

V-1 plus & V-32 Vortex for tubes



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1. About this edition of user instructions

The manual applies to following models and versions of personal vortexes for tubes and microtubes:

- **V-1 plus** version V.4AW
- **V-32**..... version V.2AW

2. Safety precautions



Caution!

Make sure you have fully read and understood the present Manual before using the equipment. Please pay special attention to sections marked by this symbol.

GENERAL SAFETY

- The protection provided can be ineffective if the operation of the appliance does not comply with the manufacturer's requirements.
- Save the unit from shocks and falling.
- Store and transport the unit in a horizontal position (see package label) at ambient temperatures between -20°C and +60°C and maximum relative humidity of 80%.
- After transportation or storage and before connecting it to the electric circuit, keep the unit under room temperature for 2-3 hrs.
- Before using any cleaning or decontamination methods except those recommended by the manufacturer, check with the manufacturer that the proposed method will not damage the equipment.
- Do not make modifications in design of the unit.

ELECTRICAL SAFETY

- Connect only to the mains with voltage corresponding to that on the serial number label.
- Use only the external power supply provided with this product.
- Ensure that the power plug is easily accessible during use.
- Do not plug the unit into an ungrounded power socket, and do not use an ungrounded extension lead.
- Disconnect the unit from the mains before moving.
- If liquid penetrates into the unit, disconnect it from the mains and have it checked by a repair and maintenance technician.
- Do not operate the unit in premises where condensation can form. Operating conditions of the unit are defined in the **Specifications** section.

DURING OPERATION

- Do not impede the platform motion.
- Do not operate the unit in environments with aggressive or explosive chemical mixtures. Please contact manufacturer for possible operation of the unit in specific atmospheres.
- Do not operate the unit if it is faulty or has been installed incorrectly.
- Do not use outside laboratory rooms.
- Do not place a load exceeding the maximum load value mentioned in the **Specifications** section of this manual.

BIOLOGICAL SAFETY

- The user is responsible to carry out appropriate decontamination if hazardous material spills on or penetrates into the equipment.

3. General information

V-1 plus / V-32 vortex is intended for intensive mixing of samples in tubes using an eccentric mechanism. Vortex is applicable in all the fields of laboratory research in biotechnology, microbiology and medicine:

- Mixing tissue samples;
- Suspending cell samples;
- Mixing chemical samples;
- Mixing bacterial and yeast cells when washing from the culture medium
- Extracting metabolites and enzymes from cells and cell cultures, etc.
- Vortexing during various operations with DNA/RNA.

Vortex has two operation modes:

- continuous operation;
- impulse operation.

Model V-1 plus is a personal vortex with fluoroplastic head for single tube (0.2 – 50 ml) vortexing.

Model V-32 is a universal vortex multipurpose device with different accessories. It is supplied with a 32-socket universal platform PV-32 for Eppendorf type tubes up to 15 ml (1.5/0.5/0.2 ml - 16/8/8 sockets) and a PL-1 head for vortexing a single tube up to 50 ml. An optional 6-socket platform PV-6/10 for 10 ml tubes (maximum tube diameter 15 mm) or a platform PV-48 for 6 strips of 8x0.2 ml microtubes can be supplied on request.

4. Getting started

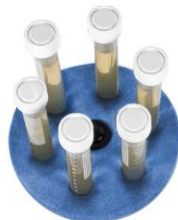
- 4.1. **Unpacking.** Remove packing materials carefully and retain them for future shipment or storage of the unit. Examine the unit carefully for any damage incurred during transit. The warranty does not cover in-transit damage. Warranty covers only the units transported in the original package.
- 4.2. **Complete set.** Package contents:
- 4.2.1. **V-1 plus:**
- V-1 plus, personal vortex1 pce.
 - External power supply1 pce.
 - Operating manual, declaration of conformity 1 copy
- 4.2.2. **V-32:**
- V-32, multi-vortex1 pce.
 - External power supply1 pce.
 - PV-32, universal platform (.....1 pce.
 - PL-1, single tube vortexing head (.....1 pce.
 - Operating manual, declaration of conformity 1 copy
 - PV-6/10, platform (.....on request
 - PV-48, platform for strips (.....on request



PV-32



PL-1



PV-6/10



PV-48

- 4.3. **Setup.**
- Place the unit upon even horizontal stable non-flammable surface 30 cm away from any flammable materials, and clear 20 cm around the device on all sides for ventilation.
 - Connect the external power supply unit into the socket at the rear side of the unit and position the unit for an easy access to the external power supply and the power switch.
 - Connect the power cable to the external power supply.
- 4.4. **Platform replacement (model V-32):**
- Using a flat screwdriver, unscrew black screw at the middle of the platform (fig. 2/1) and remove it together with the washer.
 - Using a Phillips screwdriver, loosen two fixing screws (fig. 2/3) on the rotor under the platform.
 - Remove and replace the platform (fig. 2/2), fix the platform in place in opposite order.

