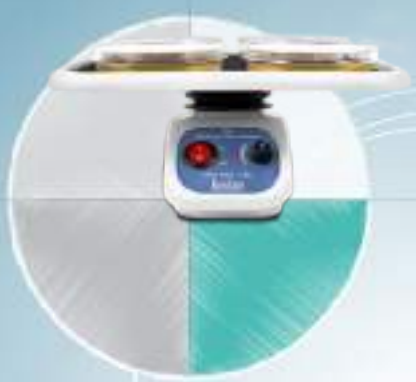
MIXING DEVICES:

# ROCKERS, SHAKERS, ROTATORS, VORTEXES, HOMOGENIXER



**3D**
Sunflower Mini-shaker

**MPS-1**
High-Speed Multi Plate Shaker

**Multi Bio RS-24**
Programmable rotator

# MR-1, Mini Rocker–Shaker

DESCRIPTION

Mini Rocker-Shaker **MR-1** provides regulated gentle rocking motion of the platform and is ideal for mini gel destaining after electrophoresis, conducting Northern, Southern and Western blot analysis.

Shaker is a compact, noiseless device designed for personal use. Drive and brushless motor allow continuous mixing up to 7 days and ensures reliable, trouble-free operation for more than 2 years.

Non-slip, temperature resistant, silicone mat located on the rocker's platform provides a stable position for vessels during shaking. Optional dimpled PDM mat fixes tubes of different sizes.

The unit is designed for operation in cold rooms, incubators (excluding $CO_2$ 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.

Basic Plus
Product Class


7° Rocking uni-rotation

Product video is available on the website

ACCESSORIES FOR THE STANDARD PLATFORM:

Optional dimpled mat **PDM** prevents different size tubes from rolling around the platform

# MR-12, Rocker–Shaker

DESCRIPTION

**MR-12** Rocker–Shaker provides both soft and intensive mixing of solutions or nutrient media in vessels or plastic bags placed on the platform. Adjustable speed and platform tilt angle allows setting parameters for optimal solution transfer and mixing.

The device is ideal for gel destaining after electrophoresis and homogenisation of bioextraction media. It is optimal for biomolecule hybridisation on strips and staining/destaining procedures. When installed inside a bioincubator it is ideal for growing cells and cell cultures in disposable plastic reactor-bags (working volumes up to 10 litres, media volumes up to 5 litres).

The unit is designed for operation in cold rooms, incubators (excluding $CO_2$ 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. Low voltage external power supply (12V) provides electrical safety in humid environment.

Premium
Product Class


0–10° Rocking uni-rotation with adjustable tilt

# MR-1 and MR-12, Rocker-Shakers



| | MR-1 | MR-12 |
|---|---|---|
| Mixing frequency range | 1–30 oscill./min | 1–99 oscill./min (increment 1 oscill./min) |
| Fixed tilt angle | 7° (fixed) | 0°–10° (increment 1°) (for 1–50 oscill./min)<br>10° (for 51–99 oscil./min) |
| Max. continuous operation time | 168 h | |
| Digital time setting | 1 min–24 h/non-stop | 1 min–99 h 59 min<br>(increment 1 min)/non-stop |
| Timer sound signal | — | yes |
| Non-slip silicone mat is supplied as standard | 215 × 215 mm | 480 × 380 mm |
| Maximum load | 1 kg | 5 kg |
| Display | LED | LCD, 2 × 16 signs |
| Platform working area | 215 × 215 mm | 480 × 380 mm |
| Overall dimensions (W×D×H) | 220 × 205 × 120 mm | 430 × 480 × 210 mm |
| Weight | 2.1 kg | 11.9 kg |
| Input current/power consumption | 12 V, 320 mA/3.8 W | 12 V, 1.1A/13 W |
| External power supply | Input AC 100–240 V, 50/60 Hz;<br>Output DC 12 V | |

PDM, dimpled mat

MR-1 with PDM dimpled mat

MR-12

ORDERING INFORMATION: Cat. number

| | |
|---|---|
| **MR-1** with standard platform **Bio PP-4S** | BS-010152-AAG |
| **MR-12** with standard platform **PP-480** | BS-010130-AAI |
| Optional accessories: for MR-1: | |
| **PDM,** dimpled mat | PDM |

## 3D, Sunflower Mini-Shaker

DESCRIPTION

"Sunflower" **3D** Mini–Shaker provides adjustable three-dimensional smooth rotation of the platform and is designed for mixing blood samples, minigel staining and destaining, sample washing, blot hybridisation reactions.

Mini–Shaker is a compact device with low energy consumption. The use of direct drive and brushless motor allows continuous mixing up to 7 days and ensures reliable, trouble-free operation for many years.

Non–slip, temperature resistant, silicone mat located on the shaker's platform provides a stable position for vessels during shaking. The platform is suitable for placing a versatile dimpled PDM mat for different size tubes.

Mini–Shaker can be used in cold rooms or incubators, operating at ambient temperature range +4°C to +40°C.

