



RoboLabs

Incredible machines for fastfood & funfood

Cotton candy machine Monster (ACB-07US) 220-240 V 50-60 Hz

User manual



**Read this manual before use and keep for
future reference!**

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

Safety requirements



This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER



- Not grounded equipment can cause electric shock. Power outlet **MUST HAVE** proper grounding to avoid electric shock.
- Using excessive water during cleaning can cause short circuit and electric shock. **DO NOT USE** excessive water or water jet for cleaning. **DO NOT SPILL** water on electric panels or parts.
- **ALWAYS** unplug equipment before cleaning or servicing.
- No user serviceable parts inside. **DO NOT OPEN** electric panel unless you are qualified for this.

DANGER



- Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury, or death! Read and understand this manual before installing, servicing, and operating this machine.
- Any modification to the machine design will void the warranty, and may cause machine fault and/or dangerous condition. **DO NOT MODIFY** the design of the machine.

WARNING



- Spinning head is very hot while in operation. **DO NOT TOUCH** until it cools down.

Safety requirements (continued)

WARNING



- Fast spinning head can crush your fingers. **DO NOT TOUCH** the spinning head until it completely stops.
- Foreign objects in the spinning head may cause eye injury to operator and/or other people. **DO NOT** put inside anything except sugar.
- Refilling the spinning head while it is spinning might cause eye injury. **DO NOT** refill the spinning head until it completely stops.
- Excessive sugar in the spinning head may cause eye injury to operator and/or other people. **DO NOT OVERFILL** spinning head with sugar.
- **ALWAYS** wait spinning head to stop spinning before sugar refilling.

WARNING



- **ALWAYS WEAR** eye protection while operating or servicing this equipment to avoid eye injury.

WARNING



- Only instructed personnel is allowed to operate the machine.
- This machine is not to be operated by minors.

WARNING



- **DO NOT ALLOW ANYONE** to touch or reach in the machine while operating in public place.

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1 Overview

MONSTER machine (hereinafter “machine”) is intended to produce cotton candy using pure sugar or sugar mixed with colorant.

1.1 Technical specifications

Productivity	up to 8 kg/h
"Cold start" time	less than 30 seconds
Rated voltage	220-240 V
Rated frequency	50-60 Hz
Rated current	9 A
Dimensions	700x680x480 mm
Weight	14 kg

1.2 Delivery set

- 1x Machine
- 1x Floss pan
- 1x Mesh screen with clips
- 1x User manual

2 Setup

1. Unpack machine and keep the package for future shipping needs.
2. Check the delivery set.
3. Place the machine on a flat even surface.
4. Fully raise ALL FOUR transport fastening nuts (pos.1 Fig.1) until they reach the rubber support legs (pos.2 Fig.1):



Figure 1: Transport fastening nuts

5. Remove the thin protective film from the floss pan (pos.1 Fig.2), wash with dish soap, rinse with water and wipe dry.
6. Put the mesh screen (pos.2 Fig.2) into the floss pan (pos.1 Fig.2) and fix it with clips (pos.3 Fig.2); the clips must be distributed across the pan in even manner:

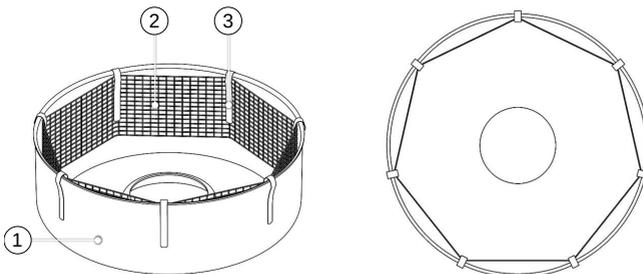


Figure 2: Floss pan, mesh screen, and clips

7. Place the pan on the machine making sure the indentations rest on the four rubber support legs (pos.2 Fig.1).
8. Assembled machine is shown on Fig.3:



Figure 3: Machine assembled

2.1 Electrical requirements

DANGER



- Power outlet **MUST** have proper grounding to avoid electric shock.
- If supply cord damaged, it **MUST** be replaced by manufacturer, service agent, or qualified persons in order to avoid hazard.
- **ALWAYS** keep power cord and plug off the floor and moisture.
- **DO NOT USE** any kind of adapters, or extension cords, as it might affect the overall performance of the machine, and impose additional risks.

