Injection-type convection steamers “Rubicon” APK6-1/1-I, APK10-1/1-I

Operation and maintenance manual

ATESY®

Injection-type convection steamers “Rubicon” APK6-1/1-I, APK10-1/1-I

Thank you for purchasing our product.
We believe that you have spent your money well.

Technical details

Injection-type convection steamers “Rubicon” APK6-1/1-I и APK10-1/1-I (hereinafter referred to as the “article”), are designed to cook meals at public catering enterprises using different modes, both steaming and dry heating.

The article comprises casing (1) (Fig. 1), working chamber (2), and closing door (3). A tray (4) for condensate collecting is situated under the door. On the front panel of the casing there is a control panel (8). Inside working chamber shelf holders (5), which are easily dismountable for cleaning purposes, are situated.

The chamber of the APK6-1/1-I steamer can have up to six shelves.

The chamber of the APK10-1/1-I steamer can have up to ten shelves.

In the left side of the working chamber tubular electric heaters and a fan are situated, providing heating and air convection inside the working chamber.

For safety purposes the electric heaters and the fan are separated from the working chamber with a grid (6). The grid can be dismantled with a special tool (flat-tipped screwdriver) only. The grid also has a tray for water directing to the fan blades and the tubular electric heaters.

The right wall of the chamber has lighting lamps, covered with protective glass. The chamber of the APK6-1/1-I steamer has one lamp. The chamber of the APK-10 1/1-I steamer has two lamps.

There is a drain hole in the bottom part of the working chamber.

The door (3) has double-layered glass; the internal layer of the glass is hinged and can be opened for cleaning purposes.

Door lock (23) is made with single-pass opening mechanism. The tray (4) is a small metal box used for collecting condensed water from the door.

Supports (7) allow reliable installation of the article at any surface, in an accurate horizontal position.

The working chamber, the front panel, and the door are made of materials, certified by the State epidemiologic controlling authority for contact with food products.

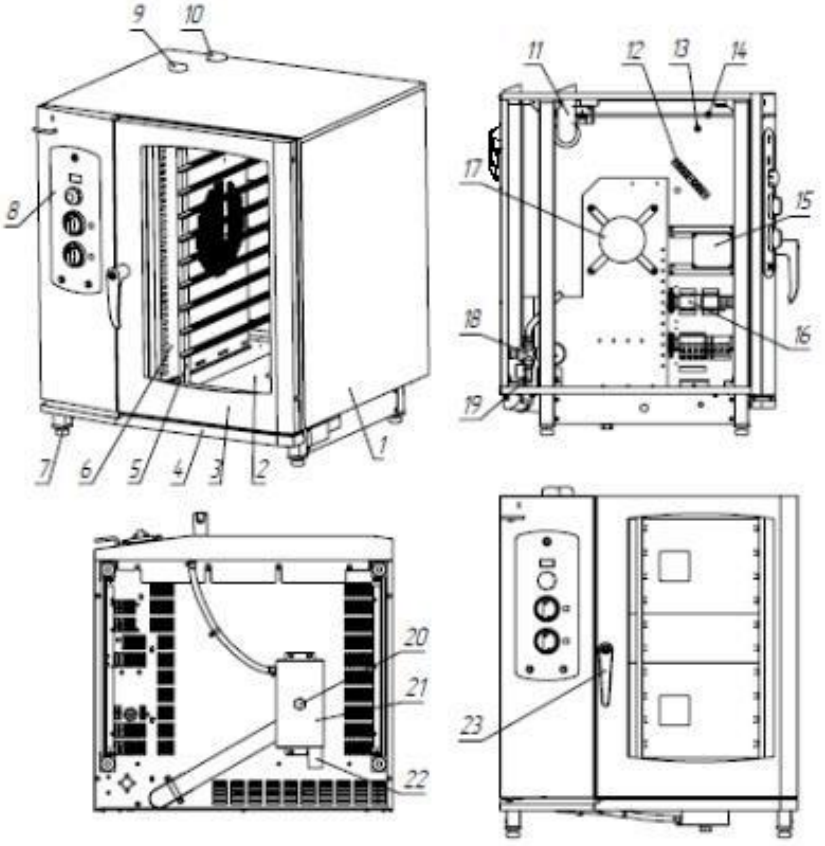


Fig. 1. Convection steamer “Rubicon” APK10-1/1-I.