Basic Plus
Product Class

3D — uni–rotation

Product video is available on the website

## Multi Bio 3D, Programmable mini-shaker («Sunflower» type)

DESCRIPTION

Programmable mini-shaker **Multi Bio 3D** is designed for various applications: hybridization reactions, cell growing, gel washing, soft extraction and homogenisation of biological components in solutions.

Multi Bio 3D provides realization of several types of motion in one module. This option of Biosan instruments essentially extends possibilities and enhances the efficiency of preparation of test samples as well as allows selecting the mixing type according to individual requirements.

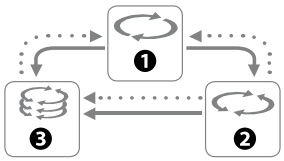
Microprocessor control allows performing ❶ **Orbital 3D rotation** of the platform and but also ❷ **Reciprocal 3D motion** (of ping–pong type) and ❸ **Soft vibrating rocking.** These three motion types can be performed separately, pairwise and in cycles, periodically repeating the sequence of three motion types. The shaker is designed for laboratories with increased demands for the quality of mixing, extraction and cell growing processes.

Non–slip, temperature resistant, silicone mat located on the shaker platform provides a stable position for vessels during shaking. Optional dimpled PDM mat fixes tubes of different sizes.

Programmable shaker can be used in cold rooms or incubators, operating at the ambient temperature range +4°C to +40°C.

Premium
Product Class

Ø 22 mm orbit




Multi–rotation

Product video is available on the website

# 3D Mini-Shaker and Multi Bio 3D, Programmable 3D shaker («Sunflower» type)

| | 3D | Multi Bio 3D |
|---|---|---|
| ❶ Speed control range (orbital and reciprocal motion) | 5–60 rpm | 1–100 rpm |
| ❷ Turning angle (reciprocal motion) | — | 0–360° (increment 30°) |
| ❸ Rocking angle (vibro motion) | — | 0–5° (increment 1°) |
| Fixed tilt angle | 7° | |
| Orbit | — | 22 mm |
| Platform working area | 215 × 215 mm | |
| Non-slip silicone mat is supplied as standard | | |
| Maximum continuous operation time | 168 h | 24 h |
| Time setting range for ❶ ❷ | — | 0–250 s |
| Time setting range for ❸ | — | 0–5 s |
| Number of cycles | — | 0–125 times |
| Timer sound signal | — | yes |
| Maximum load | 1 kg | |
| Overall dimensions (W × D × H) | 235 × 235 × 140 mm | |
| Weight | 1.2 kg | 1.8 kg |
| Input current/power consumption | 12 V, 260 mA/3.1 W | 12 V, 380 mA/4.6 W |
| External power supply | Input AC 100–240 V, 50/60 Hz; Output DC 12 V | |

Accessories for the standard platform:

Optional dimpled mat **PDM** prevents different size tubes from rolling around the platform

PDM, dimpled mat

Multi Bio 3D with PDM mat

ORDERING INFORMATION:

| | Cat. number |
|---|---|
| **3D** with stand. platform **Bio PP-4S** | BS-010151-AAG |
| **Multi Bio 3D** with stand. platform **Bio PP-4S** | BS-010125-AAG |

Optional accessories:

| | |
|---|---|
| **PDM** dimpled mat | PDM |

# PSU-10i, Orbital Shaker

DESCRIPTION

Shaker **PSU-10i** provides regulated orbital motion of the platform and is designed for use both in small specialized biotechnological laboratories and in large multidisciplinary laboratories: a choice of five (5) interchangeable platforms provides the possibility of performing various procedures and techniques.

Shaker **PSU-10i** incorporates a direct drive system, a brushless motor with a guaranteed service life of up to 35,000 hours and an automatic loading balancing system. These innovations allow for continuous mixing up to 7 days, ensure reliable, trouble-free operation for more than 2 years and significantly expand the device performance range in both high and low limits.

The unit is designed for operation in cold rooms, incubators (excluding $CO_2$ 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.

Premium
Product Class

Ø 10 mm orbit

Product video is available on the website

# PSU-20i, Orbital Shaker

DESCRIPTION

Shaker **PSU-20i** provides three motion types: ❶ **Orbital,** ❷ **Reciprocal** and ❸ **Vibrating,** which can be performed separately, pairwise and sequentially in repeated cycles.

Shaker is designed for applications both in small specialized laboratories and in large multidisciplinary laboratories. **PSU-20i** is an ideal instrument for laboratories researching biopharmaceutics and biomedicine.

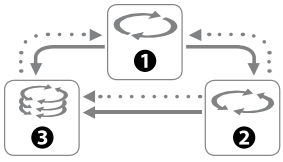
Shaker **PSU-20i** is noiseless and reliable in operation, incorporates a direct drive system and brushless motor with a guaranteed service life up to 35,000 working hours. Direct drive and brushless motor allows for continuous mixing for up to 7 days and ensures reliable operation for more than two years.

