRING MOUNTED CHASSIS DURING FLOSS HEAD ACCELLERATION AND DECELERATION IS NORMAL!

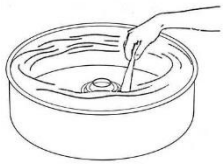
Next, turn on the heater switch, and use the adjustment knob to set operating voltage[2]. Normal operating voltage is 150-160 Volts. On Twister machine, which doesn't have a voltmeter, operator should follow marks around the knob. Clockwise rotation is for increasing voltage and vice versa.

Depending on conditions, it will take about 1 minute to warm up the head to operating temperature. You will usually smell the candy aroma between 10 to 15 seconds before production begins.

[2] When setting up at a new location, the power level must be adjusted according to the environmental conditions. If cotton candy comes out too slow, increase the voltage slightly. Alternatively, decreasing voltage will slow production. When you change locations or if the temperature or humidity changes later in the day (if working outdoors) then you may need to make additional adjustments.

Winding cotton candy is easy! Anyone can master this operation. Follow instructions below:

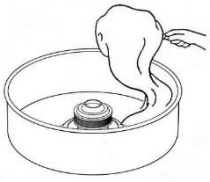
Step 1. Get a stick and put it into the pan and start to collect the cotton floss onto the stick.



Step 2. Pull out the stick out of the pan, spinning the stick with hands at the same time, pulling the floss out of the pan.

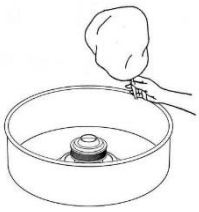
Step 3. Keep winding

Step 4. Keep winding



Step 5. Once there's enough serving on the stick, tear the floss flow.

Step 6. Cotton candy is ready!



'Cold start' procedure

When the machine has been off for more than 15 minutes, it will take at least 60 seconds before the heating coil has warmed enough for the production of floss to begin. If the machine has been off for a brief time, such as to add more flossugar, this time will be reduced substantially.

After switching on both motor and heating, an experienced operator can turn adjusting knob all the way up for only 10-15 seconds, and then decrease the voltage back to the recommended operating range and proceed as normal from there.

This will substantially reduce the time required to begin candy production.

However, should maximum voltage be applied for more than 10-15 seconds as you risk overheating the sugar. In an extreme scenario, the floss would be burnt and ejected as irregular flakes and it won't be able to be collected.

Keep in mind that once the heating element and sidewall have reached such a high temperature, reducing the voltage will not immediately produce the desired effect. Due to thermal lag, any changes in voltage will only slowly take effect over the next 15 to 30 seconds (or longer, depending on ambient temperatures)

so it is very important to avoid overheating the element in the first place.

Shutting down

When shutting down for periods of less than 24 hours, you may leave any remaining flossugar in the spinning head.

Turn off power to the heating element switch (12) and capture the remaining cotton candy as the head cools down. Let the head spin for 5-7 minutes to cool down before turning off the main power switch (11).

Once the head is cooled down and motor is stopped, cover the head with a paper or plastic bag to protect the flossugar from dust, debris and insects.

The machine and Floss Pan should be wiped down with a damp cloth to remove excess flossugar as needed.

If you are shutting down for longer than one day, then you should perform a complete cleaning of the spinning head as described in the Technical Maintenance section below.

Do not leave unused flossugar in the spinning head for more than a day or two as it can harden/caramelize and affect the balance of the head during future sessions, which could ultimately result in failure of the machine.

During transportation always secure the chassis using the transportation lock-down nuts. This will prevent possible damage of the machine and prolong its life.

3. Technical maintenance

3.1. General instructions

THIS PART OF OPERATION MANUAL IS INTENDED ONLY FOR TRAINED PERSONNEL EXPERIENCED WITH ELECTRICAL EQUIPMENT!

