



LABORATORY FURNACE

80/1150

Manual instruction



Satisfy EC directive 2006/95/EC to electrical equipment designed for use within certain voltage limits, directive 2004/108/EC to electromagnetic compatibility

1. PURPOSE

Electric furnace **SNOL 80/1150** (hereinafter called “Electric furnace”) is designed for heating or drying in the ambient air temperature from 50⁰C to 1150⁰C in static conditions.

2. SAFETY REGULATIONS

Operator working with the electric furnace must be aware of the operating rules of electric equipment up to 1000 V, be acquainted with safety regulations for operation of electric furnace, be aware of the structure, operation principle, assembly and operating rules of the product.

Connect the electric furnace to the mains (power supply) that certainly must have the grounding contact connected to the grounding circuit.

It is prohibited to operate the electric furnace if the grounding is insecure.

It is prohibited to operate the electric furnace if any external protective shield is removed.

If the electric furnace is operated for a longer period of time the external surfaces and door may get hot. When opening the door of the hot electric furnace as well as at the time of charging/discharging it or when touching hot external surfaces it is necessary to wear the gloves.

Use the electric furnace only for the works that it was designed for. In the case of improper use the Manufacturer is not responsible for any negative results.

Don't charge (heat) into the electric furnace:

- **any explosive or combustible materials;**
- **any materials, the heating of which causes chemical reaction, and which become explosive or combustible;**
- **any materials, the liquid state of which may pour over the heating elements.**

If these instructions are not observed the user is responsible for any negative results.

If the normal operation of the electric furnace breaks down disconnect it from the power supply, cool it and take measures to eliminate the defects.

The Manufacturer provides with the information or technical assistance in any cases.



- alternating current;



- grounding contact;



- electric shock hazard.

3. COMPLEMENT

The user is supplied with:

- | | |
|---|---|
| - electric furnace SNOL 80/1150 , pcs. | 1 |
| - fuse 1A, pcs. | 2 |
| - ceramic bottom plate, pcs. | 2 |

- certificate, copy	1
- User Manual of temperature controller, copy	1

4. COMPOSITION AND PRINCIPLE OF OPERATION

The base of the electric furnace is a metal framework. In the upper part of the framework heating chamber of fiber thermoinsulation is installed. In the bottom and sides of the heating chamber spiral heating elements are installed in the fiber thermoinsulation. The top of the chamber and the internal part of the door are made of fiber thermoinsulation that requires careful attention. Work chamber is covered by protective shields. In the lower part of the framework the control panel is installed.

Work chamber of the electric furnace consists of heating chamber and leak-proof door.

The charge is put on the ceramic hearth bricks on the bottom of the chamber.

The electric furnace is supplied with alternating current of voltage 400V and frequency 50Hz. Temperature adjustment and control is carried out by the means of temperature controller that functions together with the thermocouple installed in a chamber.

The air heated by heating elements circulates in a chamber and heats the charge. Circuit diagram is given in Fig. A.

5. PECULIARITIES OF OPERATION

Operate the electric furnace in closed ventilated room:

- the base under the bottom of the electric furnace should be horizontal (the allowed unevenness in the length of 1m is $\pm 1\text{mm.}$), hard, **made of incombustible material**;
- ambient temperature from $+5$ to $+35^{\circ}\text{C}$;
- ambient relative air humidity should not exceed 80% at the temperature of $+25^{\circ}\text{C}$;
- the environment should not be dangerous with respect to explosion, it should not contain much electrically conductive dust, water vapour, aggressive gas;
- it should be placed under the exhaust ventilation cap;
- the electric furnace should not be affected by vibration and impacts;
- it is prohibited to exceed the nominal temperature, otherwise the service life period of heating elements is shortened and the thermocouple may be damaged;
- the voltage fluctuation in the mains (power supply) should not exceed $\pm 10\%$ of the nominal value;
- don't heat light metals

Contact of the charge and hearth brick with the walls of the chamber and heating elements is not allowed. If the damage of heating elements is caused by any contact with them, repairs are carried out at user's expense.

Open the door of the electric furnace at the temperature not exceeding 400°C . If you open it at higher temperature thermo shocks received shorten the service life period of heating elements.

6. ASSEMBLY

Unpack the electric furnace and place it in the location prepared for its operation. Put in the chamber a bottom plates. The voltage specified in the tables of technical parameters should be in conformity with nominal voltage of the mains (power supply).

Plug in the cord to the mains that must have grounding contact connected to the grounding circuit.

7. PREPARATION FOR OPERATION

Before the first operation or if the electric furnace was not operated for a long period of time and stored in humid conditions it should be dried as follows:

- Without any charge, heat it up to the temperature of 100-120°C and maintain it for 3-4 hours;
- Heat the electric furnace up to 500-600°C and maintain it for 2-3 hours;
- Heat it up to the nominal temperature. Maintain it for 1-2 hours and start the operation.

