User Guide

EZ-Stream® Pump

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Notice

Introduction

The EZ-Stream® Pump is a compact, service-free pump that provides a consistent source of vacuum for filtration of liquids and gasses for laboratory applications.

The EZ-Stream® Pump is intended for microbiological testing with membrane filtration; typically, for water or beverage testing. The controlled vacuum does not exceed a value of 700 mBar to maintain the microbial recovery and match the NF EN ISO 8199 standard. The membrane is gastight, polytetrafluoroethylene (PTFE).

This pump provides high filtration rate for liquids, and can be used continuously or intermittently with all types of filter holders, multi-well devices, manifolds, and other laboratory equipment.

Filtered liquid goes directly through the pump and is transferred to waste. This simplifies operations by eliminating the need for protective vent filter, as well as vacuum containers or glass flasks. This method also eliminates the handling of liquid waste, and saves space in the work area.

The EZ-Stream® Pump is service free, compact in size, easy to clean, and designed for maximum noise reduction.

Operator and Equipment Safety

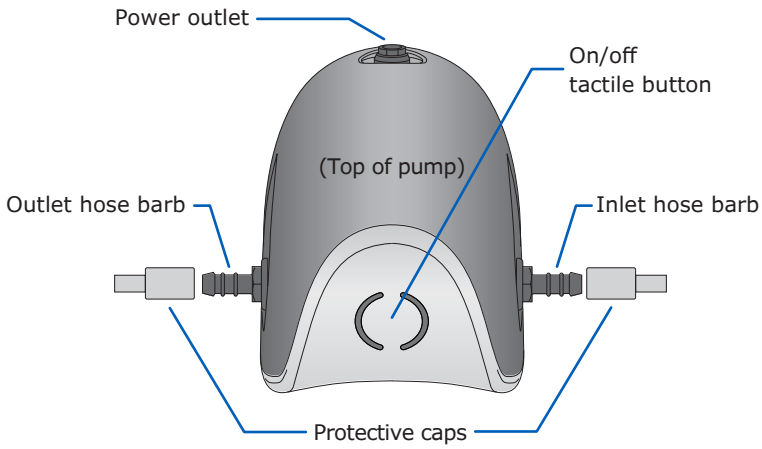
- Read and understand this user guide before using the EZ-Stream® Pump. Failure to follow operating instructions could result in user injury or damage to the pump.
- Read and understand all maintenance instructions in this user guide before performing maintenance on the EZ-Stream® Pump. Failure to follow instructions could result in user injury or damage to the pump.
- Locate the EZ-Stream® Pump on a clean, flat, stable, horizontal surface, away from any source of excessive heat and close to an easily accessible, properly grounded power supply outlet.
- Operate the EZ-Stream® Pump in a dry, clean, and well-ventilated area.
- Do not operate the EZ-Stream® Pump in an area where explosions may occur.
- The EZ-Stream® Pump is designed to handle almost all neutral or aggressive liquids, vapors, and gasses. However, before use, please check the compatibility between the product to be filtered and the construction materials of the parts of the EZ-Stream® Pump that will be in contact with the product. See the Specifications section of this user guide for materials used in the construction of the EZ-Stream® Pump.
- Use appropriate personal protective equipment, including eye protection, when operating the EZ-Stream® Pump.
- Before use, inspect the unit, the plug, and the cord for signs of damage. Do not use if a deficiency is found. Never operate a damaged unit.
- Before use, check that the hoses are not plugged, folded, or damaged. Never operate the pump against a closed system (a system in which flow has been hindered).
- To operate at maximum efficiency, the EZ-Stream® Pump must be thoroughly clean. Refer to the Maintenance section of this user guide for cleaning instructions.
- Any alteration of the EZ-Stream® Pump from factory specifications may cause unsafe conditions, and will void the product warranty.
- Any attempt to use the EZ-Stream® Pump in a manner not specified in this user guide may result in damage to the instrument and possible operator injury, and will void the product warranty.
- Do not attempt to open and repair the EZ-Stream® Pump. Service should be performed by trained and authorized personnel only.
- Protect the power supply by a fuse below the main connection.
- Make sure the electrical installation complies with local standards and is equipped with an earth ground connection.
- Use an electrical surge protector to prevent damage to the system.