Machine is supplied with power cord fitted with NEMA 6-15P plug. You **MUST** ensure that your electrician provides you with outlet receptacle NEMA 6-15R (or NEMA 6-20R), which is properly grounded.

2.2 Ambient conditions

This equipment is designed to be operated at the ambient temperature from +5°C to +40°C (+41°F to +104°F) and relative humidity not more than 45% at 40°C (104°F) while using at altitudes not exceeding 1000 m over the sea level. The temperature decreasing is related to RH increasing, for example, 90% of RH at 20°C (68°F). This equipment **MUST NOT** be exposed to precipitations of any kind (rain, snow and so on).

3 Design and principle of operation



Figure 4: Main components of the machine

The machine represented on the Fig.4 (floss pan with mesh screen and clips are not shown): 1 – Lower rubber leg; 2 – Housing; 3 – Transportation handle; 4 – Chassis; 5 – Transport fastening nuts; 6 – Upper rubber leg; 7 – Spinning head with heating coil; 8 – Tabs; 9 – Brush units; 10 – Spring loaded supports; 11 – Main power switch; 12 – Voltmeter; 13 – Adjustment knob; 14 – Heating switch.

Main power switch (11) turns on the motor, and allows to turn the heating. Heating switch (14) turns the heating on. Voltmeter (12) reads the voltage applied to the heating coil. The more the voltage, the more power delivered to the spinning head. Adjustment knob (13) is used to adjust the voltage applied to the heating coil. The spinning head (7) rotates with the sugar mix inside where the heating coil warms the sugar up to its flow point 120–140°C (250–285°F). Due to centrifugal force, the melted sugar escapes through holes in the sidewall of the spinning head (7), where it instantly cools and crystallizes turning into candy floss. Two tabs (8) on the spinning head causes airflow that pushes candy floss to the pan's sidewalls (see Fig.2), where an operator collects cotton candy with a stick.

4 Intended use

CAUTION



- DO NOT TURN ON until transport fastening nuts are FULLY RAISED. Otherwise it may cause excessive vibration during whole machine operation, and lead to machine failure.
- Vibration of the spring mounted chassis during spinning head acceleration and deceleration IS NORMAL.

4.1 Important tips

1. Use ONLY 100% pure granulated sugar (beet or cane).
2. DO NOT USE sugar powder, sugar with added starch, dextrose, corn syrup and so on. Doing so will lead to poor quality floss and/or quick clogging of the spinning head.
3. To make colored and flavored cotton candy use flavoring mix (Floss Art, for example), or ready to use flossugar.
4. DO NOT USE excessive flavoring mix! Doing so will:
 - increase the cost of production;
 - make the product tastes bitter;
 - lead to spinning head's sidewall clogging;
 - lead to excessive carbon build-up on the heating coil.

HINT: if you want deeper color, sprinkle the flossugar mixture with water (1 tablespoon of water per 2kg/5lbs of sugar) and mix well before put in the machine.

4.2 Tabs adjustment

The spinning head has two leather tabs (see Fig.5). Twist each tab so as its edge becomes parallel to the sidewall cut-outs (dashed line on the Fig.5). Twisted tabs act as an impeller that creates airflow that throws the floss to the sidewalls of the floss pan.



Figure 5: Tabs adjustment

4.3 Starting up

1. BEFORE plugging machine in the outlet receptacle, MAKE SURE both switches (pos.11 and pos.14 Fig.4) are in OFF position.
2. Add flossugar into the spinning head, approximately 3/4 full.
3. Quickly rotate the head manually to distribute the sugar evenly.
4. You will need sticks, rods or cones to spin inside the plastic pan 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.
5. Turn the main power switch (pos.11 Fig.4) ON, and the spinning head will begin to rotate.
6. Turn the heater switch (pos.14 Fig.4) ON.
7. Use the knob (pos.13 Fig.4) to adjust voltage on voltmeter (pos.12 Fig.4) to 150-160 V¹.

¹When 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.

