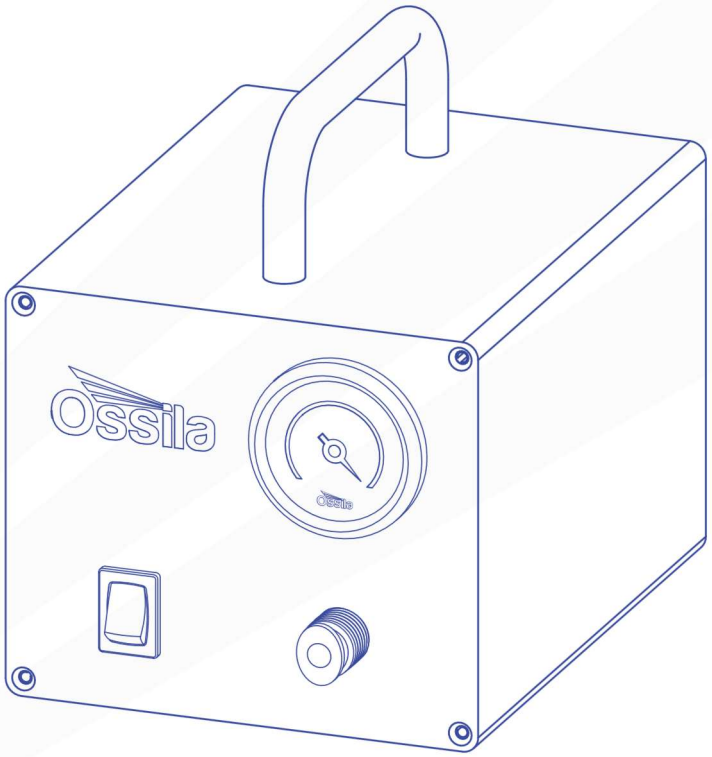
DIAPHRAGM VACUUM PUMP

USER MANUAL

Manual version: 1.0.0
Product code: L2012A1
Product Version: 1.0



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1. EU Declaration of Conformity

We

Company Name: Ossila BV

Postal Address: Biopartner 3 building, Galileiweg 8

Postcode: 2333 BD Leiden

Country: The Netherlands

Telephone number: +31 (0)71 3322992

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declare that the DoC is issued under our sole responsibility and belongs to the following product:

Product: Diaphragm Vacuum Pump (L2012A1)

Serial number: L2012A1-xxxx

Object of declaration:

Diaphragm Vacuum Pump (L2012A1)

The object of declaration described above is in conformity with the relevant Union harmonisation legislation:

EMC Directive 2014/30/EU

RoHS Directive 2011/65/EU

Machinery Directive 2006/42/EC

Signed:

Name: Dr James Kingsley
Place: Leiden
Date: 02/12/2025

Декларация за съответствие на ЕС
Производител: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.
Декларира с цялата си отговорност, че посоченото оборудване съответства на приложимото законодателство на ЕС за хармонизиране, посочено на предходната(-ите) страница(-и) на настоящия документ.

[Čeština] Prohlášení o shodě EU
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[Dansk] EU-overensstemme lseserklærin g
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Erklærer herved, at vi alene er ansvarlige for, at det nævnte udstyr er i overensstemmelse med den relevante EU-harmoniseringslovgivning, der er anført på den/de foregående side(r) i dette dokument.

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Erklærer under vårt eneansvar at utstyret oppført er i overholdelse med relevant EU-harmoniseringslavverk som står på de(n) forrige siden(e) i dette dokumentet.

[Polski] Deklaracja zgodności Unii Europejskiej
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[Română] Declaraţie de conformitate UE
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Declară pe proprie răspundere că echipamentul prezentat este în conformitate cu prevederile legislaţiei UE de armonizare aplicabile prezentate la pagina/paginile anterioare a/ale acestui document.

[Slovensky] Vyhlásenie o zhode pre EÚ
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[Suomi] EU-vaatimustenm ukaisuusvakuutus
Valmistaja: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.
Vakuutamme täten olevamme yksin vastuussa siitä, että tässä asiakirjassa luetellut laitteet ovat tämän asiakirjan sivuilla edellisillä sivuilla kuvattujen olennaisten yhdenmukaistamista koskevien EU-säädösten vaatimusten mukaisia.

[Svenska] EU-försäkran om överensstämmelse
Tillverkare: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.
Vi intygar härmed att den utrustning som förtecknas överensstämmer med relevanta förordningar gällande EU-harmonisering som fmns på föregående sidor i detta dokument.