A choice of nine different interchangeable platforms provides the possibility of performing various procedures and techniques. Special attention should be paid to a multilevel platform, which allows accommodation of a large number of various microplates, Petri dishes, cultural bags and other low containers.

The unit is designed for operation in cold rooms, incubators (excluding $CO_2$ 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.

Premium
Product Class

Ø 20 mm orbit




Multi-motion

**Description and pictures of all platforms can be found on page 22-23**

# PSU-10i and PSU-20i, Orbital Shakers



| | PSU-10i | PSU-20i |
|---|---|---|
| Multi-motion | — | yes |
| Speed control range* | 50–450* rpm (increment 10 rpm) | 20–250* rpm (increment 5 rpm) |
| Digital speed control | yes | |
| Max. continuous operation time | 168 h | |
| Orbit | 10 mm | 20 mm |
| Digital time setting | 1 min–96 h/non-stop | |
| Timer sound signal | yes | |
| Maximum load | 3 kg | 8 kg |
| Overall dimensions (W×D×H) | 255 × 255 × 100 mm | 410 × 410 × 130 mm |
| Weight | 3.4 kg | 11.7 kg |
| Input current/power consumption | 12 V, 800 mA/9.6 W | 12 V, 3.2 A/40 W |
| External power supply | Input AC 100–240 V, 50/60 Hz; Output DC 12 V | |

* — max. speed depends on the load and vessels' shape

Platform P-6/250 for PSU-10i

Platform Bio PP-4 for PSU-10i

Platform for PSU-20i PP-20/4

Platform Bio PP-4 for PSU-10i

ORDERING INFORMATION:

| | Cat. number |
|---|---|
| **PSU-10i,** Shaker without platform | BS-010144-AAN |
| **PSU-20i,** Shaker without platform | BS-010145-ACI |

| **PSU-20i** motion types | Description | Speed range | Turning angle | Motion timer* | Digital time setting |
|---|---|---|---|---|---|
| ❶ Orbital | Orbital motion with an option of shifting direction | 20–250 rpm | — | 0–250 s | 1 min–96 h (increment 1 min) or non-stop |
| ❷ Reciprocal | Orbital motion with shifting direction of rotation | 20–250 rpm | 0–360° (30° increment) | 0–250 s | |
| ❸ Vibrating | High speed, low amplitude motion | — | 0–5° (1° increment) | 0–5 s | |

* — for switching to the next motion in the cycle

**Description and pictures of all platforms can be found on page 22-23**

# Platforms for **PSU-10i** and **ES-20**

| Platform | Description | Dimensions (Working area) | Cat. number |
|---|---|---|---|
| **UP-12** Used on PSU-10i, ES-20  | Universal platform with adjustable bars for different types of flasks, bottles and beakers with silicone mat | 285 × 220 × 40 mm (270 × 185 × 40 mm) | BS-010108-AK |
| **Bio PP-4** Used on PSU-10i  | Flat platform with silicone mat for Petri dishes, culture flasks, agglutination cards | 255 × 255 mm (230 × 230 mm) | BS-010116-AK |
| **PP-4** Used on ES-20, PSU-10i  | Metallic flat platform with silicone mat for Petri dishes, culture flasks, agglutination cards | 220 × 220 mm (215 × 215 mm) | BS-010108-BK |
| NEW **SPM**  | Double-sided adhesive mat as an alternative for regular flask clamps (for PP-4) | 220 × 220 mm (1 per platform) | BS-010111-BK |
| **P-12/100** Used on PSU-10i, ES-20  | Platform with clamps for flasks, 100–150 ml (12 places) | 250 × 190 mm (250 × 190 mm) | BS-010108-EK |
| **P-6/250** Used on PSU-10i, ES-20  | Platform with clamps for flasks, 250–300 ml (6 places) | 250 × 190 mm (250 × 190 mm) | BS-010108-DK |
| **P-16/88** Used on PSU-10i, ES-20  | Platform with spring holders for up to 88 tubes up to 30 mm diameter (e. g. 10 ml, 15 ml, 50 ml tubes) | 275 × 205 × 75 mm (275 × 205 × 75 mm) | BS-010116-BK |

## **SPML, SPM,** Double-sided adhesive strips and mat NEW

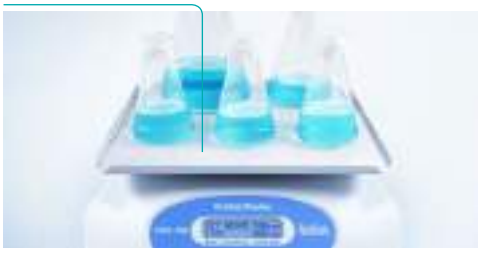
DESCRIPTION

Convenient alternative to traditional steel holders, an easy way to fix tubes, plates, flasks and other laboratory wares on platforms for cultivation, incubation and mixing. Two size options are offered **SPML** can be used with UP-168 platform on Biosan orbital shaker PSU-20i and in ES 20/80, ES 20/60 orbital shakers.