Specifications and Operating Requirements

	Component	Material
Materials of Construction	Housing	Acrylonitrile styrene acrylate—polycarbonate (ASA-PC)
	Hose barbs*	Polyoxymethylene (POM)
	Hose barb gaskets	Polyvinyl chloride (PVC)
	Feet	Natural rubber (NR)
	Tactile button LEDs	Polycarbonate (PC)
	Pump membranes*	Polytetrafluoroethylene (PTFE) and ethylene propylene diene monomer (EPDM)
	Pump valves*	Ethylene propylene diene monomer (EPDM)
	Pump seals*	Nitrile butadiene rubber (NBR)
	Pump head*	Polypropylene (PP)
	* These parts come in contact with the filtered media.	
Dimensions	Width	19.6 cm/7.7 in.
	Depth	16.8 cm/6.6 in.
	Height	22.2 cm/8.7 in.
	Weight	1.9 kg/4.2 lb
Electrical	Supply Voltage Input	100 V–240 V: 50 Hz–60 Hz
	Supply Voltage Output	24 V direct current (CC)
	Consumption	Nominal: 1 A Maximal Current Peak: 3 A
	Power	Nominal: 24 Watts Maximal Power Peak: 72 Watts
Vacuum		Maximum 700 mbar
Flow rate (measured with water at 20 °C)		Minimum 3.5 L/min
Protection type		IP64
Temperature range of the handled sample		+5 °C to +80 °C
Maximal viscosity of the liquid		150 cSt
Environmental Operating Temperature	Temperature	15 to 40 °C (59 °F to 104 °F)
	Humidity	<90%
Regulatory Information	The EZ-Stream® Pump was designed and manufactured in application of the following European Council directives: • 2004/108/EC: Electromagnetic compatibility • 2006/95/EC: Electrical equipment designed for use within certain voltage limits • 2002/95/EC: Restriction of the use of certain hazardous substances in electrical equipment (RoHS)	

System Components

- EZ-Stream® Pump
- External power supply
- Four power cords (Europe, USA/Japan, Switzerland, Great Britain)



Installing the EZ-Stream® Pump

1. Remove all components from the box.
2. Remove the EZ-Stream® Pump from the protective bag and place the pump on a clean, flat, stable, horizontal surface.

NOTE: Retain the original packing materials. If the unit needs to be shipped, it should be packed in the original packing materials.

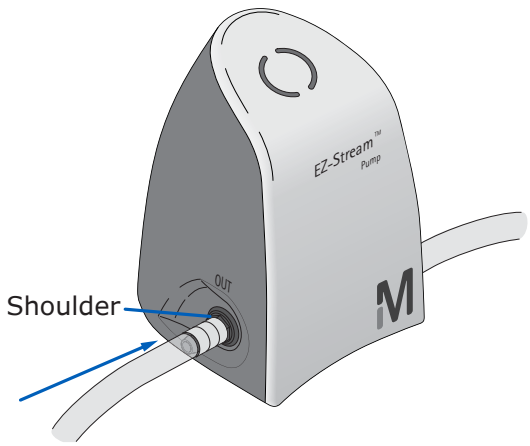
3. Remove the protective caps from the inlet and outlet hose barbs.
4. Check that the hose barbs diameter is in accordance with the hose diameter used. The exterior diameter of the pump hose barbs is 10 mm.

NOTE: See the Ordering Information section of this document to order additional hoses.

5. Place the EZ-Stream® Pump in its working environment.

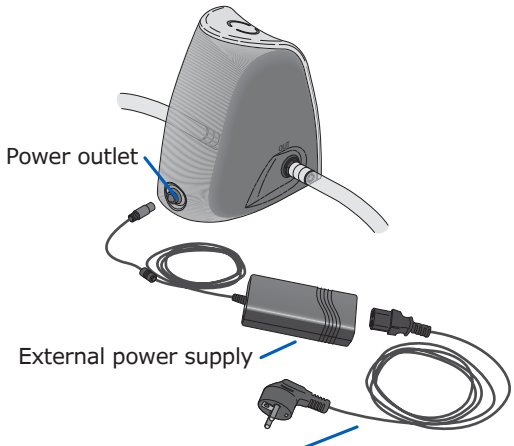
NOTE: If the EZ-Stream® Pump will be installed in a laminar flow hood or a microbiological safety cabinet, before installation, clean the exterior surface of the EZ-Stream® Pump, using a non woven wipe soaked in one of the products listed in the Maintenance section of this user guide.

6. Connect the inlet and outlet hoses to the inlet and outlet hose barbs by sliding the hoses onto the barbs. Push each hose as far as it will go, until the edge of the hose touches the hose barb shoulder.