Control system includes a controller (15), power switch (16), a valve (19), a tubular electric heater (12), and a control panel (8) with main control elements (Fig. 2)

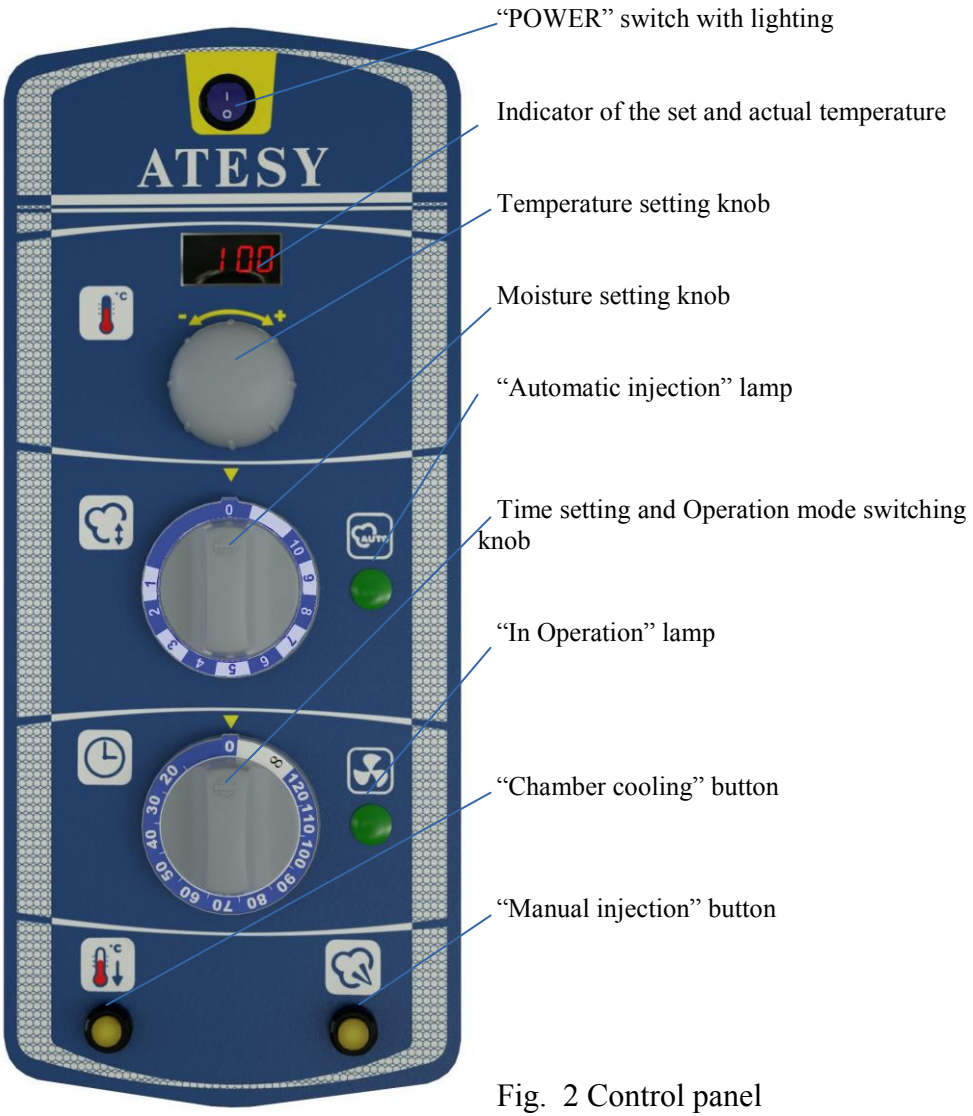


Fig. 2 Control panel

The control panel is easy and convenient in operation.

The control panel includes power supply switch, indicator of the set and the actual temperature values, knob for setting temperature, knob for setting moisture, knob for setting time and switching “Operation” mode, buttons for chamber cooling and manual injection of water.

The article provides cooking of food using hot air at the temperatures within range 30°C to 270°C and in conjunction with steam within the range 30°C to 270°C at adjustable moisture level.

Operation time can be set between 15 and 120 minutes. Simultaneously with turning the knob the “Operation” mode turns on.

Also continuous mode of operation can be set for the article. In order to do this turn time setting knob counter-clockwise to stop position (sector «∞»).

During execution of “Operation” mode such parameters, as temperature inside the chamber, humidity level, and time of treatment can be changed.

When a food is cooked using hot air (without automatic injection of water) the water can be injected manually by pressing “Manual injection” button.

For quick cooling of the working chamber “Chamber cooling” mode is provided (chamber cooling at open door and working fan).

The article also includes showering device for wet cleaning of the working chamber.

In out-of-operation position the showering device is installed to a supporting arm, which is situated at its left lateral wall.

ATESY company is continuously expanding its product range, so appearance and technical characteristics of the article can differ from the ones specified herein without deterioration of consumer properties.