**SPM** is compatible with PP-4 platform, which fits both on PSU-10i orbital shaker and in ES-20 Shaker-Incubator.

Made of polyurethane with adhesive, simple to clean and durable, able to withstand up to 1,000 times placement/removal or 12 months of use. Additional information about temperature, working volume and speed limitations available in the user manual.

SPM on PP-4 platform



SPML on UP-168 platform

SPECIFICATIONS

| | |
|---|---|
| SPML Size (L×W×H) | 390 × 80 × 3 mm (double sided 1.5 mm PU with PET adhesive) |
| SPM Size (L×W×H) | 210 × 210 × 3 mm (double sided 1.5 mm PU with PET adhesive) |
| Colour | transparent |
| Duration of use | up to 1,000 times placement/removal or 12 months |
| Temperature range | +4C° to +80C° |
| Shaking speed | 0–300 rpm |

ORDERING INFORMATION:

| | Cat. number |
|---|---|
| **SPM,** Double-sided adhesive mat | BS-010111-BK |
| **SPML,** Set of 3 double-sided adhesive strips | BS-010135-MK |

# Platforms for **PSU-20i** and **ES-20/60**

| Platform | Description | Dimensions (Working area) | Cat. number |
|---|---|---|---|
| **UP-330** Used on PSU-20i | Universal platform with adjustable bars for different types of flasks, beakers | 345 × 430 × 105 mm (300 × 400 × 80 mm) | BS-010145-AK |
| **P-30/100** Used on PSU-20i, ES-20/60 | Platform with 30 clamps for 100–150 ml flasks | 360 × 400 mm (360 × 400 mm) | BS-010135-BK |
| **P-16/250** Used on PSU-20i, ES-20/60 | Platform with 16 clamps for 250–300 ml flasks | 360 × 400 mm (360 × 400 mm) | BS-010135-CK |
| **P-9/500** Used on PSU-20i, ES-20/60 | Platform with 9 clamps for 500 ml flasks | 360 × 400 mm (360 × 400 mm) | BS-010135-AK |
| **P-6/1000** Used on PSU-20i, ES-20/60 | Platform with 6 clamps for 1,000 ml flasks | 360 × 400 mm (360 × 400 mm) | BS-010135-DK |
| **PP-400** Used on PSU-20i, ES-20/60, ES-20/80 | Flat platform with non-slip silicone mat | 360 × 400 mm (360 × 400 mm) | BS-010135-FK |
| **UP-168** Used on ES-20/60, ES-20/8 | Universal platform for different flasks (Clamps ordered separately) | 360 × 400 mm (360 × 400 mm) | BS-010135-JK |
| **FC-50**<br>**FC-100**<br>**FC-250**<br>**FC-500**<br>**FC-1000**<br>**FC-2000** used on PSU-20i | Clamp for 50, 100, 250, 500, 1000, 2,000 ml flask (for UP-168) | Ø 50 mm<br>Ø 65 mm<br>Ø 85 mm<br>Ø 105 mm<br>Ø 130 mm<br>Ø 165 mm | BS-010126-MK<br>BS-010126-HK<br>BS-010126-JK<br>BS-010126-LK<br>BS-010126-IK<br>BS-010126-NK |
| NEW **SPML** | Set of 3 double-sided adhesive strips as an alternative for regular flask clamps (for UP-168) | 390 × 80 × 3 mm (3 per platform) | BS-010135-MK |
| **TR-21/50** | Test tube rack for 50 ml with 21 drillings (for UP-168) | 340 × 124 mm (2 per platform) | BS-010135-KK |
| **TR-44/15** | Test tube rack for 15 ml with 44 drillings (for UP-168) | 340 × 124 mm (2 per platform) | BS-010135-LK |
| **PP-20/4** Used on PSU-20i | Four-level flat platform with non-slip rubber mat | 380 × 480 × 510 mm (365 × 465 × 510 mm) | BS-010126-EK |
| **PP-20/3** Used on PSU-20i | Three-level flat platform with non-slip rubber mat | 380 × 480 × 340 mm (365 × 465 × 340 mm) | BS-010126-DK |
| **PP-20/2** Used on PSU-20i | Two-level flat platform with non-slip rubber mat | 380 × 480 × 170 mm (65 × 465 × 170 mm) | BS-010126-CK |
| **PP-20** Used on PSU-20i | One-level flat platform with non-slip rubber mat | 380 × 480 mm (365 × 465 mm) | BS-010126-BK |

# MPS-1, High–Speed Multi Plate Shaker

Premium
Product Class


Vortex



DESCRIPTION

High–Speed Multi Plate Shaker **MPS-1** can be used in virtually any application by providing adjustable mixing of reagents in microtest plates, PCR plates, deepwell plates and test tubes (shaking tubes 0.2 to 2 ml and vortexing any volume up to 50 ml).

The shaker is compact and user–friendly. The shaker is ideal for personal use.

**MPS-1** features a head for vortexing a single tube.

The unit is designed for operation in cold rooms, incubators (excluding $CO_2$ 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. Low voltage external power supply (12 V) provides electrical safety in a humid environment.