DO NOT CLEAN THE SPINNING HEAD OR COMPONENTS WITH SHARP OR METAL PARTS. HOT WATER, A SPONGE OR SOFT BRISTLE BRUSH IS ALL THAT IS REQUIRED OR PERMITTED!

DISCONNECT THE POWER SUPPLY BEFORE CLEANING OR PERFORMING TECHNICAL MAINTENANCE!

The purpose of technical maintenance is to extend the working life of the machine while fulfilling all safety requirements. The following schedule[3] is recommended:

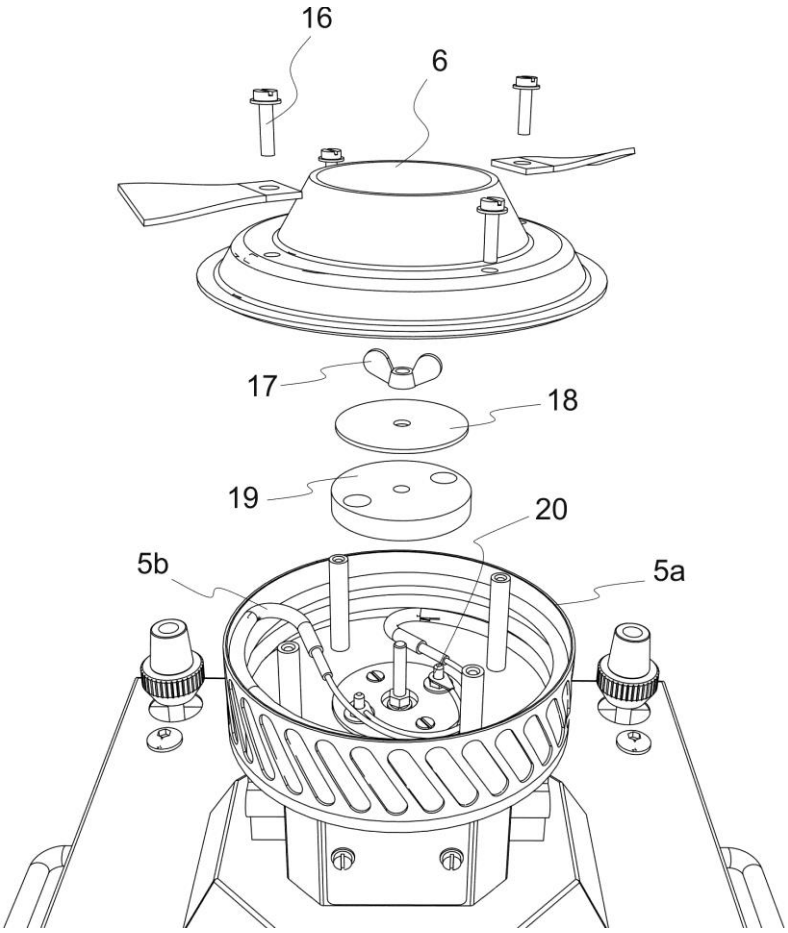
PROCEDURE	PERIOD
Cleaning machine and pan surfaces removing sugar and cotton candy	Once a day
Sidewall and heater cleaning	Twice a month
Brush unit maintenance	Every 6 months

Spinning head cleaning

During long-term operation, the heating element and sidewall slits can become clogged with sugar and carbon deposits. This may significantly reduce both productivity and the quality of the cotton candy produced.

To clean the sidewall and heating element it is necessary to disassemble the spinning head, remove the heating element and sidewall and wash them carefully with hot water.

[3] Technical maintenance may be required sooner if individual parts become fouled prior to scheduled service.



To disassemble the spinning head:

1. Remove all sugar from the head, turning upside-down if necessary.

2. Detach floss head cover (6) by removing four flat-head screws (16).

3. If the cover is ‘glued’ to the sidewall, gently tap with the screwdriver handle in order to loosen the parts.

Note that the cover is made from aluminum and can be damaged by excessive tightening the screws, by throwing, or by heavy impact.