5. Operation

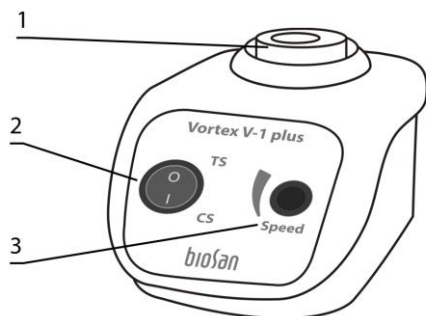


Figure 1. V-1 plus, front view

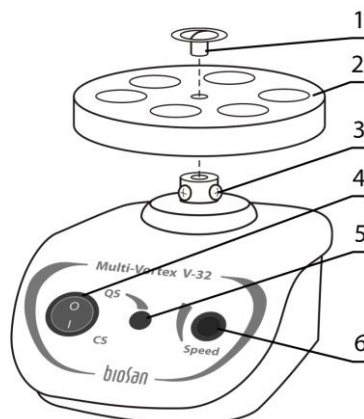


Figure 2. V-32, front view

5.1. Working with model V-1 plus.

5.1.1. Connect the external power supply to the mains.

5.1.2. Gently holding a tube by its upper part, press the lower part to the vortex head (fig. 1/1). During rotation of the rotor, control the intensity of shaking by varying applied pressure.



Caution!

To achieve effective vortexing, do not fill the tubes for more than 50% of volume.

5.1.3. Continuous shaking mode – CS

5.1.3.1 Turn the **TS/CS** switch (fig. 1/2) to position **CS**.

5.1.3.2 Set the required speed by turning the **Speed** knob (fig. 1/3).

5.1.3.3 After finishing the operation, turn the switch into position **TS**.

5.1.4. Impulse shaking mode – TS.

5.1.4.1 Turn the **TS/CS** switch (fig. 1/2) to position **TS**.

5.1.4.2 Set the required speed by turning the **Speed** knob (fig. 1/3).

5.1.4.3 Push the tube on the vortex head (fig. 1/1) and hold for vortexing. Rotor stops when the tube is raised.

5.1.5. Disconnect the external power supply from the mains outlet.

5.2. Working with model **V-32**.

5.2.1. Connect the external power supply to the mains.

5.2.2. When shaking several tubes, place the tubes on the platform.

5.2.3. When shaking single tube (PL-1 head), gently holding a tube by its upper part, press the lower part to the vortex head. During rotation of the rotor, control the intensity of shaking by varying applied pressure.



Caution! To achieve effective vortexing, do not fill the tubes for more than 50% of volume.

5.2.4. Continuous shaking mode – **CS**

5.2.4.1 Turn the **QS/CS** switch (fig. 1/4) to position **CS**.

5.2.4.2 Set the required speed by turning the **Speed** knob (fig. 1/6).

5.2.4.3 After finishing the operation, turn the switch into position **TS**.

5.2.5. Quick shaking mode – **QS**.

5.2.5.1 Turn the **QS/CS** switch (fig. 1/4) to position **QS**.

5.2.5.2 Set the required speed by turning the **Speed** knob (fig. 1/6).

5.2.5.3 Position the tube on the vortex head, press and hold **QS** button (fig. 1/5) for vortexing.
Rotor stops when the button is released.

5.2.6. Disconnect the external power supply from the mains outlet.

6. Specifications

The unit is designed for operation in cold rooms, incubators (except CO₂ incubators) and closed laboratory rooms at ambient temperature from +4°C to +40°C in a non-condensing atmosphere and maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.

Biosan is committed to a continuous programme of improvement and reserves the right to alter design and specifications of the equipment without additional notice.

	V-1 plus	V-32
Speed control range	500-3000 rpm	
Acceleration time	2 s	3 s
Maximum continuous operation time ¹	24 h	
Tube volume	0.2 – 50 ml	
Maximum load	30 g	70 g
Orbit	4 mm	2 mm
Dimensions	90x150x80 mm	120x180x100 mm
Working current / Power consumption	12 V, 320 mA / 3.8 W	
External power supply	in AC 100-240 V, 50/60 Hz, out DC 12 V	
Weight ²	0.8 kg	1.5 kg

Optional accessories	Description	Catalogue number
PV-6/10 for V-32	6-socket platform for 10 ml tubes, maximum ø 15 mm	BS-010207-BK
PV-48 for V-32	6 strip platform, 8x0.2 ml each or for 48 microtubes 0.2 ml each	BS-010207-GK

Replacement parts	Description	Catalogue number
PV-32 for V-32	32-socket platform for Eppendorf type microtubes, 1.5/0.5/0.2 ml - 16/8/8 sockets	BS-010207-CK
PL-1 for V-32	Platform for single tube vortexing, 0.2 - 50 ml in volume	BS-010207-GK

7. Care and maintenance

- 7.1. If the unit requires maintenance, disconnect the unit from the mains and contact Biosan or your local Biosan representative.
- 7.2. All maintenance and repair operations must be performed only by qualified and specially trained personnel.
- 7.3. Standard ethanol (75%) or other cleaning agents recommended for cleaning of laboratory equipment can be used for cleaning and decontamination of the unit.