8. Depending on conditions, it will take about one 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

4.4 Making cotton candy

- Get a stick and put it into the pan and start to collect the cotton floss onto the stick.
- Pull out the stick out of the pan, spinning the stick with hands at the same time, pulling the floss out of the pan.
- Keep winding. Once there's enough serving on the stick, tear the floss flow. That's it!

4.5 Shutting down

- Turn the heating switch (pos.14 Fig.4) OFF.
- Capture 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.
- Turn the main power switch (pos.11 Fig.4) OFF.

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 Cleaning and 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 fastening nuts. This will prevent possible damage of the machine and prolong its life.

²When this is the very first time of using the new machine, or the sidewall was recently cleaned, the floss might be rough and stiff. As little amount of floss built up on the sidewall, the output product becomes more soft.

5 Cleaning and maintenance

DANGER



- Electric shock hazard! **DO NOT** use excessive water or water jet to clean the machine. **DO NOT** spill water or other liquids on electric parts of the machine, including housing.
- **ALWAYS** unplug the machine before cleaning.
- **ALWAYS** keep power cord and plug off the floor and moisture.
- **DO NOT IMMERSE** heating coil leads in water.

WARNING



- **WAIT** until spinning head is cooled down before servicing.

WARNING



- Use food-grade cleaners **ONLY**.
- **DO NOT USE** aggressive cleaners, or sharp items, or abrasives for cleaning.

The purpose of technical maintenance is to keep the unit operable during the entire service life.

Recommended schedule

Depending on how intensively machine used, and the supplies, it might require more frequent cleaning.

Routine cleaning	once a day
Spinning head cleaning	twice a month
Brush unit maintenance	every 6 months

5.1 Routine cleaning

1. Unplug the machine from the mains.
2. Take out the mesh screen and clips from the floss pan. Rinse the screen and clips with warm water to remove residual sugar and floss. Let it dry.
3. Take the floss pan, rinse it with warm water to remove residual sugar and floss. Wipe dry immediately.
4. Remove residues of sugar from outer surfaces of the machine with a clean soft damp cloth. Wipe dry immediately.

5.2 Spinning head cleaning

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

1. Unplug the power cord, remove the floss pan.
2. Remove the four screws (pos.2 Fig.6) holding the spinning head cover (pos.1 Fig.6), and remove the cover. 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.

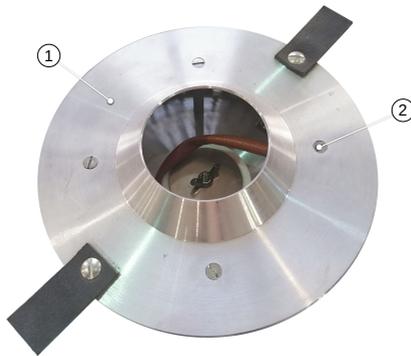


Figure 6: Head disassembling step 1

3. Remove the wing nut (pos.1 Fig.7).

4. Remove steel washer (pos.2 Fig.7) and PTFE washer (pos.3 Fig.7).



Figure 7: Head disassembling step 2

5. Remove two clamps (pos.1 Fig.8) that hold the heating coil.
6. Remove fasteners (nuts and washers) that fix the heating coil wires to the current-carrying threaded studs (pos.3 Fig.8).
7. Remove the heating coil (pos.4 Fig.8) with sidewall (pos.5 Fig.8).



Figure 8: Head disassembling step 3

8. Rinse the sidewall and the heating coil with hot water to remove residual flossugar. **DO NOT IMMERSE the heating coil leads (pos.6 Fig.8) in water!**
9. Take apart the heating coil and the sidewall. Rinse the sidewall properly with the hot water. Wipe dry immediately.

10. Remove carbon build-ups from the heating coil. **AVOID excessive mechanical impact.**
11. Assemble in the reverse order. **NOTE: the heating coil leads (pos.6 Fig.8) MUST BE placed opposite to the balancing pole (pos.2 Fig.8).** It is important to make sure while putting coil back in the sidewall that upper point of the coil is 4 to 5 mm lower than the upper edge of the sidewall (pos.2 Fig.9). If coil is placed evenly with the sidewall edge (pos.1 Fig.9), it might cause machine to “spit” liquid sugar.



Figure 9: Coil in the sidewall

12. Plug the machine in, turn the spinning on. Let it spin for 30-60 seconds, to remove residual water. Turn the machine off, unplug the cord.