2. Safety

2.1 Warning

Important: This unit is designed for use with Air and Non-Flammable, Non-Corrosive Dry Gases Only.

- Do **NOT** use with flammable or explosive gases.
- Do **NOT** use with corrosive gases.
- Do **NOT** pump liquids.

2.2 Use of Equipment

The Ossila Diaphragm Vacuum Pump is designed to be used as instructed. It is intended for use under the following conditions:

- Indoors in a laboratory environment (Pollution Degree 2)
- Altitudes up to 2000m
- Temperatures of 5°C to 40°C; maximum relative humidity of 80% up to 31°C.

The unit is supplied with a 24 VDC power adapter, in accordance with European Commission regulations and British Standards. Use **only** the power adapter provided by Ossila. Use of any other electrical power cables, adapters, or transformers may bypass critical safety protections and result in fire or damage.

2.3 Hazard Icons

The following symbols can be found at points throughout the rest of the manual. Note and read each warning before attempting any associated operations associated with it:

Table 2.1. Hazard warning labels used in this manual.

Symbol	Associated Hazard
	General danger
	Electrical shock

2.4 General Hazards

Explosion / Fire Hazard: The pump outlet is vented to the case underside. Any gas pumped by the unit is released to the laboratory environment. Do not use this pump with flammable gases or in an explosive atmosphere.

Chemical Hazard: This pump is compatible with non-corrosive, non-flammable gases only. The pump vents to the underside of the unit, releasing all exhaust to the laboratory environment.

Liquid Ingress: Do not allow liquids to enter the pump inlet. Liquid ingestion will damage the diaphragm unit and void the warranty.

Exhaust Ventilation: The pump outlet vents directly to the underside of the unit enclosure. When pumping gases other than ambient air, the unit must be operated inside a fume hood or a locally ventilated safety enclosure to prevent the accumulation of exhaust gases in the workspace. The space under the unit must be clear of obstructions, and the silicone feet intact to raise the unit above the surface of the benchtop.

Skin Damage: Do not place bare skin or any body part over the vacuum inlet or open tubing. The high negative pressure generated by this device can cause severe bruising, dermal and deep tissue damage, or impaired circulation and vascular injury. To check for suction, use a vacuum gauge or a non-biological test object.

2.5 Power Cord Safety

Emergency power disconnect options: use the power cord as a disconnecting method and remove from wall. To facilitate disconnect, make sure the power outlet for this cord is readily accessible to the operator.

2.6 Servicing

If servicing is required, please return the unit to Ossila Ltd. The warranty will be invalidated if:

- Modification or service has been carried out by anyone other than an Ossila engineer.
- The Unit has been subjected to chemical or liquid damage through improper use.
- The Unit has been operated outside the usage parameters stated in the user documentation associated with the Unit.
- The Unit has been rendered inoperable through accident, misuse, contamination, improper maintenance, modification, or other external causes.

2.7 Health and Safety – Servicing

Servicing should only be performed by an Ossila engineer. Any modification or alteration may damage the equipment, cause injury, or death. It will also void your equipment's warranty.

3. Description

The Ossila Diaphragm Vacuum Pump is a compact, oil-free module engineered to provide a reliable, low-vibration vacuum holding force specifically for precision laboratory applications. It is optimized for vacuum hold-down tasks where mechanical stability is critical, including securing substrates on probe stations and film applicators, or powering pick-and-place systems for delicate sample handling.

The pump features a dual-stage vibration isolation architecture designed to decouple the pump mechanism from the laboratory environment.

- Internal Suspension: The core diaphragm pump module is suspended on a four-point spring mount. This “floating” design absorbs motor oscillations and prevents vibration transfer to the outer chassis.
- External Damping: The metal chassis sits on shock-absorbing silicone feet, providing a secondary layer of isolation between the unit and the workbench.

Key Components:

- Vacuum Inlet: 6 mm push-fit connector for rigid or semi-rigid tubing.
- Control: Front-mounted rocker switch for On/Off operation.
- Monitoring: Integrated dual-scale analog gauge (mbar / mmHg).
- Exhaust: External venting system.
- Carry Handle: A top-mounted handle for safe lifting and transport.

4. Requirements

Table 4.1 details the requirements for the Diaphragm Vacuum Pump.

Table 4.1. Ossila Diaphragm Vacuum Pump requirements.

Power	24 VDC (supplied with the system)
Pneumatic Connection	6 mm O.D. tubing (for push-fit connector)
Surface	Flat, stable workbench

5. Unpacking

5.1 Packing List

The standard items included with the Ossila Diaphragm Vacuum Pump are:

- The Ossila Diaphragm Vacuum Pump (L2012A1).
- Carry handle with 2x cross-head screws.
- 24 VDC power adaptor.
- 1 m interconnect tubing, 6 mm O.D.