**MPS-1** features **Pulse Mode** mixing function that works on the principle of giving a periodic impulse: the tube is accelerated to the set speed, holds it for 3 seconds and then drops the speed to zero. This motion is repeated until the timer runs out. This method provides a constant state particle resuspension inside a tube, as the acceleration is always changing. The advantage of this method is the high throughput of mixed samples compared to vortexing a single tube.

Product video is available on the website

## Features

- Speed control range 300–3,200 rpm
- Stable mixing with 3 mm orbit
- Five mixing presets
- **Pulse Mode** mixing function
- Quiet operation — low noise at maximum speed
- Universal platform holder for Deepwell plates and Microtest plates
- Additional four platforms for semiskirted and unskirted PCR plates 200 µl as well as for tubes from 0.2 to 2 ml

# MPS-1, High–Speed Multi Plate Shaker

SPECIFICATIONS

Vortexing a 50 ml tube

Vortexing a 15 ml tube

Deepwell plate 96/1000 µl

Microtest plate 200 µl

Deepwell plate 96/500 µl

| | |
|---|---|
| Mixing Speed control range | 300–3,200 rpm |
| Platform options: | |
| – For semi-\unskirted PCR plate or 96 microtest tubes 0.2 ml | **P-02/96** |
| – For 24 microtest tubes 1.5–2 ml | **P-2/24** |
| – For 32 microtest tubes 0.5 ml | **P-05/32** |
| – For 24 microtest tubes 0.5 ml and 48 microtest tubes 0.2 ml | **P-02/05** |
| – Universal platform for deepwell plates, 96-well microtest plates (U, V or flat bottomed), 384-well microtest plates | |
| Types of mixing presets: | |
| VORTEX | 3,200 rpm |
| HARD | 2,600 rpm |
| MEDIUM | 1,800 rpm |
| SOFT | 1,000 rpm |
| CUSTOM | adjustable rpm |
| Features a **Pulse Mode** mixing function | |
| Features a Vortex function | |
| Maximum load | 0.3 kg |
| Mixing Orbit | 3 mm |
| Acceleration time to maximum speed | 5 s |
| Digital time setting | 0–60 min (15 s increment)/non-stop |
| Timer sound signal | yes |
| Maximum continuous operation time | 8 h |
| Noise level, not more | 65 dB |
| Weight | 5.1 kg |
| Overall dimensions (W×D×H) | 225 × 215 × 150 mm |
| Input current/power consumption | 12 V, 800 mA / 10 W |
| External power supply | Input AC 100–240 V 50/60 Hz; Output DC 12 V |

| ORDERING INFORMATION: | Cat. number |
|---|---|
| **MPS-1,** Multi Plate Shaker with built-in universal platform | BS-010216-A03 |
| **MPS-1,** Multi Plate Shaker with built-in universal platform and set of 4 platforms (P-02/96, P-2/24, P-05/32, P-02/05) | BS-010216-A11 |

| Optional platforms: | | Cat. number |
|---|---|---|
| ❶ **P-02/96** | For semi-/unskirted PCR plate or 96 microtest tubes 0.2 ml | BS-010216-CK |
| ❷ **P-2/24** | For 24 microtest tubes 1.5–2 ml | BS-010216-AK |
| ❸ **P-05/32** | For 32 microtest tubes 0.5 ml | BS-010216-BK |
| ❹ **P-02/05** | For 24 microtest tubes 0.5 ml and 48 microtest tubes 0.2 ml | BS-010216-DK |

❶ Platform **P-02/96**

❷ Platform **P-2/24**

❸ Platform **P-05/32**

❹ Platform **P-02/05**

# PSU-2T, Mini–Shaker

## DESCRIPTION

Mini–Shaker **PSU-2T** is designed for immunoassays and provides adjustable mixing of reagents in microplates. The device ensures smooth movement of the platform even at low speeds.

Shaker is a compact and user-friendly device. It takes up little space on a desk and is ideal for personal use. Direct drive and brushless motor allow continuous mixing up to 7 days and ensures reliable, trouble-free operation for more than 2 years. Display of the device switches between time and speed readings.

The unit is designed for operation in cold rooms, incubators (excluding $CO_2$ 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.

Basic Plus
Product Class

Ø 2 mm orbit

Product video is available on the website

## SPECIFICATIONS

| | |
|---|---|
| Speed control range | 150–1,200 rpm |
| Digital time setting | 1 min–24 h/non-stop |
| Digital setting and control of time and speed | |
| Max. continuous operation time | 168 h |
| Direct drive mechanism | |
| Orbit | 2 mm |
| Overall dimensions (W×D×H) | 220 × 205 × 90 mm |
| Weight | 2 kg |
| Input current/ power consumption | 12 V, 280 mA/3.4 W |
| External power supply | Input AC 100–240 V, 50/60 Hz; Output DC 12 V |

Ⓐ Platform IPP-2

Ⓑ Platform IPP-4

## ORDERING INFORMATION:

| | Cat. number |
|---|---|
| **PSU-2T** with standard platform **IPP-2** | BS-010155-AAG |