5.3 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.

1. Remove two screws that hold the hatch (pos.1 Fig.10); remove the hatch.
2. Inspect the slip rings (pos.2 Fig.10) for bumps and color changes. The rings should fit closely to insulators and should not show excessive wear.
3. 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.
4. Remove all dust, debris and tarnish from the slip rings.

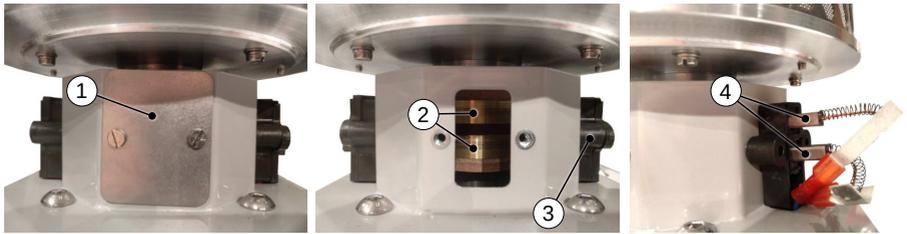


Figure 10: Brush unit maintenance

5. Remove two screws to open the brush unit (pos.3 Fig.10)
6. Take out two carbon electrodes (pos.4 Fig.10).
7. If electrodes are significantly worn out, or broken, the brush unit should be replaced.
8. Repeat for the other brush unit.
9. **IMPORTANT: 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.**

5.4 Conservation

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.

6 Troubleshooting

DANGER



- Diagnostic procedures involving electric testing and internal components testing must be performed only by a skilled person!

Machine doesn't turn on (head doesn't spin)

- Ensure machine is plugged in.
- Ensure main switch is in ON position.
- Check voltage in the wall outlet.
- Check power cord. Replace fault power cord.
- Check motor coils with a tester. Replace fault motor.
- Check internal wiring for open circuit. Fix open circuit.
- Check capacitor. Replace fault capacitor.

Machine doesn't produce cotton candy

- Ensure heating switch is in ON position.
- Increase the voltage supplied to the heating element with the adjustment knob.
- Check heating element. Replace fault heating element.
- Check brush units. Replace fault brush unit(s).
- Check power regulator VS, variable resistor RP. Replace fault component(s).
- Check the internal wiring for open circuit. Fix open circuit.

Excessive vibration during operation

- FULLY RAISE all four transport fastening nuts.
- Ensure heating coil leads placed opposite to the balancing pole, (see pos.2 and 6 on Fig.8).
- Distribute sugar inside the spinning head evenly.

- Check spinning head to see if there are foreign objects inside the head. Remove if any.

Floss comes out as flakes, or smoke coming out from the head

- DO NOT use sugar with added starch or similar. Ensure all recommendation regarding sugar used are met, see **Important tips** section above.
- Decrease voltage supplied to the heating element with the adjustment knob.
- Clean sidewall and heating coil.
- Check power regulator VS, variable resistor RP. Replace fault component(s).

Machine “spits” liquid sugar

- Ensure the coil is positioned below the upper edge of the sidewall, see Fig.9.

Low productivity

- Increase voltage supplied to heating element by adjustment knob.
- Clean spinning head.
- Check voltage in the wall outlet. Low voltage causes low productivity.

Cotton candy melts fast

- Sugar absorbs moisture easily. High relative humidity of ambient air makes cotton candy melts fast. Choose the working locations with lower relative humidity levels.

Circuit breaker trips

- A short circuit in the machine, locate and fix.

7 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 and +55°C.

8 Quality control check

Monster, ACB-07US	
_____	_____
Product name, model	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	

9 Warranty obligations

The manufacturer guarantees trouble-free operation of the equipment during 12 months from the date of receiving the equipment by a dealer (in accordance with transport documentation); or, in case of purchase directly through Trapeza LLC or RoboLabs Ltd., from the date of purchase, 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.