At the time of drying some smoke can appear but it has no effect on further operation of the electric furnace.

8. ORDER OF OPERATION

Open the door of the electric furnace.

Put the charge on the bottom plate leaving the spaces from the walls of 1/10 of the side.

Close the door of the electric furnace. Put the automatic switch to "On" position, the switching-on will be indicated by the pilot lamp that lights up.

Following the User Manual of the temperature controller set the necessary program and switch its execution on.

Note: thermo controller's indication should be 1150°C, i.e.

When the temperature controller E5CK-T is used the electric furnace switches off automatically when the program is completed.

Switch on the switch "HEATING"

9. MAINTENANCE

The electric furnace should be disconnected from the mains (power supply) and cooled.

Adjust the leak-proofness of door closing by the means of door fixing screws.

Once a year measure the insulation resistance between the frame and heating elements. Dry up the electric furnace. Connect the megommeter to the leads of heating element and frame. The reading of the megommeter should not be less than 0,5 MΩ.

Once per six months examine visually the wires and electrical connections. In the case of necessity, tighten the contact screws.

Cleaning. When the operation is over clean the external surfaces of the electric furnace, except the marking, with a piece of cloth soaked in water. The scale from the heating chamber, heating elements and grooves should be removed by the means of vacuum cleaner.

10. STORAGE

Store the electric furnace in its packing in:

- heated and naturally ventilated room at the ambient temperature from +5 to +35°C;

- atmosphere with sulphurous gas concentration not exceeding 0,13 mg/m³ and chlorine salts concentration not exceeding 0,3 mg/m² per 24 hours;
- the ambient relative air humidity not exceeding 80% at the temperature of 25°C.

11. TRANSPORTATION

You can transport the electric furnace it by any means of closed transport, except the sea transport, but protect it from any movement and rough mechanical damages. The packaging does not protect the electric furnace from the effects of improper treatment.

12. WARRANTY

The manufacturing plant guarantees that the electric furnace **SNOL80/1150** meets the requirements of the company standard.

The guaranteed operating period is 12 months from the date of the furnace purchase provided that the user follows the rules of storage and transportation and operation instructions, but not more than 24 months from the date of the furnace manufacture.

The defects that appear during the warranty period through the manufacturer's fault shall be eliminated at manufacturer's expense. Manufacturer's address:

AB "Umega"

Metalo 5, 28216 Utena, Lithuania

Telephone : (+370 389) 54586 ; Fax : (+370 389) 61223.

13. TECHNICAL CHARACTERISTICS

Nominal power, kW	7,5
Voltage, V	400
Frequency, Hz	50
Nominal temperature in chamber, °C, not less than	1150
Number of phases	3
Ambient in chamber	air
Heating time up to nominal temperature without any charge, min., not more than	150
Temperature stability in steady-state heating mode without any charge, °C, up to	±2
Temperature distribution in chamber at nominal temperature and in steady-state heating mode without any charge, °C, not more than	±15
Limits of automatic temperature adjustment, °C	50 ÷ 1150

Work chamber dimensions, mm, not less than:

Width	400
Length	400
Height	480

External dimensions of the furnace, mm., not more than:

Width	940
Length	980
Height	1570

Weight, kg. not more than 250

14. STATEMENT ABOUT THE ACCEPTANCE

Electric furnace **SNOL80/1150**, manufacturer's No 010 meets the requirements of the company standard and is recognized as suitable for use.

Date of manufacture _____

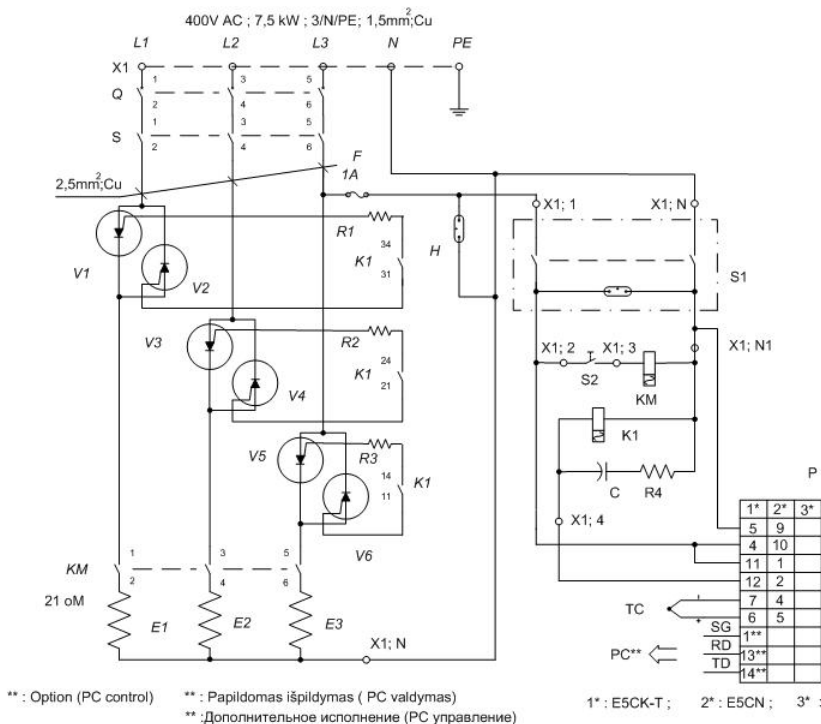
Inspection marking _____

Code of the product A438-104-600X10151

ATTENTION!

