SPM, SPML
Adhesive mat and strips for orbital shakers and shakers-incubators

Medical–Biological Research & Technologies

1. **About this manual.**

The manual describes installation, usage and maintenance for the following products:

Product	Platform used	Unit model used	Catalogue number
SPM, adhesive mat	PP-4	PSU-10i, ES-20	BS-010111-BK
SPML, set of 3 adhesive strips	UP-168	PSU-20i, ES-20/60, ES-20/80, ES-20/80C	BS-010135-MK

2. **Intended use.**

Adhesive or sticky mat and strips can be used as an alternative for regular flask clamps on orbital shakers and in shakers-incubators. Glass flasks, other glass or plastic laboratory wares with flat bottom can be placed directly on the adhesive surface.

3. **Summary.**

The **SPM** adhesive mat covers the whole PP-4 platform. Working area is 210x210 mm.
The **SPML**, set of three adhesive strips, fit on the UP-168 platform. Strips can be placed symmetrically on an empty UP-168, or can be combined with other clamps. Each strip has working area of 390x80 mm.
The adhesive surfaces are made of two transparent 1.5 mm PU plastic glued back-to-back, with a PET protective films on both sides, to a total thickness of 3 mm.

SPM

SPML

4. **Installation**.

- Remove packing materials carefully and retain them for future shipment or storage.
- Lift the silicon mat (**PP-4**) or remove any obstructing clamps or racks (**UP-168**).
- Clear the platform with mild soap solution. Optionally, disinfect the platform with 75% ethanol solution. Let the platform air dry. Fabric or paper towels may leave dust and fibers, impending adhesiveness of the material.
- Remove protective PET plastic sheet from one side of the mat/strip and place it on the platform, adhesive side down:
  - For **PP-4**, place the square mat on the platrofm.
  - For **UP-168**, place the three **SPML** strips symmetrically, in parallel to the longer edge.
- Remove the remaining protective PET sheet.
- Keep both protective sheets!

5. **Working with the adhesive surface**.

Test fit the laboratory vessels before proceeding with shaking. Balance the load on the platform symmetrically in relation to the centre. Vessels must be flat-bottomed!

We do not recommend filling a vessel over 50% of volume. Do not fill the vessels inside the incubator. Please make sure that all vessels are tightly sealed. Humidity caused by evaporation from unsealed vessels inside the incubator will affect the adhesiveness and will damage the unit!

When placing the vessel, press it down and shortly twist it clockwise for the best fixation.
Limit the shaking speed, depending on the model, load and temperature, to the values described in section **Limitations**.
For prolonged operations, check the adhesion every two weeks. If the operations are are at high speed/temperature, check the adhesion every week.
After finishing the operation, cover the adhesive surface with the original PET sheet to protect from dust and dirt.

6. **Duration of use.**

For glass labware, 12 months, or up to 1000 times of placement/removal.
For plastic labware, 12 months or up to 500 times of placement/removal.

7. **Care and maintenance**.

Clean the adhesive surfaces with water or mild soap solution, rinse and let them air dry before reattaching. Adhesive properties work only when the surface is clean, dry and dust and oil free.
Standard ethanol (75% solution) can be used for cleaning and decontamination, if necessary.

8. **Limitations**.

Never use organic solvent based compounds, pure alcohol, or acid containing cleaners for the PU (polyurethane) surfaces. Do not use abrasives. Do not submit to UV radiation. Do not autoclave.
Not for use in high humidity or underwater.
Operating temperature range is between +4 and +80 °C
Do not overload the platform, balance the load on the platform before shaking!

Maximum load on the platform

Model	ES-20	PSU-10i	PSU-20i, ES-20/60	ES-20/80, ES-20/80C
Maximum load	2.5 kg	3 kg	8 kg	10.6 kg

Maximum shaking speed for platforms with adhesive surfaces

- PSU-10i – **300** rpm
- PSU-20i, ES-20 and ES-20/60 – **250** rpm
- ES-20/80 and ES-20/80C – depending on set temperature and vessels used, see example values in the table below:

Temperature in chamber	**Vessels used on adhesive surface**					
	1 L glass flask, filled to			250 ml glass flask, filled to		
	20%	50%	70%	20%	50%	70%
37 °C	400 rpm	300 rpm	250 rpm	400 rpm	400 rpm	400 rpm
60 °C	300 rpm	300 rpm	250 rpm	400 rpm	400 rpm	400 rpm
80 °C	250 rpm	250 rpm	250 rpm	250 rpm	250 rpm	250 rpm
10 °C (chamber set to 4 °C at 24 °C ambient)	300 rpm	300 rpm	250 rpm	300 rpm	300 rpm	300 rpm

To use other types of vessels, determine the safe speed and temperature by placing a single vessel of your type in the middle of the platform, filled to 30% with water, then setting the required temperature and slowly increasing the shaking speed.

9. **Support and information service**.

For technical support, please contact us by email at service@biosan.lv or through the form on our website in the **Support** section. Periodically check for updates of this product information on our website.

10. **Waste Management**.

Please observe your national laws and regulations.

SIA Biosan
Ratsupites 7 k-2, Riga, LV-1067, Latvia
Phone: +371 67426137 Fax: +371 67428101
http://www.biosan.lv
Edition 1.01 – February of 2021