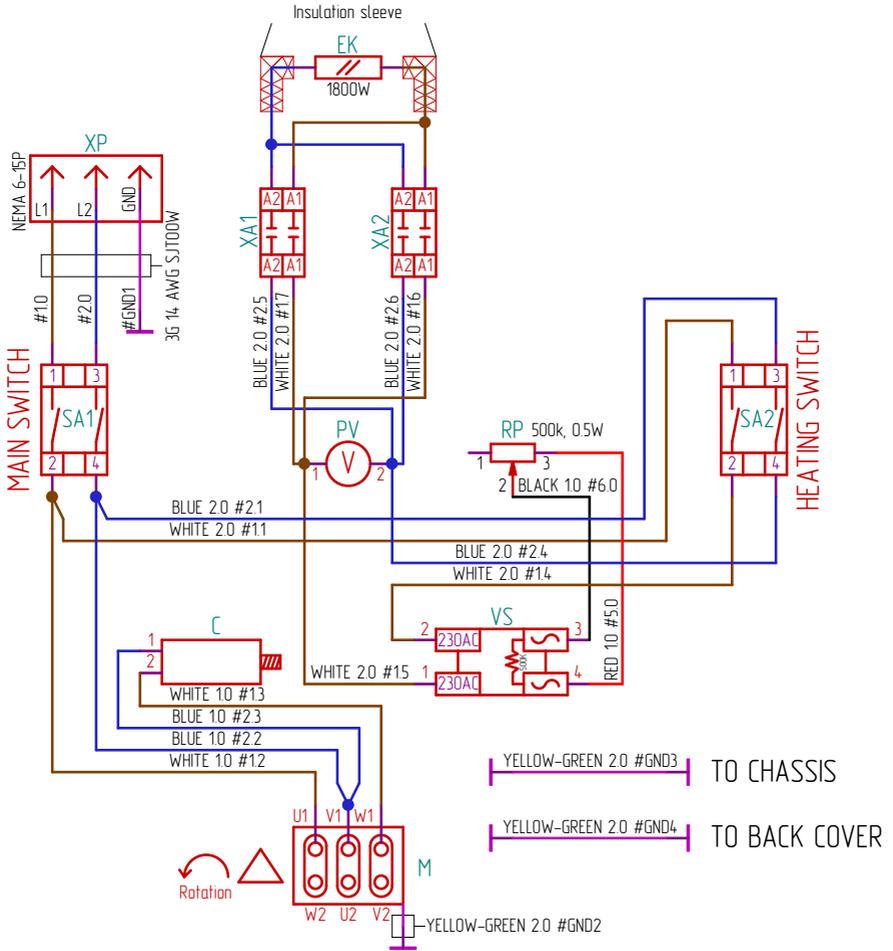
The information stated in this document has been thoroughly checked and considered as accurate one; nevertheless, the manufacturer is not responsible for any typographical errors or misprints.

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

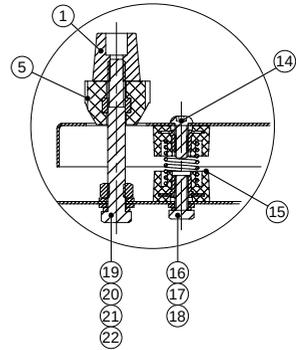
10 Manufacturer details

NPO Tvertorgmash LLC
11 Industrialnaya Street, Tver, 170100 Russia
Technical support:
Email: support@robo labs.pro
Phone: +7 495 956 4000