2. Safety and fire safety requirements

2.1. The article is provided with I class electric current protection under GOST MEK 60335-1.
Protection degree is IP20 under GOST 14254.

2.2. Turn off the equipment in case of any failure.

2.3. All repair works should be carried out by personnel duly authorized for repair of devices after disconnection of the equipment

from power supply mains.

2.4. **It is prohibited:**

2.4.1. To start operation without proper reading the operation manual.

2.4.2 To connect the article to a power supply mains without regard to power load and with defective wiring.

2.4.3. To connect the article to a power supply mains without input protection device.

2.4.4. To modify electric circuit, disconnect protective hardware in the article.

2.4.5. To turn the article on without protective earthing.

2.4.6. To leave the article under operation unattended.

2.4.7. To store flammable products in a close proximity to the article.

2.4.8. To use the article for room heating.

2.4.9. To operate the article without protective grid in the chamber.

2.4.10. To carry out sanitation of the article while operation and when the temperature inside the chamber is exceeding 60°C.

2.4.11. Use showering device for cooling the chamber. **At high temperatures the chamber can suffer deformation!**

ATTENTION! In "Operation" mode the working chamber and the door panels are extremely hot! Be careful not to get burned.

ATTENTION! To ensure hot air and steam have left the chamber crack open the door before opening it and keep it in such position for at least 30 seconds.

3. General provisions

3.1. The climatic version of the article is UHL, positioning category is 4.2 under GOST 15150 (operation indoors at temperature within range of +10 to +35°C and relative humidity not exceeding 60% at 20°C).

3.2. After storage in a cold environment the equipment should be adapted at room temperature during 2-3 hours.

3.3. For installation of the article provide a place with possibility to connect to sewage and water supply. Sewage system should be made of pipes able to withstand temperatures at least 80°C.

3.4. Moisture excesses in a steam form are formed during operation of the article. It is recommended to install ZVN- 900PA hood manufactured by ATESY to discharge it (Fig. 3.). The hood is installed directly to the top of the convection steamer. The hood is not included to the article delivery set and is ordered individually.

3.5. Water used for steam formation should be purified. The water is supplied to the article through the valve (19) with G3/4 thread. It should not contain mechanical particles having dimensions exceeding 0.05 mm. Hardness of the water should not exceed 5 °dH (199 ppm). It is recommended to use filtering system PURITY C 500 Quell ST manufactured by BRITA company. It is recommended to use HM Digital COM-100 conductivity gauge for measuring water quality.

3.6. In case of any malfunction of the article due to use of hard or non-purified water the warranty should be void.

3.7. **Pour at least 2 liters of water into the hole at the bottom of the working chamber in order to create water seal before switching the steamer on.**

3.8. The article should be installed in a stable horizontal basement. Check horizontality with a level gauge in two planes. It is recommended to install the articles onto PDP- 2/700 support manufactured by ATESY (Fig. 3). The support is not included to the article delivery set and is ordered individually.

Fig. 3. Convection steamer “Rubicon”, APK10-1/1-I installed onto a PDP-2/700 support and a ZVN 900PA hood

