safe aspiration STATION

User's Guide
EN

GILSON®

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Chapter 1

INTRODUCTION

The Safe Aspiration Station is a stand–alone motorized vacuum unit, ideal for ELISA tests, cell culture, and liquid waste disposal. The compact design makes it easy to use on a bench or in laminar flow cabinets and guarantees a safe and contamination–free environment. Associated with the Safe Aspiration Kit, which offers various accessories, the station ensures an adjustable aspiration level to quickly collect and dispose contaminated or hazardous liquids.

The closed, stand-alone unit is designed to prevent contamination hazards. All parts in contact with liquids are fully autoclavable. The station is equipped with a 4–liter Polypropylene (PP) bottle, a level detection with sensors to prevent liquid overflow, and an in-line hydrophobic filter that traps aerosols for a safe disposal of contaminated liquids. Different adapters can be fitted to the handle provided with the Safe Aspiration Kit, to ensure quick and accurate aspiration of liquids from a variety of vessels.

The unit is always ready to use, just press the handle button to aspirate.

Ordering Information

DESCRIPTION	PART NUMBER
SAFE ASPIRATION STATION	
Safe Aspiration Station, EU plug	F110744
Safe Aspiration Station, US plug	F110745
Safe Aspiration Station, UK plug	F110746
Safe Aspiration Station, AU plug	F110747
Safe Aspiration Station, JP plug	F110748
Safe Aspiration Station, CN plug	F110749
SAFE ASPIRATION KIT	
Safe Aspiration Kit	F110750

Figure 1
Safe Aspiration Station

Specifications

SAFE ASPIRATION STATION	
Dimensions (W x D x H)	53 x 18 x 32 cm (21 x 7 x 13 in.)
Weight	3.4 kg
Aspiration speed	8 L/min (air)
Aspiration rate	17 mL/s (with a Pasteur aspiration pipette)
Vacuum range	-300 to -600 mbar (adjustable)
Noise	< 58 dB (A) at 1 meter
Voltage	100–240 VAC, 50/60 Hz
Warranty	12 months

Figure 2
Safe Aspiration Kit

Description

Figure 3
Safe Aspiration Station Parts

Table 1

Safe Aspiration Station Parts Description

LABEL	COMPONENT	DESCRIPTION	MATERIAL	AUTOCLAVABLE	AVAILABLE SPARE PARTS OR ACCESSORIES
1	Base unit of the Safe Aspiration Station	Main part of the instrument, the vacuum pump is inside the base.	Housing: Acrylonitrile Butadiene Styrene (ABS)	No	No
2	4L Polypropylene (PP) bottle	This bottle contains the aspirated liquids.	Polypropylene	Yes	Yes
3	Bottle lid for 4L Polypropylene (PP) bottle	This lid contains: • Two quick connectors adapted to the connectors of the tubings (station side and operator side), • the level detection sensors connected to the sensor cable 5 • the air release valve 9.	Polypropylene (PP) Polyvinylidene Fluoride (PVDF) Stainless steel	Yes	Yes
4	Aspiration hand operator	Press on the hand operator button to aspirate the wasted liquids. The hand operator is provided with: • Two silicon adapters for Pasteur pipette (one already mounted inside the handle, and another one as additional component), • One single-channel plastic tip adapter with ejector, • silicon grease.	Delrin® acetal resin Silicon Stainless steel	Yes	Available in the Safe Aspiration Kit (P/N F110750)
5	Sensor cable	The cable links the sensors of the lid to the pump. The station automatically stops when the liquid level reaches the sensors.	-	No	Yes
6	Tubing 800 mm station side	The 800 mm silicon tubing connects the filter from the base unit of the station to the bottle lid, and provides a negative pressure environment inside the bottle.	Silicon	Yes	Yes
7	Tubing 1500 mm operator side	The 1500 mm silicon tubing connects the bottle lid to the hand operator, for the aspiration of the wasted liquids from the vessel to the bottle.	Silicon	Yes	Yes
8	Bottle handle	Screwed on the neck of the bottle, this accessory can be used to carry the bottle or to store the aspiration hand operator.	Mild steel	Yes	Yes
9	Release valve	Unscrew the valve to release the vacuum, and balance the air pressure and degree inside and outside the bottle.	Stainless steel	Yes	(already mounted on the lid)
10	Vacuum level indicator	The LEDs indicate the degree of vacuum: • steady light means that the set vacuum volume has been reached, • flashing light means that the setting vacuum level has not been reached yet.	-	No	No
11	Knob	The knob adjusts the vacuum level in the bottle.	-	No	No
12	Membrane filter	The hydrophobic membrane filter prevents the liquids and aerosols from entering into the vacuum pump.	-	No	Yes
13	Power interface	The AC adapter is connected to the pump.	-	No	Yes
14	Switch	Turns the power on and off.	-	No	No

SAFETY & USER PRECAUTIONS

General Safety Precautions

Read the User's Guide carefully before operating the instrument and follow all safety norms.