Optional platforms

| | |
|---|---|
| **IPP-4** | BS-010102-AK |

Platforms for microtest plates:

| | |
|---|---|
| Ⓐ **IPP-2** (standard platform) for 2 microtest plates | 184 × 132 mm |
| Ⓑ **IPP-4** (optional platform) for 4 microtest plates | 266 × 170 mm |

# Multi Bio RS-24 and Multi RS-60, rotators



Premium
Product Class

Multi Bio RS-24

Product video is available on the website

Premium
Product Class

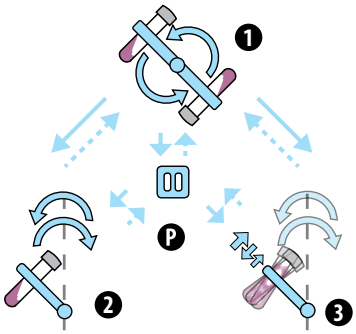
Multi RS-60

Product video is available on the website

Programmable Rotators performs several motion types in one module. Microprocessor control allows performing not only ❶ **Vertical overhead rotation** of the platform, but also ❷ **Reciprocal rotation (rocking motion)** as well as ❸ **Vibration.** These three motion types can be performed separately, pairwise and in cycles, periodically repeating the sequence of three motion types. Multi–Rotation option of Biosan instruments substantially expands possibilities and enhances the efficiency of sample preparation for the examined materials and allows adjusting the mixing procedure according to the individual tasks.

Programmable Rotators can be used for variety of applications in modern life science laboratories: for hybridisation reactions, cell growing, soft extraction and homogenisation of biological components in solutions, as well as for reactions of binding and washing of magnetic particles.

**Multi Bio RS-24** and **Multi RS-60** are designed for operation in cold rooms, incubators (excluding $CO_2$ 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. Low voltage external power supply (12 V / 24V) provides electrical safety in a humid environment.




It is possible to choose the position of tubes for rocking motion – horizontal or vertical. The platform does not make an additional revolution before stopping in the horizontal plane.

Programmable Rotator provides 3 rotation types and Pause:

- ❶ Vertical overhead rotation
- ❷ Reciprocal rotation (rocking motion)
- ❸ Vibro
- Ⓟ Pause

**Description and pictures of all platforms can be found on page 29**

# Multi Bio RS-24 and Multi RS-60, rotator

SPECIFICATIONS

| | Multi Bio RS-24 | Multi RS-60 |
|---|---|---|
| **❶ Vertical overhead rotation:** | | |
| Speed control range | 1–100 rpm (increment 1 rpm) | |
| Vertical rotation movement | 360° | |
| Time setting range | 0–250 s | |
| **❷ Reciprocal rotation (rocking motion):** | | |
| Speed control range | 1–100 rpm (increment 1 rpm) | |
| Tilt angle range | 1–90° (increment 1°) | |
| Time setting range | 0–250 s | |
| **❸ Vibro:** | | |
| Tilt angle range | 0–5° (increment 1°) | |
| Pause/Vibro time setting range | 0–5 s | |
| GENERAL SPECIFICATIONS: | | |
| Digital time setting | 1 min–24 h/non-stop (increment 1 min) | |
| Timer sound signal | yes | |
| Maximum load | 0.5 kg | 0.8 kg |
| Overall dimensions (W × D × H) | 365 × 195 × 155 mm | 430 × 230 × 230 mm |
| Weight | 1.7 kg | 3.8 kg |
| Input current/power consumption | 12 V, 660 mA/8 W | 24 V, 750 mA/18 W |
| External power supply | Input AC 100–240 V, 50/60 Hz; Output DC 12 V | Input AC 100–240 V, 50/60 Hz; Output DC 24 V |

Multi Bio RS-24 with optional platform PRSC-22

Multi RS-60 with standard platform PRS-48

ORDERING INFORMATION:

| | Cat. number |
|---|---|
| **Multi Bio RS-24** with standard platform **PRS-26** | BS-010117-AAG |
| **Multi RS-60** with standard platform **PRS-48** | BS-010118-AAI |
| Optional platforms for Multi Bio RS-24: | |
| **PRS-5/12** | BS-010117-HK |
| **PRS-10** | BS-010117-IK |
| **PRSC-22** | BS-010117-LK |
| **PRSC-10** | BS-010117-JK |
| **PRS-1DP** | BS-010149-DK |
| **M-8/50** | BS-010117-PK |
| Optional platforms for Multi RS-60: | |
| **PRS-8/22** | BS-010118-AK |
| **PRS-14** | BS-010118-BK |