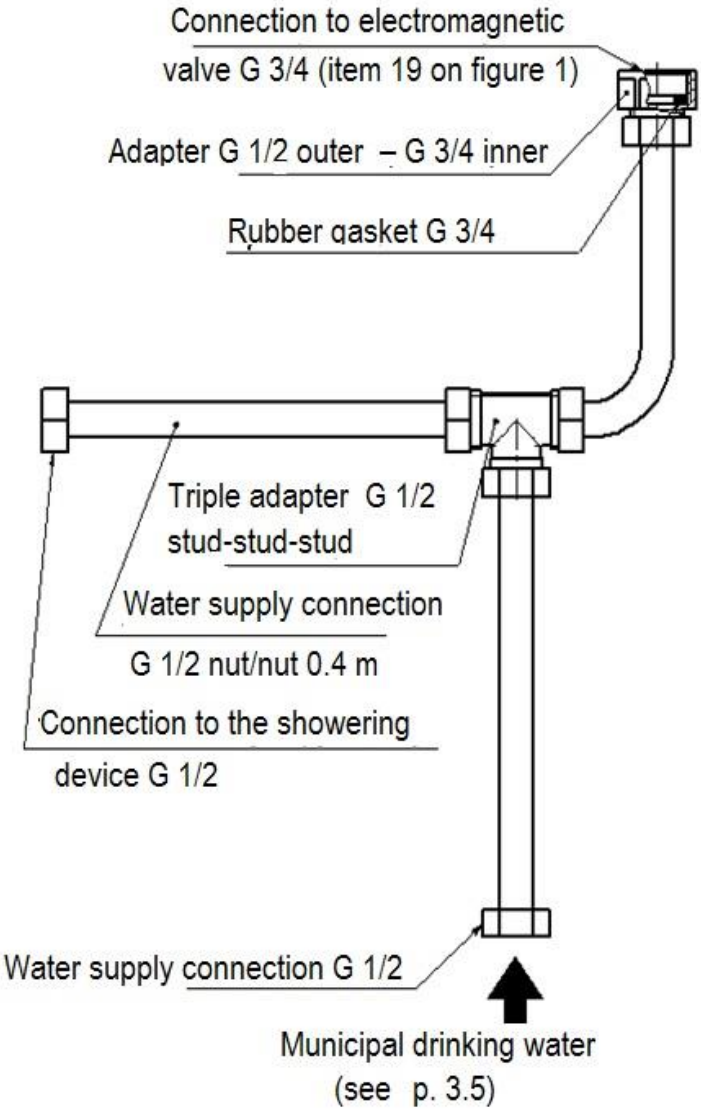


Fig. 4. Connection to water supply system.

3.9. Distance between rear wall of the article and a wall should not be less than 200 mm. The distance to heat sources (hotplates, cabinet ovens, etc.) and flammable materials should be at least 500 mm.

3.10. The article should be supplied with alternating current of 380 V ± 10%, 50 Hz. Only qualified electricians, having necessary skills and having electrical safety access qualification level at least III should be entitled to connect wiring of the article.

3.11. The article should be connected to power supply network with regard to allowable electrical load. Power should be supplied from an electrical switchboard via protective switch having operating current 30 mA.

In order to provide possibility to de-energize the article for maintenance and repair works it should be connected to 3P+N+PE socket.

3.12. In order to equalize electrical potential during installation of the article into process line use terminal marked with  sign ("equipotentiality".)

3.13. In order to connect showering device install valve and supporting arm, included into the article's delivery set, into holes at the left side of the article.

Connection of the showering device is carried out using flexible wiring (Fig. 5).

3.14. Remove protective film from all surfaces of the article before use.

3.15. After all operations of the installation process were carried out supply power, turn on the article, and check direction of rotation of the electric motor (17).

The article is turned on using lighted switch and time setting knob (Fig. 2).

ATTENTION! Direction of rotation of the fan impeller should be counter clockwise when looking from the side of working chamber.

In case the direction is opposite change two of three phase wires of power supply.

3.16. Dry tubular electric heaters for 30 minutes at 100°C.

3.17. Protect the article against negligent attitude and mechanical stresses. Perform sanitation of the article on a daily basis at the end of the working day.

3.18. In case the customer fails to comply with the requirements listed herein the warranty should be void.

4. Technical specifications

Table 1. Technical specifications

№	Specification	APK6-1/1-I	APK10-1/1-I
1	Rated voltage, V	380	
2	Rated voltage at a heater, V	220 ±10%	
3	Type of current	AC 3-PH (+N)	
4	Current frequency, Hz	50	
5	Rated power consumption, maximum, kW	10	19
6	Rated power consumption of a heater, kW	9	18
7	Maximum size of food storage containers	GN1/1	
8	Number of levels	6	10
9	Distance between levels, mm	68	
10	Maximum load on a food storage container, kg	5	
11	Water pressure within the system, kgf/cm²	1-6	
12	Water consumption in steam mode, maximum, l/h	2	
13	Dimensions, mm (length x depth x height)	845(945**) x 780(845*) x 740	845(945**) x 780(845*) x1000
14	Weight, maximum, kg	100	115

* - Dimensions include door handle.

** - Dimensions include showering device.

Note. The delivery set does not include food storage containers. They can be ordered from ATESY company separately.

5. Preparing for operation and operation procedure

5.1. Check water connection and condition of connective hoses.
5.2. Ensure the drainage plug (20) in the bottom part of the collector (Fig. 1) is installed in place and tightened properly.
5.3. Wash working chamber using D-FOAM detergent manufactured by CIDLINES company. Cleaning with D-FOAM detergent should be carried out under the following procedure:
- Turn the article on in “Steam” mode of operation for 15 minutes at t°=100°C;
- cool the working chamber up to 60°C using “Cooling” mode;
- apply foam to the inner surfaces of the chamber;
- set temperature in the chamber to 60°C, switch on “Operation” mode for 15 minutes;
- after the “Operation” mode end open the door, remove fat using a sponge;
- wash the chamber thoroughly using the showering device.

Repeat the cleaning procedure if necessary.

ATTENTION! During cleaning procedure use protective goggles and gloves, wear protective clothes, and carry out all necessary safety measures, specified at the package of detergent.

DO NOT use caustic alkali and concentrated acids for cleaning the article!