4. Remove central wing nut (17), steel washer (18), plastic holding washer (19). Then, using a 7 mm nut driver or wrench, remove the nuts that are securing the wire ends to the terminal posts (20). Remove the nuts, lock washers, terminal ends and washers and you can then lift off the sidewall (5a) with heating element (5b) as one unit.

5. Wash the sidewall and heating element with very hot water in order to melt the flossugar. When the bulk of the flossugar is removed, carefully separate the heater coil from the sidewall to clean the areas where they contact one another.

6. The sidewall and heating element must be dry before reinstalling.

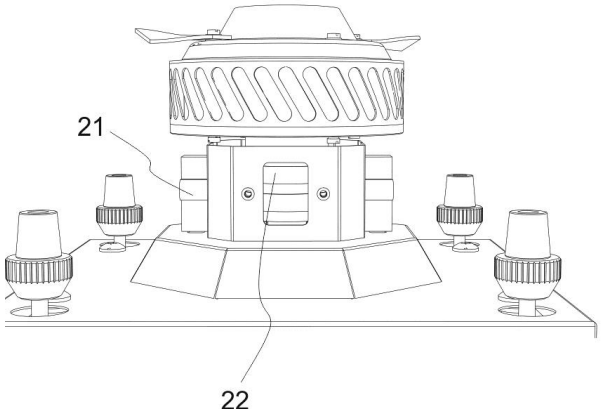
DO NOT IMMERSE HEATING ELEMENT TERMINAL LEADS IN WATER AS THIS MAY CAUSE FAILURE!

ABRASIVE OR MECHANICAL CLEANING OF HEATING ELEMENT AND SIDEWALL IS PROHIBITED!

Re-assembly of the spinning head is done in the reverse order. Once completed, turn on the motor and power to the heating coil for approximately 30 seconds in order to spin off any remaining moisture.

Brush unit maintenance

As with most electrical motors, the machine utilizes brushes and slip rings which are subject to wear and require inspection, maintenance and eventual replacement.



Inspect the slip rings (22) for bumps and color changes. The rings should fit closely to insulators and should not show excessive wear.

Slip rings are made of high-grade brass and will last years if properly serviced. If the slip rings are excessively worn or are covered with bumps, they need to be replaced by qualified service staff.

To replace brush units (21) first remove the screws securing the brush unit. Remove the unit carefully and inspect the carbon brushes. If the brushes are worn more than half of the length, they should be replaced.

AFTER BRUSH UNITS ARE REPLACED, REMOVE ALL DUST, DEBRIS AND TARNISH FROM THE SLIP RINGS!

After installing new brushes, allow the motor to run for 15 minutes before turning on the heating element. This will allow the brushes to conform to the slip rings, avoiding the potential for arcing under load.

If the unit is not used for a prolonged period of time, then the routine

maintenance must be performed before it is placed back into service.

3.3. Troubleshooting

DISCONNECT THE POWER SUPPLY BEFORE DIAGNOSTICS AND REPAIR. EMI FILTER MUST BE DISCHARGED BY CLOSING ALL THE PINS IN THE PLUG!

FAILURE	POSSIBLE CAUSE	REMEDY
Machine doesn't turn on when power switch is activated.	No power at the wall socket.	Use a tester to check the voltage on all phases. Provide power in the wall socket.
	Power supply cord is damaged.	Use a tester to check the cord for breakage, replace defective cord.
	Blown fuse	Use a tester to check the fuse, replace if necessary.
Motor is spinning, but the machine doesn't produce cotton candy.	Power regulator is out of order.	If voltmeter pointer doesn't move upon adjustment knob action, then replace the power regulator.
	The heating element is out of order.	Use a tester to check the heating element, replace if necessary.
	Brush unit damage.	Check the brush unit. Brushes must fit closely to the slip rings, without sparking. Replace the brush unit if necessary.
Low productivity.	Caramel sticking on the sidewall.	Clean the sidewall and heating element in accordance with instructions.
	Low voltage from the outlet.	Check the voltage from the outlet or extension cord. Low voltage is a frequent cause of low productivity.
Smoke from the spinning head.	Sidewall overheating.	Reduce the voltage on the heating element with adjustment knob.
	Power regulator is out of order.	If the pointer of voltmeter doesn't move during adjusting, replace the power regulator.
Significant vibration of the machine.	Spinning head imbalance.	Fill in the head at least ¾ full with flossugar and rotate the head manually to spread sugar evenly.
		Check the head for foreign objects.
		Check the head for caramel stuck on the heating element. Clean the sidewall and heating element in accordance with instructions.