¹ Maintain at least 1 hour long pause between prolonged continuous operations

² Accurate within ± 10%

8. Warranty

- 8.1. The Manufacturer guarantees the compliance of the unit with the requirements of Specifications, provided the Customer follows the operation, storage and transportation instructions.
- 8.2. The warranted service life of the unit from the date of its delivery to the Customer is 24 months. For extended warranty, see **8.5**.
- 8.3. Warranty covers only the units transported in the original package.
- 8.4. If any manufacturing defects are discovered by the Customer, an unsatisfactory equipment report shall be compiled, certified and sent to the local distributor address. To obtain the claim form, visit section **Technical support** on our website at link below.
- 8.5. Extended warranty. For **V-1 plus & V-32**, the *Basic Plus* class models, extended warranty is a paid service. Contact your local Biosan representative or our service department through the **Technical support** section on our website at the link below.
- 8.6. Description of the classes of our products is available in the **Product class description** section on our website at the link below.

Technical support



biosan.lv/en/support

Product class description



biosan.lv/classes-en

- 8.7. The following information will be required in the event that warranty or post-warranty service comes necessary. Complete the table below and retain for your records.

Model	V-1 plus personal vortex V-32 multi-vortex
Serial number	
Date of sale	

9. EU Declaration of conformity

EU Declaration of Conformity

Unit type	Rockers, shakers, rotators, vortexes
Models	MR-1, MR-12; 3D, Multi Bio 3D, PSU-10i, PSU-20i, OS-20, MPS-1, PSU-2T; Bio RS-24, Multi Bio RS-24, Multi RS-60; V-1 plus, V-32, MSV-3500
Serial number	14 digits styled XXXXXYYMMZZZZ, where XXXXXX is model code, YY and MM – year and month of production, ZZZZ – unit number.
Manufacturer	SIA BIOSAN Latvia, LV-1067, Riga, Ratsupites str. 7/2
Applicable Directives	EMC Directive 2014/30/EU LVD Directive 2014/35/EU RoHS2 2011/65/EU WEEE 2012/19/EU
Applicable Standards	<u>LVS EN 61326-1: 2013</u> Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements. <u>LVS EN 61010-1: 2011</u> Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements. <u>LVS EN 61010-2-051: 2015</u> Particular requirements for laboratory equipment for mixing and stirring.

We declare that this product conforms to the requirements of the above Directives



Signature

Svetlana Bankovska
Managing director

19.07.2016.

Date



Signature

Aleksandr Shevchik
Engineer of R&D

19.07.2016

Date

HOW TO CHOOSE

A PROPER SHAKER, ROCKER, VORTEX

bioSan

Medical-Biological
Research & Technologies

Sample volume $10^3 \dots 10^2$ ml

Erlenmeyer flasks and
Cultivation flasks



Sample volume 10^1 ml

Petri dishes, vacutainers
and tubes up to 50 ml



Sample volume $10^0 \dots 10^{-3}$ ml

PCR plates, microtest plates
and Eppendorf type tubes



PSU-20i, Orbital Shaker

ES-20/60, Orbital
Shaker-Incubator



PSU-10i,
Orbital Shaker



ES-20, Orbital
Shaker-Incubator



MR-12,
Rocker-Shaker



Applications:
Microbiology
Extraction
Cell cultivation

Multi RS-60,
Programmable rotator

Bio RS-24,
Mini-Rotator



NEW

RTS-1 and RTS-1C,
Personal bioreactors



MR-1,
Mini Rocker-Shaker

Applications:
Agglutination
Gel staining/
destaining



Multi Bio 3D, Mini Shaker

Applications:
Agglutination
Extraction
Blot hybridisation
Gel staining/destaining

Multi Bio RS-24,
Programmable
rotator

Applications:
Microbiology
Extraction
Cell cultivation
Hematology

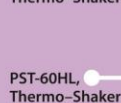


V-1 plus,
Vortex

MSV-3500,
Multi Speed Vortex

Applications:
Nucleic acid Analysis
Molecular Analysis
Protein Analysis
Genomic Analysis

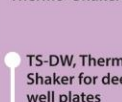
PST-60HL-4,
Thermo-Shaker



PST-60HL,
Thermo-Shaker



PST-100HL,
Thermo-Shaker



TS-DW, Thermo-Shaker for deep well plates



Applications:
ELISA Analysis
Genomic Analysis
Hybridization
Immunology

MPS-1,
Multi Plate Shaker



PSU-2T,
Mini-Shaker



NEW

CVP-2, Centrifuge
vortex for PCR
plates



TS-100, TS-100C, Thermo-Shakers



V-32, Multi-Vortex



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