5.4. Put the showering device, if not in use, to a supporting arm at the left wall of the article.
5.5. Before starting operation ensure that the protective grid (6) is in place and is fixed by the fixing device (Fig. 5).

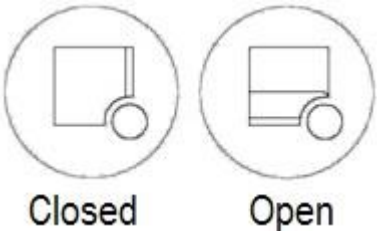


Fig. 5. Positions of the fan protective grid fixing devices

5.6. Supply power using “POWER” switch (Fig. 2), this results in lighting of temperature indicator and lighting of working chamber lamps. The temperature indicator shows firstly number of controller software, and then the set temperature value “100” (100°C).

ATTENTION! The set temperature value is reset to 100°C after each switching the article off using “POWER” switch. Do not forget to set required value after switching the article on.

5.7. Setting of the temperature parameters is carried out by short pressing of the temperature setting knob, the setting mode is indicated by blinking of the temperature indicator.

Select the required value by turning the temperature setting knob, and then confirm the selection by another short pressing the temperature setting knob.

5.8. Moisture level is selected by turning the moisture setting knob to the required value. Quantity of the supplied steam is controlled by a controller. Enabled automatic steam supply mode is indicated by lighted “Automatic injection” lamp. In case the lamp is dark turn the moisture setting knob clockwise.

5.9. After the temperature and moisture values were set enable “Operation” mode by the time setting knob to the required time value.

5.10. After expiration of the set temperature the indicator dot in the right bottom corner of the indicator appears. You can see actual temperature value inside the chamber any time by continuous pressing the temperature setting knob.

After release of the knob the set temperature value will be displayed back by the indicator.

5.11. In order to gain the best result it is recommended to heat the working chamber up to the required temperature before load of food products.

5.12. It is allowed to open the door of the working chamber during operation. The fan and the tubular electric heaters are disabled in this case. After the door is closed, cooking resembles.

ATTENTION! When chamber door is opened, hot air and steam are discharged from the chamber. Be careful not to get burned.

5.13. Predetermined parameters, such as temperature inside the chamber, humidity level, and time of treatment can be changed without stopping the products preparation process.

5.14. It is possible to set up continuous operation mode of the article. In order to do this turn setting knob counter clockwise to stop position (sector "∞").

5.15. When pre-set operation time expires electrical tubular heaters and fan turn off. Sound alarm is triggered at that moment.

5.16. For quick cooling of the chamber turn off electrical tubular heaters and fan by turning time setting knob to "0" position. Crack open the door and press "Chamber cooling" button. Then start cooling mode by turning time setting knob to the position corresponding to 15 to 20 minutes. As a result the "COL" (cooling) indicator will be displayed.

Operation in a "Chamber cooling" mode lasts until the pre-set cooling period expires.

5.17. If the door is closed during cooling procedure, the indicator will display "Opn" (Open), the control system will disable the fan and interrupted sound alarm will be given until the door is opened or the cooling mode will be turned off (by repeated pressing of the "Chamber cooling" button.)

ATTENTION! In order not to get burned be careful when using the "Chamber cooling" mode.
During the procedure hot air and steam are discharged from the

chamber.

5.18. In order to remove excessive water from the food products open the cut-off valve (11) (Fig. 1) of the exhaust pipe (9) by turning the lever (14) of the cut-off valve to the “Open” position.

5.19. In modes of cooking with closed cut-off valve it is allowable that a certain amount of water vapors is discharged from the pipe (9).

6. Technical maintenance

6.1. All technical maintenance works should be carried out after the article was disconnected from the power supply mains.

6.2. Perform the working chamber thorough cleaning **daily**, in the end of working shift (see p. 5.3).

6.3. Dry the chamber with opened cut-off valve (9), at 100°C during 15 minutes.

6.4. After washing and during intervals in work do not close the door completely, leave it crack opened in order to dry the working chamber.

6.5. Timely change water filter cartridge in accordance with recommendations provided by the manufacturer.

6.7. **Once a month** perform visual inspection of the article and working chamber, check integrity of the wiring between the electric switchboard and the article, protective earthing, reliability of the equipotentiality ensuring wire, reliability of water and sewage connections.

6.8. All issues with regard to warranty and further repair are to be addressed to the nearest service centers, which addresses can be found at our website, in the SERVICE section**:**

http://atesy.ru/service/

7. Transportation and storage

7.1. Transportation requirements as for the group (C) under GOST 23216. Shipment should be carried out by different types of transport, including by waterborne one (except sea).

