

# MINIPRESS.RU

Supplier of pharmaceutical equipment in Russia  
Founded in 1999

RUSSIA, 115035, MOSCOW, 17 PIATNITSKAYA St.

+7(495)364-38-08  
info@minipress.ru  
www.minipress.ru

## Commercial proposal

**Compiled:** 15.02.2022  
**Valid:** 12 month  
**Author:** Roman Tsibulsky

### Vacuum sublimation freeze drying RL-07

#### DESCRIPTION

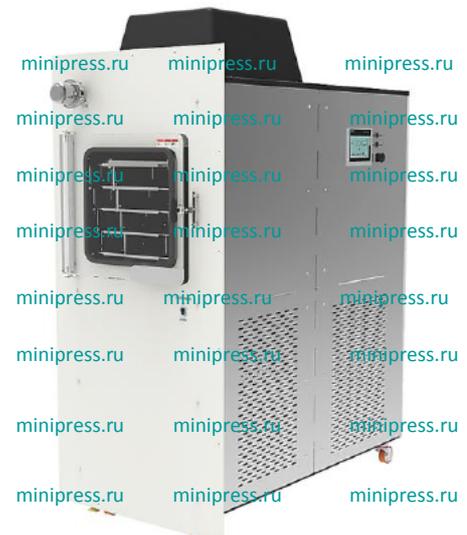
Industrial vacuum freeze-drying freeze drying area from 0.1 to 0.81 m<sup>2</sup> with a weight of 400 kg. The doors of the drying cabinet and the cooled chamber are made of transparent polymethylmethacrylate to observe the process. The number of shelves is from 1 to 6. The control system is approved by the US Food and Drug Administration. Ideal for research laboratories and pilot production.

We provide a full range of services: installation, training, start-up, repair. Menu and instructions for use in English and Russian. Complies with the GMP standard. We provide detailed instructions for setting up this model of the machine. Before sending the machine for sealing, machines are tested in production. Completeness and working capacity is guaranteed. We maintain a stock of parts and consumables in the warehouse. The price is indicated taking into account customs payments in Russia and delivery to the city of the client.

#### MANUFACTURER - CHINA



**MINIPRESS.RU**



**MINIPRESS.RU**

## SPECIFICATIONS

### Vacuum sublimation freeze drying "RL-07"

Material: - European stainless steel ANSI 316L

Number of shelves: - at customer's choice 1/2/3/4/5/6

Shelf size: - 500mm (length) x270mm (width) x10mm (thickness)

The useful area of the shelves: - 0,135 / 0,27 / 0,405 / 0,54 / 0,675 / 0,81 m<sup>2</sup> (depending on the number of shelves)

The distance between the shelves: - 312/156 / 100,6 / 73 / 56,4 / 45,3 mm

Temperature range: -70 ° C to + 80 ° C

Shelf cooling speed: + 20 ° C to -40 ° C 30 min (no load)

Shelf heating speed: + 20 ° C to -40 ° C 60 min

Temperature stability: ± 1 ° C

Front door (rectangular): - polymethyl methacrylate (PMMA)

Method of locking the door: - Manual locking

Condenser: - Independent

Condenser material: - European stainless steel ANSI 316L, with external coil

Capacity of ice in the condenser: - 10 kg

Minimum temperature: -85 ° C

Condenser cooling rate: + 20 ° C to -40 ° C 30 min

The thawing mode: hot refrigerant vapor

Front door of the condenser chamber: - polymethyl methacrylate (PMMA)

Hydraulic station: BREVINI Located under the camera

Tank: 2 liters

Clogging force: 0 ~ 1.0 bar (adjustable)

Pneumatic system: - absent

Circulation pump: WILO, Germany

Pump capacity: 93/67/46 rpm

Heat carrier: Silicone oil 2 cSt (low viscosity)