The construction of the electric furnace is constantly improved, so some elements may be a little bit different than in the present description but this does not affect any technical characteristics of the furnace.

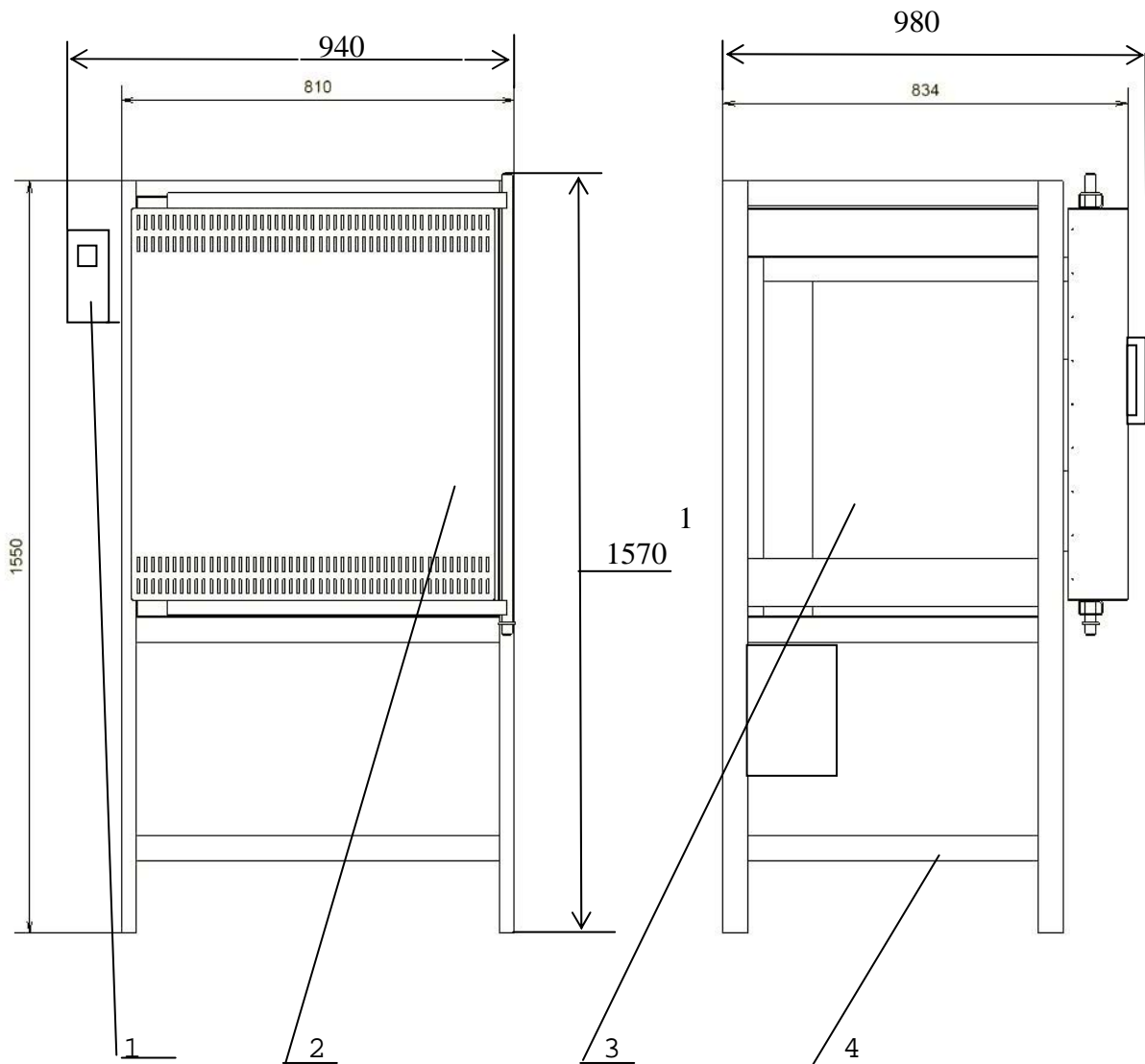
ELECTRIC DIAGRAMME



		7,5 kW	SNOL80 / 1150 - 3		Lapas 1
					Lapц 2 Листов : Pages

[illegible]

Electric furnace SNOL80/1150



1. Control panel
2. Door
3. Chamber
4. Housing

Gamintojas / Изготовитель / Producer

AB „Umega“

Dpt. SNOL

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