7.2. Storage requirements are as for category 2 (C) under GOST 15150 in

the manufacturer's package.

8. Warranty

8.1. ATESY company guarantees normal operation of the article during 12 months since commissioning or sale provided usage rules stipulated herein are complied with.

8.2. Warranty should be void in the following cases:

- In case no commissioning act is available (see Appendix 3);
- In case the article has any mechanical damage;
- In case the article is used for any purposes beyond the ones listed herein;
- In case of any damages due to failure to comply with requirements to installation, assembling, adjustment, and operation of the article;
- In case of failure to comply with any rules with regard to maintenance or failure to carry out maintenance works, provided by the operation manual for the article;
- In case of any damages, caused by any intentional or unintentional actions by the customer, or by negligence in operation;
- In case of any damages, caused by any Acts of God (natural disasters, fire, lightning etc.);
- In case of any damages, caused by ingress of any foreign objects, liquids, insects, rodents;
- In case of any damages, caused by any modifications made to the article, change of its design, or unauthorized repair of the article;
- In case of any damages, caused by any improper transportation or storage of the article;
- In case of any damages, caused by use of any custom (non-OEM) consumables and spare parts;
- In case of any damages, caused by any excessive voltage at the input of the article, or use of power sources, non-compliant with the requirements, described in the operation manual.

8.3. Exchange and return of the article of proper quality is possible only in 15 days after purchase date provided the following requirements are met:

- Operation manual for the article is available;

- Payment document is available;
- Commissioning act is available (see Appendix 3);
- Manufacturer's package is available;
- The article has clean appearance with no mechanical damage and the delivery set complies with the list of accessories and parts;
- No repair was made.

8.4. Warranty storage term is 6 months after manufacture date.

9. Troubleshooting.

Only qualified electricians, having necessary skills and having electrical safety access qualification level at least III should be entitled to perform repair works to the article.

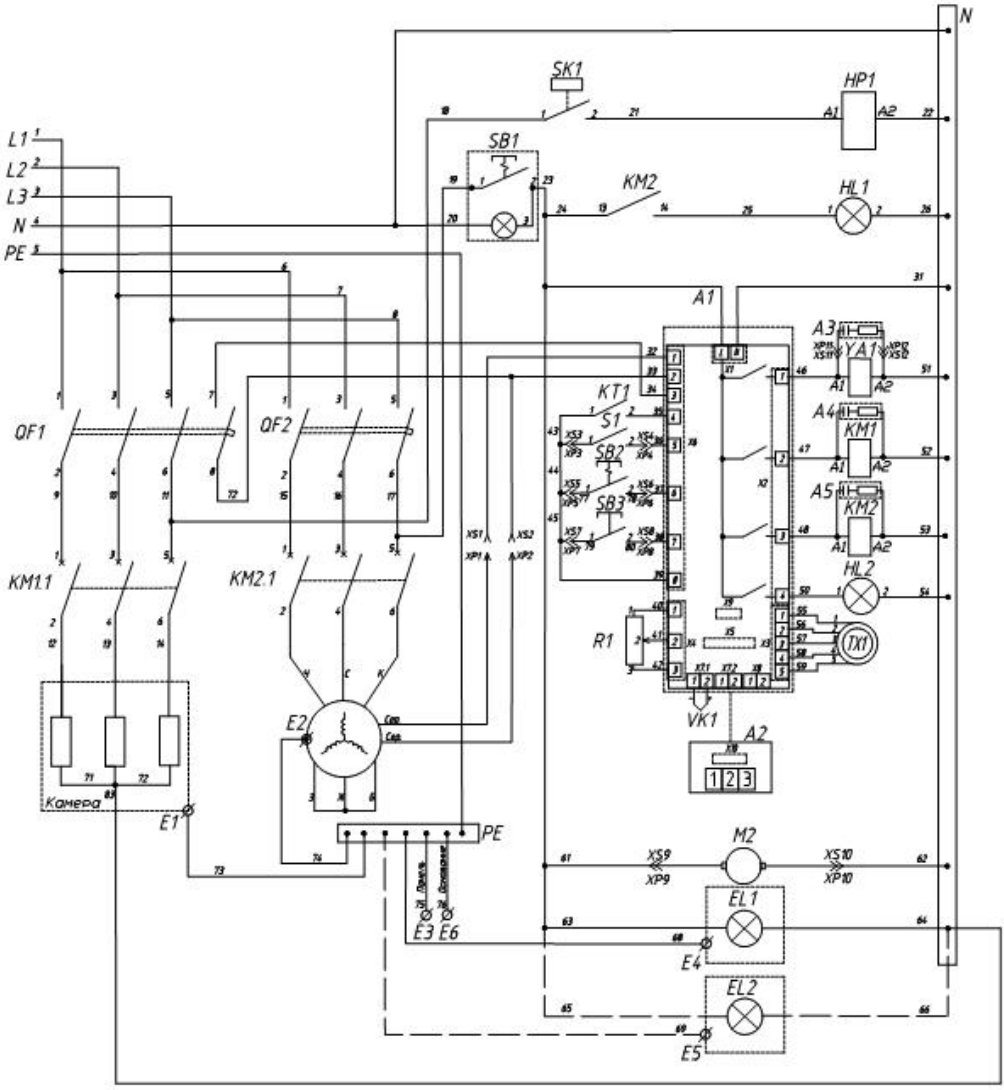
Table 2. Troubleshooting.