NOTE	Train the user before operating the instrument.
	Unplug the instrument to fully power down the aspiration station.
NOTICE	Be sure the power outlet is properly grounded before powering on the instrument.
	Ensure the power supply voltage is consistent with the requirements on the label, and the instrument and its accessories are not damaged.
	Before running the instrument each time, verify the accessories listed in Safe Aspiration Station Parts Description Table 1 on page 5, and install them in accordance with the Installing description on page 7.
	Accessories must firmly be connected to the instrument and avoid any detachment.
⚠CAUTION	When running the instrument, wear suitable protective garments to ensure personal safety.
⚠WARNING	Put the instrument on a wide and flat surface. Ensure that the surface is clean, non-slip, dry, and fireproof.
	Do not operate the instrument outdoors, or near hazardous substances or water.
	Avoid using unsafe containers.

Safe Detection Level System

If the liquids reach the level detection sensors inside the bottle during the aspiration procedure, the Safe Aspiration Station will automatically stop. The LEDs will blink, and the station will alarm the user by repeated sound beeps.

Switch off the station, remove the filled bottle, and replace it with an empty one while following the installation and operation guidelines.

The pump will not start again if the station has not been switched off.

Chapter 3

OPERATION

Operating Conditions

Before operating the station, ensure that the following conditions are respected:

- Temperature from 0°C to 40°C.
- Maximum permissible relative humidity: 80%.
- Installation type: the product is designed to connect to an indoor outlet, with voltage fluctuations not exceeding ± 10% of normal voltage.
- Inter–instrument, the minimum distance to the wall is 100 mm.

NOTICE

When the Safe Aspiration Station is not in use, ensure that the power is switched off, that the station is unplugged, and store it in a dry, clean, and stable environment at room temperature.

⚠CAUTION

Do not use at a higher altitude than 2000 meters above sea level. It may cause vaccuum issues and damage the station.

Do not connect the instrument if there is any visible damage. It may damage the station.

Installing

Assemble the accessories and the tubings:

1. Firmly screw the lid ❸ on the bottle ❷ and place it on the base unit ❶ of the Safe Aspiration Station.
2. Connect the 800 mm tubing ❻ to the lid of the bottle and to the membrane filter ⓬ at the back of the station.
3. Connect the 1500 mm tubing ❼ to the lid of the bottle and insert the aspiration hand operator ❹ on the other end of the tubing.
4. Connect the sensor cable ❺ to the lid of the bottle and the back of the aspiration station.

At the end of the installation, ensure that:

- the bottle lid ❸ is firmly screwed on,
- the release valve ❾ is closed,
- the hand operator ❹ is fully inserted in the tubing ❼,
- the tubings ❻ ❼ and the sensor cable ❺ are correctly connected.

Turning On

1. Insert the AC adapter in the power interface at the back of the aspiration station and connect the plug to the power source.

NOTICE	**Only use the AC adapter provided with this product.**

2. Turn the power switch on. The LEDs of the vacuum level indicator ⑩ will light on, and the pump will automatically start and work until the desired vacuum level is reached in the bottle.
3. Use the knob to adjust the desired degree of vacuum in the bottle:
   - flashing light means that the setting vacuum level has not been reached yet,
   - steady light means that the set vacuum volume has been reached.

Starting and Ending Operation

1. Press on the button of the aspiration hand operator ④ to aspirate the liquid in the vessel.

NOTE	**For an aspiration adapted to different vessels, the various adapters of the hand operator can be changed, and the vacuum level can be adjusted.** **If the vacuum level has to be decreased during the procedure, turn the knob on the left and push the button of the hand operator to lower the vacuum level inside the bottle.**

NOTICE	**During running, avoid touching valves, injection pumps, tubings, and other components.**

2. At the end of the aspiration, switch off the system ⑭.

Removing the Filled Bottle

1. Turn the valve ⑨ of the lid in order to decrease the vacuum level inside the bottle and to balance the air pressure level inside and outside the bottle.
2. Remove the bottle from the station and disconnect the tubings ⑥ ⑦ and the sensor cable ⑤ from the lid.

NOTE	**All the wetted parts (parts in contact with the wasted liquids) can be autoclaved, and the filled bottle can be carried using the bottle handle screwed under the lid.** **In order to carry the bottle with the handle, ensure that the lid is firmly screwed.**

Chapter 4

MAINTENANCE & CLEANING

Maintenance

No specific maintenance or service is necessary. Nevertheless, a regular check of the station and the accessories can keep instruments working properly and prolong their lifetime.

NOTICE Turn off the power for the maintenance and cleaning procedures.

⚠CAUTION

Do not spray cleanser into the instrument when cleaning. It may damage the station.

Wear proper protective gloves during cleaning of the instrument.

Cleaning

Each part of the Safe Aspiration Station and Kit in contact with liquids is fully autoclavable and can be cleaned with the recommended cleansers below.

- Clean by immersing all pieces in a solution of water and mild laboratory detergent.

⚠CAUTION Do not use abrasives, as this may affect operation of the control valve. Rinse with distilled water.

Autoclave the aspiration hand operator prior to disassembly for cleaning after working with biohazardous materials.

