VIAL BLOWING UNIT

USER MANUAL

214.5.883.067UM

P/N 400-2901

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Table of contents

1 Description and operation 4

1.1 Introduction 4

1.2 Specifications and delivery set 4

1.3 Design and operation 4

2 Usage 6

2.1 Safety precautions 6

2.2 Preparation for operation 6

2.3 Operation order 7

3 Maintenance 8

4 Transportation and storage 8

5 Claims 8

1 Description and operation

Instructions marked with this box must be followed to avoid injury when working with the chromatograph or damage to the equipment.

1.1 Introduction

Vial blowing unit, P/N 400-2901, (hereinafter, the VBU) is intended for purging bottles or vials to remove the residual impurities, components of ambient air, in headspace analysis. The principle of blowing is to replace gaseous phase inside bottle (vial) prior to or after tight crimping. The VBU keeps constant flow at blowing.

Operation of the VBU is carried out in closed laboratory premises, provided that combustible gases and highly inflammable liquids may be present in volume insufficient for creation of explosive– or fire-hazardous mix. Environmental conditions:

- Air temperature from 10 to 35 °C;
- Relative humidity not more than 80 %;
- Atmospheric pressure from 84 to 107 kPa (from 630 to 800 mm Hg);
- Impurity content in premises air shall be normal, regulated by GOST 12.1.005.

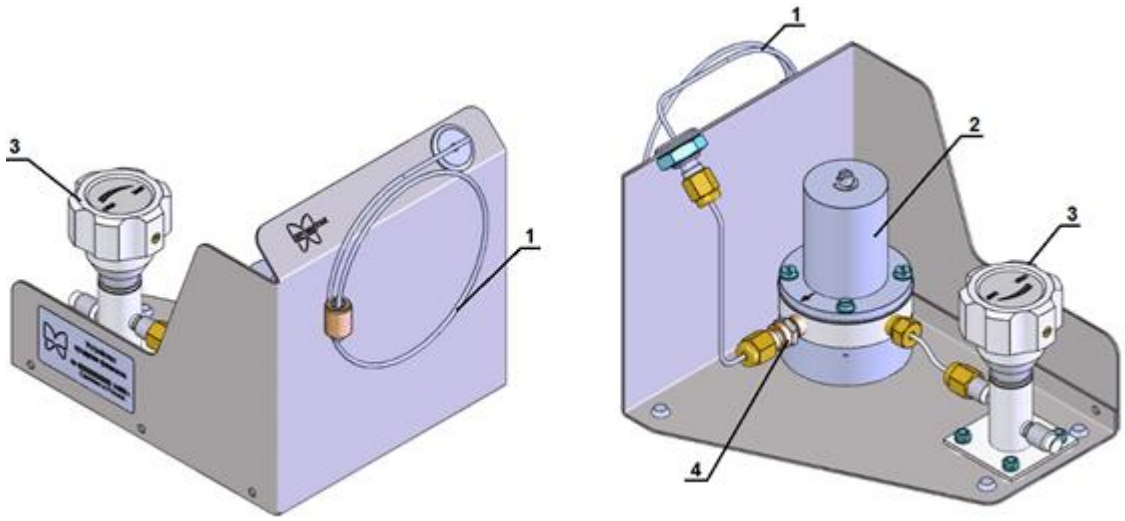
1.2 Specifications and delivery set

The detailed specifications and delivery set is given in Passport 214.5.883.067PS.

1.3 Design and operation

The device may contain non-fundamentally modernized parts in accordance with new developments or may be subject to minor non-fundamental modifications that do not affect the technical specifications and safety requirements, not reflected in this document.

Overview of the vial blowing unit is illustrated on Figure 1.



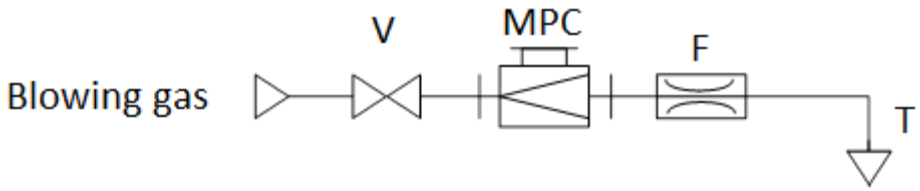
1 – tube 6.457.209; 2 – Pressure controller 5.157.003-05; 3 – Valve 6.451.008 (on/off); 4 – Frit 5.150.010-07

Figure 1 – Vial blowing unit. Overview

The basic components of the device are:

- Tube, to which a blowing needle is fitted to;
- Manual pressure controller
- Frit
- Gas supply valve to open / shut off gas flow.

A flow diagram is shown on Figure 2.



V – on/off valve 6.451.008; MPC – manual pressure controller 5.157.003-05; F – Frit 5.150.010-07; T – Tube 6.457.209

Figure 2 – Flow diagram

At blowing, a gas flow from the BVU enters a vial and replaces gas inside vial. After blowing the crimped vial is exposed to incubation, then headspace sample is collected from the vial for gas chromatographic analysis.

2 Usage

2.1 Safety precautions

Only the person familiar with this User Manual and having adequate skills and knowledge is permitted to operate this device.

Before getting services, shut off input gas line.

When working with combustible, harmful, aggressive substances, fire safety measures must be observed in accordance with GOST 12.1.004-91, as well as measures provided for in special instructions developed by the User (in accordance with the specifics of the substances handled with) based on GOST 12.1.007-76.

When works terminated, shut off input gas line.

2.2 Preparation for operation

Place the VBU on the horizontal surface benchtop.

Connect the gas line to the valve input fitting. Recommended input gas pressure is 0.4 – 0.44 MPa.

Carrier gas or zero air, catalytically purified using 20.0 Catalytic purifier is to be used as a bllowing gas.