Problem	Possible reason	Solution
Convection steamer fails to turn on	No voltage in the network. QF1 switch is off. A protective switch of the boiler or the chamber has tripped. Controller failure.	Check mains voltage. Switch QF1 on. Check the circuit breaker state. Find failed element and replace if necessary.
The temperature doesn't change	Encoder failure	Check contacts state and encoder damages. Replace the encoder.
No chamber lighting.	Unsatisfactory contact in the lamp holder. Lighting lamp burnt. No controller output voltage.	Check tightness of contact joints. Check voltage at the controller output. Replace lamps or controller if necessary.

Problem	Possible reason	Solution
Chamber motor doesn't work.	Motor failure. Overheat protecting device of the motor tripped. Door position sensor failure. Starter failure. Controller failure.	Check with a multimeter the motor, overheat protecting device, the door position sensor, the starter. Make a joint between X10 and X13 outputs, supply voltage, enable any working mode, check voltage at the relay circuit board output.
The temperature doesn't reach the set value.	One or several tubular electric heater failed.	Replace the failed heater.
No steam generation.	No water in water supply system. Water pressure is under 1 atm. Water supply valve failure. Controller failure.	Check water supply system, valve operability (19) and relay output of the controller. Replace failed device.
Water doesn't leave the chamber or the tray	Collector holes are jammed.	Clean the collector through drainage hole after removing cap (20) (Fig. 1).
The indicator displays error ***obr***	Chamber thermocouple sensing element failure. Unsatisfactory contacts in the socket.	Determine failed device and replace it. Observe the polarity while replacing!

Problem	Possible reason	Solution
The indicator displays error ***E04***	Chamber temperature is higher than 285^0C.	Check chamber thermocouple sensing element. Check KM2 contactor. Check controller. Replace failed elements if necessary.
The indicator displays error ***E05***	Fan motor overheating	Check fan motor. Check chamber wall sealing Replace failed elements if necessary.
The indicator displays error ***E06***	Electric compartment overheating	Check the chamber heat insulation. Check the electric compartment fan. Replace failed elements if necessary.
The indicator displays error ***E07***	Automatic switch QF1 tripped	Check independent circuit breaker HP1. Check thermal regulator SK1. Replace failed elements if necessary.
The indicator displays error ***E12***	Wrong polarity of the chamber thermocouple sensing element	Change polarity of the chamber thermocouple sensing element VK1.
The indicator displays error ***CL5***	Door sensor failure or absent/displaced magnet	Check the door sensor. Check absence/displacement of the magnet. Replace the sensor or put the magnet in its place.

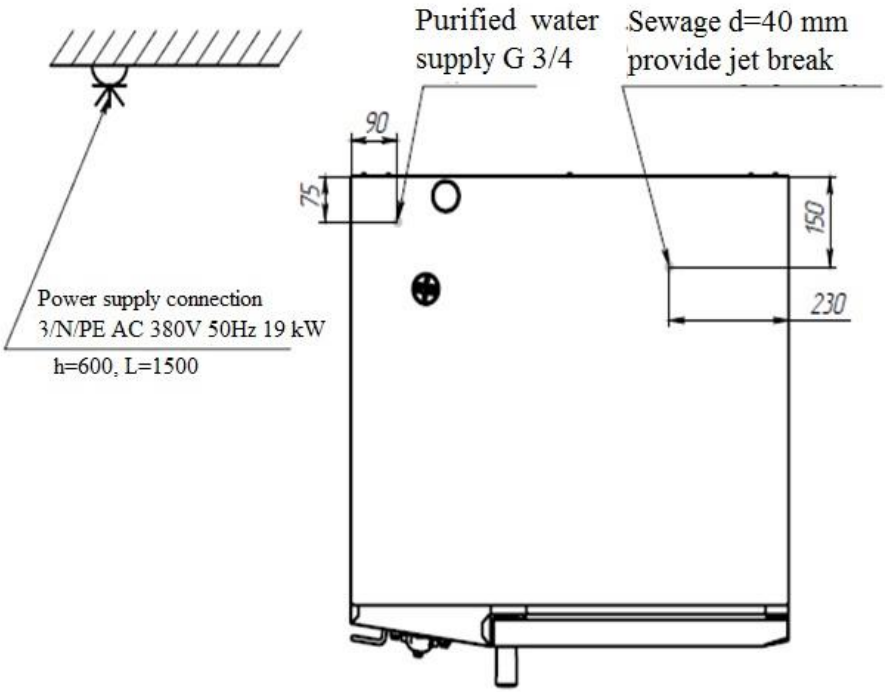
Electric circuit diagram
APK 10-1/1-I steamer