**Description and pictures of all platforms can be found on page 29**

# Platforms for Multi Bio RS-24

| Standard: | Capacity | Tube Volume | Tube Diameter | Cat. number |
|---|---|---|---|---|
| ❶ **PRS-26** | 26 | 1.5–15 ml | 10–16 mm | BS-010117-GK |
| Optional | | | | |
| ❷ **PRS-5/12** | 5 and 12 | up to 50 and 1.5–15 ml | 20–30 and 10–16 mm | BS-010117-HK |
| ❸ **PRS-10** | 10 | up to 50 ml | 20–30 mm | BS-010117-IK |
| ❹ **PRSC-22** | 22 | 15 ml | 16 mm | BS-010117-LK |
| ❺ **PRSC-10** | 10 | 50 ml | 25–30 mm | BS-010117-JK |
| ❻ **M-8/50** | 8 | 50 ml | 25–30 mm | BS-010117-PK |
| ❼ **PRS-1DP** | Platform for microplates and racks for tall tubes 0.5 and 1 ml (e.g. Thermo 3741MTX, 3742MTX, 3744MTX) | | | BS-010149-DK |

❶ PRS-26

❷ PRS-5/12

❸ PRS-10

❹ PRSC-22

❺ PRSC-10

❻ M-8/50

❼ PRS-1DP

Clamps on PRSC-10

**PRS** series platforms are equipped with universal rubber clamps for different size tube fixation;
**PRSC** series platforms have metal clamps able to hold heavier solutions (e.g. soil, sand).

# Platforms for Multi RS-60

| Standard: | Capacity | Tube Volume | Tube Diameter | Cat. number |
|---|---|---|---|---|
| ❶ **PRS-48** | 48 | 1.5–15 ml | 10–16 mm | BS-010118-CK |
| Optional: | | | | |
| ❷ **PRS-8/22** | 8 and 22 | up to 50 and 1.5–15 ml | 20–30 and 10–16 mm | BS-010118-AK |
| ❸ **PRS-14** | 14 | up to 50 ml | 20–30 mm | BS-010118-BK |

❶ PRS-48

❷ PRS-8/22

❸ PRS-14

# Bio RS-24, Mini–Rotator

DESCRIPTION

Mini-rotator **Bio RS-24** provides vertical rotation of the platform. The rotator is an ideal instrument for preventing blood coagulation in tubes and fulfilling of procedures of biological components extraction.

The device is simple to operate; it is designed as a low-cost solution.

The unit is designed for operation in cold rooms, incubators (excluding $CO_2$ 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. Low voltage external power supply (12 V) provides electrical safety in a humidenvironment.

Basic Plus
Product Class

Vertical rotation 360°

Bio RS-24 in operation

SPECIFICATIONS

| | |
|---|---|
| Speed control range | 5–30 rpm |
| Vertical rotation movement | overhead, 360° |
| Digital time setting | 1 min–24 h/non-stop (increment 1 min) |
| Timer sound signal | yes |
| Maximum continuous operation time | 8 h |
| Overall dimensions (W×D×H) | 325 × 190 × 155 mm |
| Weight | 1.4 kg |
| Recommended load | 75% of the rated volume |
| Input current/power consumption | 12 V, 110 mA/1.3 W |
| External power supply | Input AC 100–240 V 50/60 Hz; Output DC 12 V |

**PRS** series platforms are equipped with universal rubber clamps for different size tube fixation;

**PRSC** series platforms have metal clamps able to hold heavier solutions (e.g. soil, sand).

ORDERING INFORMATION: Cat. number

| | |
|---|---|
| **Bio RS-24** | |
| with standard platform **PRS-22** | BS-010133-AAG |
| Optional platforms: | |
| **PRS-4/12** | BS-010117-AK |
| **PRSC-18** | BS-010117-EK |

| Platform | Capacity | Tube Volume | Tube Diameter, Ø |
|---|---|---|---|
| ❶ **PRS-22** (standard) | 22 | 1.5–15 ml | 10–16 mm |
| ❷ **PRS-4/12** (optional) | 4 and 12 | up to 50 and 1.5–15 ml | 20–30 mm and 10–16 mm |
| ❸ **PRSC-18** (optional) | 18 | 15 ml | 16 mm |

❶ PRS-22

❷ PRS-4/12

❸ PRSC-18

# V-1 plus and V-32, Vortexes



Basic Plus
Product Class



**V-1 plus** vortex and **V-32** multi vortex are intended for intensive mixing of samples in tubes with an eccentric mechanism.

**Vortex can be used for different operations:**

- 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.

Vortex can be used to perform various DNA/RNA operations, such as purification of low-molecular DNA/RNA fragments in PCR-diagnostics.

Vortex is applicable in all the fields of laboratory research in biotechnology, microbiology and medicine.

**Vortexes have two operation modes**:

- Continuous operation;
- Impulse operation. (**V1 plus** pressure activated)

Model **V-1 plus** is a personal vortex with a fluoroplastic head for single tube 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 1,5 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 six strips of eight 0.2 ml microtubes can be supplied on request.