A Wiring diagram

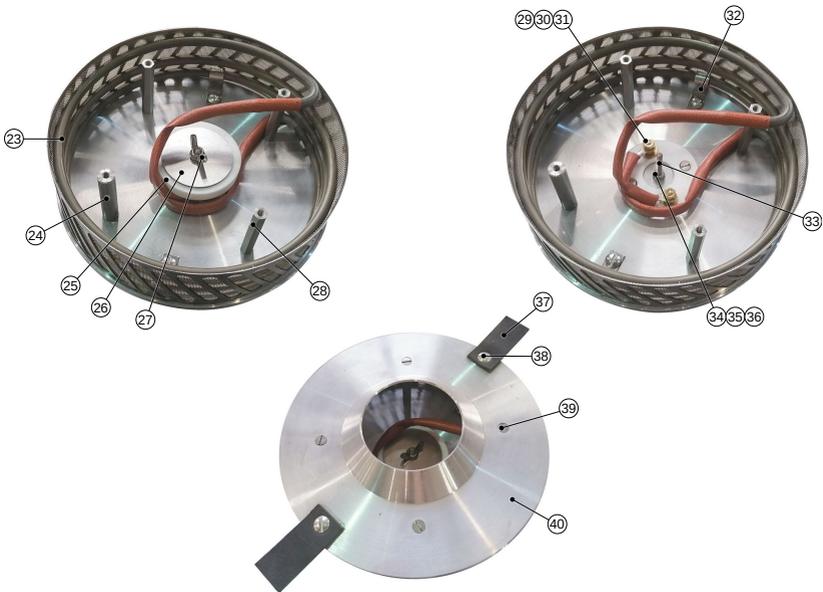


B Parts list



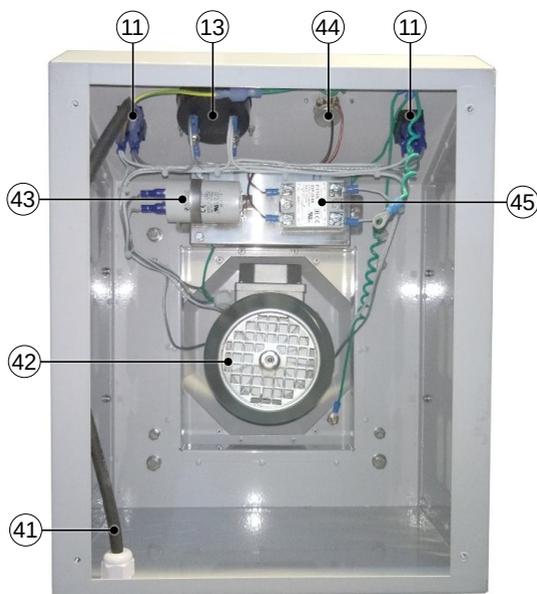
Pos.	Item	QTY	Part no.
1	Rubber leg	8	21196
2	Cheese head screw M4x20 DIN 84	4	30817
3	Transportation handle	2	26200
4	Chassis	1	26201
5	Transport fastening nut	4	25338
6	Brush unit (XA1,XA2)	2	17934
7	Flush head screw M4x25 DIN 963	4	30551
8	Spinning head assembled	1	14344
9	Slip rings covering plate	1	30790
10	Cheese head screw M4x10 DIN 84	2	22017
11	Rocker switch (SA1,SA2)	2	17110
12	Adjustment knob	1	25334
13	Voltmeter (PV)	1	20921
14	Button head screw M6x16 ISO 7380	4	30821
15	Spring-loaded support	4	25905
16	Bolt M6x16 DIN 933	4	25290
17	Flat washer M6 DIN 125	4	26059
18	Lock washer M6 DIN 127	4	25293
19	Bolt M8x70 DIN 933	4	25914
20	Nut M8 DIN 934	4	30747
21	Flat washer M8 DIN 125	8	30748
22	Lock washer M8 DIN 127	4	30749

Parts list (continued)



Pos.	Item	QTY	Part no.
23	Heating assembly (EK)	1	26330
24	Balancing pole	1	26080
25	PTFE washer	1	24619
26	Steel washer	1	16047
27	Wing nut M5 DIN 315	1	23470
28	Hex pole	3	22262
29	Nut M4 DIN 934 (brass)	4	30832
30	Flat washer M4 DIN 125 (brass)	4	30834
31	Lock washer M4 DIN 127 (brass)	4	30833
32	Clamp w/fastening screw (set of 2)	1	26331
33	Motor threaded stud M5x87	1	23343
34	Nut M5 DIN 934	1	30624
35	Lock washer M5 DIN 127	1	30625
36	Flat washer	1	30789
37	Tab	2	13971
38	Button head screw M4x10	2	22017
39	Flush head screw M4x16 DIN 963	4	26210
40	Spinning head cover	1	23760

Parts list (continued)



Pos.	Item	QTY	Part no.
11	Rocker switch (SA1,SA2)	2	17110
13	Voltmeter (PV)	1	20921
41	Power cord with plug	1	26086
42	AC motor (M)	1	25751
43	Run capacitor (C)	1	22627
44	Variable resistor (RP)	1	22623
45	Power regulator (VS)	1	17724



Pos.	Item	QTY	Part no.
46	Plastic mesh screen with clips	1	26088
47	Floss pan	1	16060