Index	Description	Note	APK 6-1/1	APK 10-1/1
A1	Apk_pk1 controller circuit board		1	1
A2	Apk_pi1 indicator circuit board		1	1
A3	OPN-113		1	1
A4,A5	OPN-123		2	2
VK1	Thermal electric transducer TC 1764-XX-50-600		1	1
TX1	Encoder EC-20cc-2DF-S		1	1
KT1	Electromechanic time relay DKJ 120 min		1	1
HL1,HL2	Indicator lamp ACH1-220-1-1-2 (green)		2	2
EK1	Heater 1GK3AU 13001 RES 9000W 230V		1	
	Heater 1GK3AU 13001 RES 18000W 230V			1
EL1,EL2	Lamp PHILIPS App 25W E14 230-240V T25 CL OV 1CT	Working chamber lighting	1	2
KM1	Power switch LC1E25M5 (Schneider electric)	Chamber heaters switch	1	
	Power switch LC1E32M5 (Schneider electric)	Chamber heaters switch		1
M1	Fan RBG 1532	Cooling fan	1	1
M2	Fan SF 23080A2083HSL GN	Working system fan	1	1
QF1	Automatic switch VA47-29 4R 32A S		1	1
QF2	Automatic switch VA47-29 4R 5A S		1	1
HP1	Independent circuit breaker RN47		1	1
SK1	Thermal regulator TK24-15-2-230-3%		1	1
S1	IO 102-14*-FIAK 425212.006 TU	Door sensor	1	1
PE	Bus null to DIN rack N8 yellow (63A, 8 holes VRK)		1	1
N	Bus null to DIN rack N8 blue (63A, 8 holes VRK)		1	1
R1	Adjustable resistor 2451-V20K		1	1
SB1	Lighted switch 220V KCo1-101N-8 blue		1	1
YA1	Electromagnetic valve for water, in. 3/4, out. 12 mm angle 180		1	1
KM2	Power switch LC1E09M5 (Schneider electric)		1	1
SB2	Fixable button R16-503AD-50380 orange		1	1
SB3	Non-fixable button R16-503AD-50380 orange		1	1
XS1,XS4,XS6 XS8,XS11,XS12	Plug RShI-M 15-4 RVT		6	6
XP1-XP12	Plug RShI-P 15-4 RVT		12	12
XS2,XS3,XS5 XS7,XS9,XS10	Plug RShI-M 2.5-4 RVT		6	6

Appendix 2

Electric, water and sewage supply connection diagram.



Appendix 3

ACT
of commissioning

Article:

"Injector-type convection steamer "Rubicon" _____"

Serial No. _____

Date of manufacture: "___"_____ 20___

Installation site _____

_____

_____
(Company, address, telephone)

Date of commissioning "___"_____ 20___.

Entity, which carried out commissioning _____

_____

_____
(entity, telephone)

Officer, who carried out commissioning	Article owner's representative
_____ (office)	_____ (office)
_____ (signature)	_____ (signature)
_____ (name)	_____ (name)
"___"_____ 20___.	"___"_____ 20___.

Notes

10. Delivery set.

1	Convection steamer	1
2	Left tray holder	1
3	Right tray holder	1
4	Showering device Monollith	1
5	Valve PKM.01.000.048	1
6	Locknut with flange. VTr.655	1
7	Adaptor SER P-4237 fac .	1
8	Water supply unit Flexiline G . h/h 0.4 m	3
9	Rubber gasket G . (d=24 mm)	1
10	Screw 4.2x20	3
11	Triple adaptor SER T-327n G. b-b-b	1
12	Operation manual	1
13	Package	1

11. Acceptance details.

Injector-type convection steamer “Rubicon”:

- APK6-1/1-I steamer [ ]

- APK10-1/1-I steamer [ ]

Serial number_____ complies with the requirements of the set of design documents and is considered as applicable for use.

Manufacturing date _____20 .

QA check L.S.

ATESY®

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