- Immediately flush the aspiration hand operator with ethanol after working with organic solvents.
- To avoid build–up of deposits, immediately flush the aspiration hand operator with distilled water after working with salt–rich solutions.
- Apply a thin coat of silicon grease as needed to the control valve.

Recommended Cleansers

APPLICATION	RECOMMENDED CLEANSER
Dyes	Isopropyl alcohol
Construction materials	Water containing tenside / Isopropyl alcohol
Cosmetics	Water containing tenside / Isopropyl alcohol
Foodstuffs	Water containing tenside
Fuels	Water containing tenside

Troubleshooting Table

SYMPTOM	POSSIBLE CAUSE	SOLUTION
The aspiration station is not running, there is no vacuum inside the bottle.	No power line voltage.	Insert the plug of the AC adapter into a suitable power line out socket.
	No DC supply.	Connect the AC adapter to the power interface of the station.
The vacuum level is inadequate or the pump runs constantly.	The selected vacuum level is too low.	Turn the knob clockwise.
	There is a leak in the vacuum system.	Ensure that the lid is firmly screwed on. Ensure that the release valve on the lid is closed. Ensure that the filter is correctly inserted on the station and tubings. Ensure that the hand operator is well inserted in the tubing.
	The bottle is full and some liquid has been aspirated up to the filter.	Remove the filter from the station and replace it. Remove the filled bottle, empty it, or replace it with an empty bottle.
	The tubings are blocked.	Clean or replace the tubings.
	The filter is blocked.	Replace the filter.
The alarm level detection is on.	The sensor cable is not correctly connected.	Ensure that the sensor cable is correctly connected to the station and to the lid (fully inserted).
	The liquid in the bottle has reached the maximum level, or there is some foam in the bottle that has touched the sensors.	Empty the bottle and follow the operation procedure. Use anti-foam agents.
	The inside of the lid between the two sensors is soiled.	Clean the lid by following the maintenance and cleaning guidelines.

Return for Repair

If any problem persists, please contact your Local Gilson Service Center.

Forced opening of the instrument invalidates any warranty claim. Enclose with the returned instrument a description of the trouble that has occurred and specify how the instrument was used (duration, aspiration level, nature of the liquids aspirated, etc.)

⚠CAUTION

Returned instruments can only be checked and repaired if they have been carefully cleaned and decontaminated by the customer.

Please clean the instrument carefully before returning it.

Never send in instruments filled with reagents.

Chapter 6

SPARE PARTS

Accessories

DESCRIPTION	PART NUMBER
Bottle Handle for Aspiration Station	F1077430
AC Adapter for Aspiration Station-EU	F1077431
AC Adapter for Aspiration Station-US	F1077432
AC Adapter for Aspiration Station-UK	F1077433
AC Adapter for Aspiration Station-AU	F1077434
AC Adapter for Aspiration Station-JP	F1077435
AC Adapter for Aspiration Station-CN	F1077436
4L PP Bottle for Aspiration Station	F1077437
Lid for Aspiration Station Bottle	F1077438
Sensor Cable for Aspiration Station	F1077439
Membrane Filter for Aspiration Station	F1077440
Tubing 800 mm for Aspiration Station	F1077441
Tubing 1500 mm for Aspiration Station	F1077442
Connector for Tubing 1500 mm–Operator side	F1077443
Connector for Tubing 800 mm–Station side	F1077444

DECLARATION OF CONFORMITY

Related Standards

The Safe Aspiration Station structure conforms to the following safety standards:

EU Directives

Low voltage equipment: **2014/35/EU**

Electromagnetic compatibility: **2014/30/EU**

Restriction of hazardous substances: **2011/65/EU**

Standards for EU

Safety requirements for electrical equipment for measurement, control, and laboratory use — General requirements: **EN61010-1: 2010**

Electrical equipment for measurement, control, and laboratory use — EMC requirements: **EN61326-1: 2013**

Standard for UK

Electromagnetic compatibility, Regulation 2016 (S.I. 2016/1091), **BS EN Standard 61326-1: 2013**

Electrical Equipment designed for use within certain voltage limits in support of the Electrical Equipment (Safety), Regulation 2016 (S.I. 2016/1101), **BS EN Standard 61010-1: 2010**

Standard for Canada and USA

Safety requirements for electrical equipment for measurement, control, and laboratory use — General requirements: **CAN/CSA-C22.2 (1010-1)**

Safety requirements for electrical equipment for measurement, control, and laboratory use — General requirements: **UL 3101-1**

Chapter 8

WARRANTY

Gilson warrants this Safe Aspiration Station against defects in material under normal use and service for 12 months from the date of purchase. This warranty is valid only if the station and its components are used in the manner described in this guide and for the purpose for which it is designed.

Gilson is not responsible for consequential damages resulting from the misuse, bad cleaning, or decontamination of this instrument.

Forced opening of the instrument invalidates any warranty claim. Enclose with the returned instrument a description of the trouble that has occurred and specify which reagents were used.

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Specifications subject to change without notification — errors excepted.

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