Heater: - 1 kW

Plate heat exchanger: ALFALAVAL, Sweden

Heating rate: - 1 ° C / min

Vacuum Pump: - Edwards

Standard consumption: - 17 m<sup>3</sup> / h

Maximum residual pressure in the chamber: - 1 Pa

Pumping: from atm. up to 10 Pa - 15 min

Leakage rate: - 5x10<sup>-3</sup> Pa m<sup>3</sup> / s

Cooling method: - cascade cooling system

Minimum shelf temperature: -70 ° C

Minimum condenser temperature: -85 ° C

Refrigerant (without chlorofluorocarbon):

Main circuit: R-508B / auxiliary circuit: R-407C

Size of lyophilizer: 1500mm (length) x620mm (width) x1990mm (height)

Voltage: - 380V

Power consumption: - 6 kW

Operating ambient temperature: - 5-25 ° C

Weight (approx.): 400 kg

Shipping Weight: 500 kg

## ADDITIONAL INFORMATION

The process consists in placing in the freeze drying chamber vials of liquid material, followed by obtaining dried powder. Pre-rinsed and dried glass penicillin boles are used in which the material is poured. Then the vials are sealed with special rubber stoppers having side slits, in the part that enters the neck of the vial. Capping is not done until the end, but by 50%, only to fix the rubber stopper in the neck of the bole. Subsequently, through the sloed vacuum, the liquid is pumped out of the vial. In the final stage, after complete dehydration of the material, the cork is completely capped by hydraulic moving shelves. Thereby, the drying takes place in a vacuum medium, and then the material is finally packed in a vacuum. This gives (in contrast to other types of such drying) to keep the material in a vacuum for 1-2 years. After the vials are evacuated, the chamber can be opened and an automatic or semiautomatic action of the rubber stopper with an aluminum cap can be made. Caps are put on the neck of the bole and sealed. According to the manufacturer of the equipment, with this technology it is possible to completely restore the life of the material after dehydration at the opening of the vacuum package within 4-5 hours. Storage in a vacuum of the material is possible at a temperature not exceeding +36 degrees C. Since in the process of dehydration (removal of water) the equipment dehydrates the material, then the recovery occurs with distilled water. The water to be removed is frozen in the chamber, then drained after defrosting and it is possible to control how many ml of water from the dried product in order to subsequently restore just such a quantity of water. This is an important point. According to the manufacturer, not all materials can be turned into powder, some biological materials become dehydrated into a jelly-like substance, which is also reconstituted with distilled water. The equipment manufacturer has a large laboratory that, together with the pilot production, can conduct any research of your material, obtain samples of the products in dried form and packed in vacuum for further research by customers.

**PRODUCTION TIME** 30-40 DAYS

**ESTIMATED DELIVERY TIME** 30-40 DAYS

**PRICE** 75423,73 USD

**VAT** 13576,27 USD

### OUR SERVICES FOR CLIENTS:

**1) TRAINING SUBLIMATION TECHNOLOGIES.**

We can train you on our equipment before buying. Testing of materials. We provide consultations on the organization of production of lyophilic materials, with a full range of additional equipment and consumables (boles, special plugs, aluminum caps).

**2) COMPLETE LABORATORIES FOR PHARMACEUTICAL PRODUCTION.**

We have a laboratory test lyophilizer for the production of pilot batches in Russia, which we provide to our customers. You can always contact us with your ideas and requests. Currently, the manufacturer has almost 20 varieties with a useful shelf area from 1 m<sup>2</sup> to 40 m<sup>2</sup>.

**3) DELIVERY OF SUBLIMATION EQUIPMENT.**

The products fully comply with the new GMP requirements. The release of equipment for advanced technology is accompanied by strict quality control, verification of all documentation, well-organized after-sales service of equipment.

**4) SPARE PARTS SUPPLY**

The manufacturer can also change the parameters of freeze drying based on the goals and objectives of the customer. In comparison with comparable products, this freeze drying is more efficient. Service center in Russia for the CIS countries

**VALUE 89000.00 USD**

Payment is made in rubles to the account in Moscow at the rate of the RF Central Bank



*Roman Tsibulsky*

Owner and supervisor

**ROMAN TSIBULSKY**