4. Transportation and storage

The equipment may be transported by any kind of covered vehicle, in accordance with local regulations.

Ambient temperature during the transportation and storage must be between -25°C and +55°C (-13° F and +131° F).

5. Acceptance certificate

ACCEPTANCE CERTIFICATE

_____ Product Name

_____ Serial No.

The equipment is made with accordance to mandatory requirements of the state standards, actual technical documentation, and approved for use.

QC Engineer

STAMP HERE

_____ Signature

_____ Full Name

_____ DD.MM.YYYY

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

NPO Tvertorgmash LLC 11 Industrial Street, Tver, 170000 Russia

Technical support:

Email: support@robolabs.pro

Phone: +7 495 956 4000

Annex A. Twister M2 (ACB-02E) electric components list

SIGN	PART	SPECIFICATIONS	ARTICLE#
C1	Running capacitor	16 uF, 400 V	1287
C2	Filter capacitor	4 uF, 400 V	16694
EK	Heater	1200W 230 V	3734
EMI	EMI filter Delta 30DKCS5	30 A, 250 V	13706
FU	Fuse	10 A, 400 V	2536
M	AC motor АИР56А2У2 IM3031	180 W, 2700 rpm	4245
RP	Variable resistor	500 kOhm, 0.5 W, type B	2789
SA1, SA2	Rocker switch B4 mask	16A, 250 V	3730
VS	Power regulator Fotek SSR-25VA	25 A, 380 V	16838
XA1, XA2	Brush assembly ЩУГ 16.3701		4200

Annex B. Twister M2 (ACB-02U) electric components list

SIGN	PART	SPECIFICATIONS	ARTICLE#
C1	Capacitor	20 uF, 400 V	115558
C2	Capacitor	16 uF, 400 V	1287
EK	Heating coil 1GIK2AT30001, IRCA	1600 W, 120 V	2975
FU	Fuse Bussmann C10G10	10 A, 500 V	16827
M	AC motor АИР56А2У2	220 W, 115 V, 60 Hz, 3300 rpm	16835
QF	Circuit breaker S202 C16 ABB	16 A, 400 V	16882
RP	Variable resistor	500 kOhm, 0.5 W, type B	2789
SA1, SA2	Rocker switch B4 mask	16A, 250 V	3730
VS	Power regulator Fotek SSR-25VA	25 A, 380 V	16838
XA1, XA2	Brush assembly ЩУГ 16.3701		4200

Annex C. Monster (ACB-07) electric components list

SIGN	PART	SPECIFICATIONS	ARTICLE#
C	Running capacitor	16 uF, 400 V	1287
EK	Heater	1800 W, 230 V	3740
FU	Fuse H520 (ZH214)	10 A, 400 V	2536
M	AC motor АИР56А2У2 IM3031	180 W, 2700 rpm	4245
PV	Voltmeter SE-80	300 V	95
RP	Variable resistor	500 kOhm, 0.5 W, type B	2789
SA1, SA2	Rocker switch B4 mask	16A, 250 V	3730
VS	Power regulator Fotek SSR-25VA	25 A, 380 V	16838
XA1, XA2	Brush assembly ЩУГ 16.3701		4200