Basic Plus
Product Class



Product video is available on the website

# V-1 plus and V-32, Vortexes

SPECIFICATIONS

| | V-1 plus | V-32 |
|---|---|---|
| Mixing principle | Vibro Eccentric | |
| Speed control range | 500–3,000 rpm | |
| Acceleration time | <1 s | 3 s |
| Maximum continuous operation time | 24 h | |
| Timer sound signal | — | |
| Mixing module for tubes | from 0.2 to 50 ml | from 0.2 to 10 ml |
| Maximum mixing volume | 30 ml | 45 ml |
| Maximum load | 30 g | 70 g |
| Orbit | 4 mm | 2 mm |
| Dimensions (W×D×H) | 90 × 150 × 80 mm | 120 × 180 × 100 mm |
| Weight | 0.8 kg | 1.5 kg |
| Input current/power consumption | 12 V, 320 mA/3.8 W | |
| External power supply | Input AC 100–240 V, 50/60 Hz; Output DC 12 V | |

V-1 Plus

V-1 Plus

V-1 Plus

Platform PV-6/10 for V-32

Platform PV-48 for V-32

V-32 with platform PV-48

## ORDERING INFORMATION:

| | Cat. number |
|---|---|
| **V-1 plus** | BS-010203-AAG |
| **V-32** with standard platforms **PL-1** and **PV-32** | BS-010207-AAG |
| Optional platforms for V-32: | |
| **PV-6/10** platform for 6–10 ml tubes (max. Ø 15 mm) | BS-010207-BK |
| **PV-48,** platform for 6–8 × 0.2ml strips or 48 tubes of 0.2 ml | BS-010207-GK |

# MSV-3500, Multi Speed Vortex

Basic Plus
Product Class

MSV-3500 with platform SV-8/15


Vortex

Product video is available on the website

## ORDERING INFORMATION:

| | Cat. number |
|---|---|
| **MSV-3500** with all platforms | BS-010210-TAH |
| **MSV-3500** without platform | BS-010210-AAH |

## DESCRIPTION

Multi Speed Vortex **MSV-3500** is designed for soft or intensive mixing of reagents in different size and type plastic tubes (0.2 to 50 ml).

It is designed for operation in life science laboratories working in biochemistry, cell and molecular biology.

Unit has four types of interchangeable platforms: for Eppendorf type microtest tubes, 10/15/50 ml tubes (diameter 12/16/30 mm). Platforms can be ordered separately or as one set with **MSV-3500**.

Speed and time are under microprocessor control. LCD display indicates two lines of values: the set and actual values of speed and time.

Unit provides high maximum speed of platform rotation efficiently mixing microvolumes (less than 5 µl) of samples.

## SPECIFICATIONS

| | |
|---|---|
| Speed control range | 300–3,500* rpm |
| Digital time setting | 0–60 min/non-stop (increment 1 min) |
| Timer sound signal | yes |
| Display | LCD, 2 × 16 signs |
| Orbit | 4 mm |
| Maximum load | 0.2 kg |
| Maximum continuous operation time | 8 h |
| Dimensions (W×D×H) | 180 × 170 × 145 mm |
| Weight | 2.6 kg |
| Input current/power consumption | 12 V, 1 A / 12 W |
| External power supply | Input AC 100–240 V, 50/60 Hz, Output DC 12 V |

* — Maximum speed depends on load

| Optional platforms: | | Cat. number |
|---|---|---|
| ❶ **SV-16/8** | Platform for 16 × 1.5 ml + 8 × 0.5 ml + 8 × 0.2 ml microtubes, Ø 11/8/6 mm | BS-010210-CK |
| ❷ **SV-10/10** | Platform for 10 × 10 ml tubes 12 mm diameter | BS-010210-BK |
| ❸ **SV-8/15** | Platform for 8 × 15 ml tubes 16 mm diameter | BS-010210-DK |
| ❹ **SV-4/30** | Platform for 4 × 50 ml tubes 30 mm diameter | BS-010210-AK |

❶ SV-16/8

❷ SV-10/10

❸ SV-8/15

❹ SV-4/30

# RCP-24, Homogenizer ANNOUNCEMENT

DESCRIPTION

Reciprocal Homogenizer **RCP-24,** a bench-top mechanical device designed for mixing, grinding, homogenizing and emulsifying biological objects in microtubes by vigorously mixing by reciprocal motion with various beads for sample preparation for subsequent academic, pharmaceutical, biotechnological or biomedical studies.

Homogenizer facilitates the formation of a supernatant containing nucleic acids and proteins suitable for subsequent purification, extraction or analysis. The device is optimized for extracting proteins, DNA, RNA or tRNA from various tissue sources, but it can also be used for other applications. **RCP-24** performs efficient homogenization of mammalian tissue, plant tissue or other biomaterials.

Basic Plus
Product Class

SPECIFICATIONS

| | |
|---|---|
| Test tubes capacity | up to 24 |
| Test tubes | 2 ml |
| Speed control range | 100–2,000 rpm (increment 100 rpm) |
| Digital time setting | 1–15 min (increment 1 min) |
| Oscillation amplitude | 44 mm, vertical |
| Dimension (W×D×H) | 285 × 400 × 440 mm |
| Input current / power consumption | 230 V, 50 Hz/ 220 W (1.3 A) |
| Weight | 19.1 kg |