5.2 Damage Inspection

Examine the components for evidence of shipping damage. If damage has occurred, please contact Ossila directly for further action.

6. Specifications

The Ossila Diaphragm Vacuum Pump specifications are shown in **Table 6.1**.

Table 6.1. Ossila Diaphragm Vacuum Pump specifications.

Pump Type	Diaphragm (oil-free)
Suitable Media	Air and Non-Flammable, Non-Corrosive Dry Gases Only
Vacuum Inlet	6 mm Push-fit connector
Maximum Flow Rate	7 L/min
Max. Vacuum (Gauge)	-680 mbar (-510 mmHg)
Max. Vacuum (Absolute)	330 mbar
Pump Head Material	PPS
Diaphragm Material	EPDM
Valve Material	EPDM
Motor Type	DC Brushless
Max. Power Consumption	4 W
Rated Lifetime	6000 hours
Noise Level	<45 dBA at 1 m
Dimensions (L x W x H)	15 x 12 x 14 cm
Weight	1 kg

7. Installation

1. Install the handle to the unit using the cross-headed screws provided. Do not overtighten.
2. Always lift the unit by the top-mounted carry handle or by lifting the case from the bottom. Do not lift the unit by the tubing or power cable.
3. Place the unit on a flat, stable surface. The silicone feet will provide damping; ensure all four feet are in contact with the workbench.
4. Maintain a clearance of at least 10 cm around the unit to allow for heat dissipation and exhaust venting.
5. Connect the power adapter to the DC jack on the rear of the unit and to a suitable mains outlet.
6. Insert your vacuum line (6 mm O.D. rigid or semi-rigid tubing) firmly into the inlet push-fit connector. Ensure the tube is cut square and inserted fully to create a seal.

8. Operation

1. Ensure the vacuum line is securely connected to the apparatus you intend to evacuate (e.g. vacuum chuck, vacuum bed, micromanipulator, pick and place).
2. Switch the unit On using the rocker switch.
3. Monitor the vacuum level using the integrated analog gauge.
4. To stop the vacuum, switch the unit Off.

The integrated gauge provides a readout of the vacuum level relative to atmospheric pressure (0 mbar, 0 mmHg). The gauge displays units in both mbar (millibar) and mmHg (millimeters of mercury).

9. Maintenance

Clean the exterior metal chassis with a soft, dry cloth. Do not use solvents or abrasive cleaners.

The unit is oil-free and requires no lubrication. The internal pump mechanism is not user serviceable. Do not attempt to open the metal enclosure as this will void the warranty and may compromise safety guards.

10. Storage

When not in use, store the unit in a clean, dry environment.

- Storage Temperature: 5°C to 40°C
- Humidity: <80% (non-condensing)

11. Troubleshooting

Most of the issues that may arise will be detailed here. However, if you encounter any issues that are not detailed here, then contact us by email at info@ossila.com.

Problem	Possible Cause	Action
No power / pump does not start	Power supply not connected.	Ensure the adapter is plugged into the mains and the DC jack is firmly inserted into the unit.
	Failed power adapter.	Contact Ossila for a replacement power supply adaptor.
Low vacuum / poor suction	Leak in external tubing.	Inspect your tubing for cracks or loose connections. Ensure the 6 mm tube is fully inserted into the push-fit inlet.
	System leak.	Check the seal on your connected apparatus.
	Debris ingress.	If liquid or solid debris has entered the pump, the unit may be damaged. Contact Ossila for advice.
Loud noise / vibration	Uneven surface.	Ensure the pump is sitting flat on all four rubber feet.
	Loose tubing.	Check that connected tubing is not vibrating against other equipment.

12. Related Products

Manual Probe Station

Get clean, reliable data in your electronics characterization experiments without the high price or complexity of overengineered systems.

Product code: T2009B1

Doctor Blade Coater

For preparing thin film samples using an adjustable gap applicator. Utilizes a vacuum stage for holding flexible samples. Coating widths up to 200mm.

Product codes: L2009B1-(E0/E2/E3)

Automatic Thin Film Applicator

For preparing thin film samples using a variety of applicator techniques. Utilizes a vacuum stage for holding flexible samples.

Product code: L2009B1

Bar Coater

For preparing thin film samples using Meyer Bars. Utilizes a vacuum stage for holding flexible samples. Formed or wire wound bars available.

Product code: L2009B1-(F0/W0)