Adjust blowing gas flow rate as follows:

- Connect a gas flow meter (or soap-film flowmeter) to the outlet of the tube 6.457.209.;
- Open the gas supply valve by turning it anticlockwise until it stops;
- Turn the adjusting screw of the pressure controller to set the required blowing gas flow, controlling it with the flow meter.

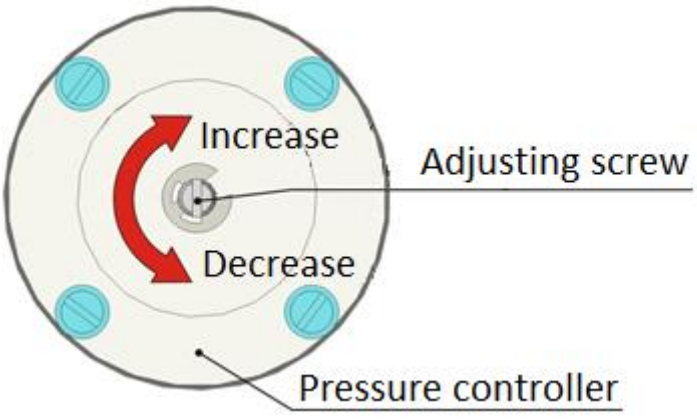
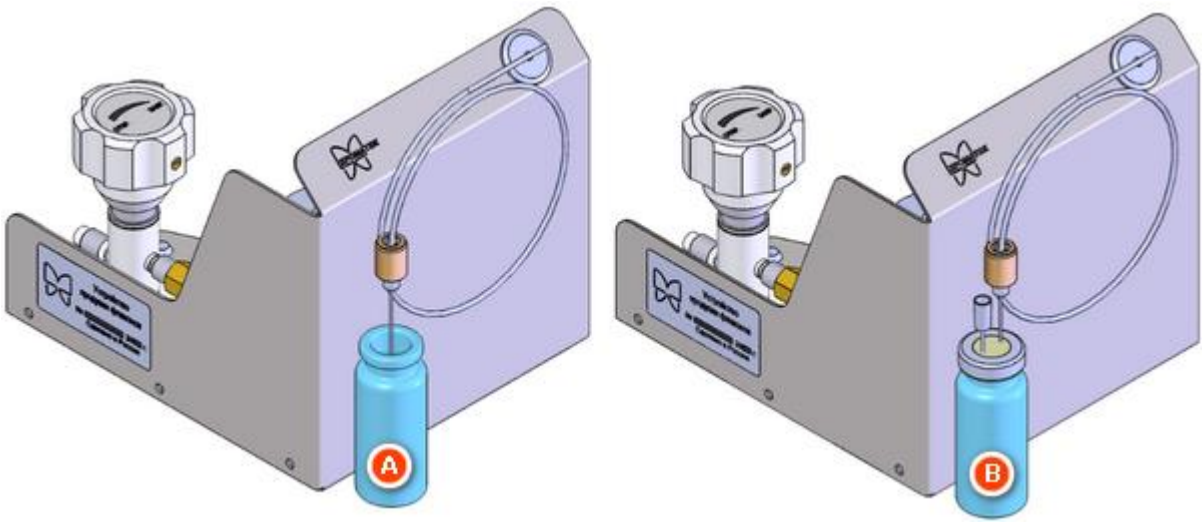


Figure 3 – Adjustment of flow rate

Recommended flow rate is 50 – 100 ml/min

2.3 Operation order

- Connect a blowing needle to the tube 6.457.209.
- Place a vial with the sample in front of the VBU.
- Bring the blowing needle of the VBU to the neck of the vial (see Figure 4 a).
- Open the gas supply valve by turning it counterclockwise until it stops.
- Purge the vial for several seconds.
- After purging, close the gas supply valve by turning it clockwise until it stops.
- To blow a crimped vial (see Figure 4 b), first penetrate the septum of the vial with a free needle (to ensure gas phase flushing). Then penetrate the septum of the vial with the blowing needle of the device and carry out blowing.



a) blowing of open vial, b) blowing of crimped vial

Figure 4 – Vial blowing

Any needles for disposable syringes with a Luer Lock connection type can be used as purge needles.

When blowing, avoid contact needles with sample liquid.

3 Maintenance

Maintenance is required to prevent the BVU from leaks.

The following maintenance procedures are relevant:

- Check for leaks;
- Replacement of seals (ferrules) in fittings.

Check fittings and connections for leaks by dropping ethyl alcohol the spots of potential leaks at overpressurized lines or apply manometric test by GOST 25136-82.

Eliminate leaks by tightening fittings. If necessary, replace seals (ferrules) in the fittings.

4 Transportation and storage

At transportation, ensure adequate protection of shipping boxes from atmospheric precipitations.

Transportation and storage is to be done in the conditions 5 per GOST 15150-69:

- ambient temperature between – 50 and 50 °C;
- maximum RH 98 % at 35 °C;
- avoid any dust or aggressive vapors in air.

Store the packaging until the warranty period expires.

Before using the device taken from warehouse in cold periods, leave it at normal conditions for 4 hours minimum.

5 Claims

In case of the BVU failure within warranty period it is necessary to:

- draw up a technically reasoned act of defects concerning its incompliance with technical requirements, specified in the passport;
- make abstracts from section “Acceptance certificate”;
- specify performed maintenance procedures.

The claim should be sent to the address:

Special Design Office “Chromatec”, 94 Stroiteley Str., Yoshkar-Ola, Russian Federation 424000.

Or at Correspondence address: Central post office, P.O. box 84, Yoshkar-Ola, Mari-El republic, Russian Federation, ZIP code 424000.

Service support tel.: +7(8362) 68-59-16, E-mail: 32@chromatec.ru