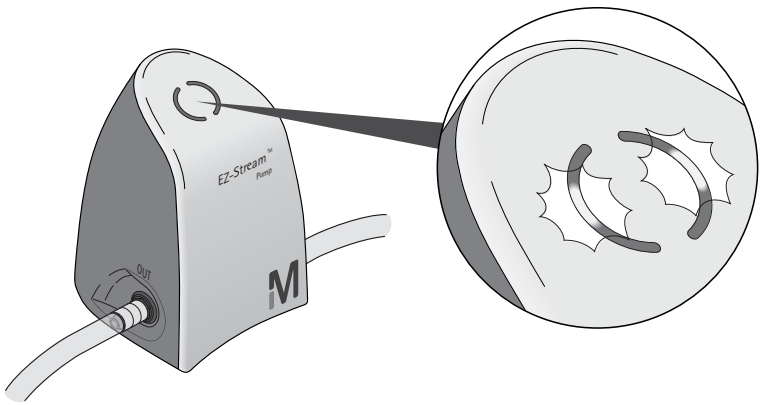
NOTE: The hose length between the filtration equipment and the pump should be as short as possible.

7. Make electrical connections:
   - Connect the external power supply cord to the power outlet.
   - Connect the external power supply to the appropriate power cord.



8. Connect the appropriate power cord to a power source. The tactile button on top of the pump lights. The white light is stationary.

NOTE: The stationary light indicates that the pump is on, but not running.

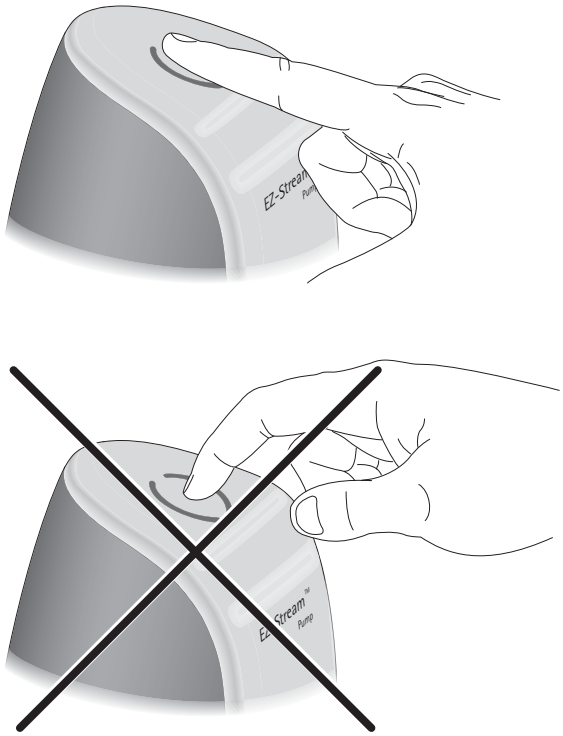


The EZ-Stream® Pump is ready to use.

Using the EZ-Stream® Pump

The EZ-Stream® Pump is shipped ready for use. See the Specifications and Safety sections of this user guide for required operating conditions.

1. Ensure that the EZ-Stream® Pump is installed according to the instructions in the Installing the EZ-Stream® Pump section of this user guide.
2. To start the filtration, put your finger on the tactile button until the pump starts.



NOTE: Rotating lights indicate that the pump is running.

3. To stop the EZ-Stream® Pump motor, put your finger on the tactile button until the pumps stops.

NOTE: After each working day, rinse the EZ-Stream® Pump fluidic system. See the Maintenance section of this user guide.

Maintenance

Cleaning the Exterior of the EZ-Stream® Pump

Clean the exterior surface of the EZ-Stream® Pump with a non-woven wipe soaked in one of the products listed in this table:

Active ingredient	Dilution
Quaternary ammonium (NH_4) Biguanide Propanolol (10 to 40%)	Ready to use
Isopropyl alcohol 70%	Ready to use
Ethanol 70%	Ready to use
Sodium hypochlorite	250 ppm
Peracetic acid at 5% Acetic acid at 7% Hydrogen peroxide at 27%	2.5%
Ethanol 41% Polyhexamethylene biguanide hydrochloride N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine Didecyldimethylammonium chloride	Ready to use

Performing a Fluidic System Rinse

After each working day:

1. Rinse the EZ-Stream® Pump fluidic system with water.
2. Run the pump without liquid until the tubing and the fluidic system are empty.

Troubleshooting

Symptom	Possible Cause	Remedy
Motor fails to start. The white light on the pump tactile button does not light.	The pump is not connected to the power.	Connect the pump to power.
Motor fails to start. The pump is connected to the power, and the white light on the pump tactile button lights.	The motor or the tactile button is out of order.	Contact us.
The pump does not take liquid in.	The pump is not connected to the filtration equipment.	Make sure the hoses are connected properly to the hose barbs.
	The pressure in the delivery line from the pump is too high.	Make sure that the output hose is not plugged, folded, or damaged.
	The hose barbs are plugged or the hoses are plugged or folded.	Make sure the hoses and the hose barbs are clean and that the hoses are not plugged or folded.
	The hose connections are not watertight, or one of the hoses is leaking.	Make sure the hoses are connected properly to the hose barbs. Make sure the hoses are not plugged, folded, or damaged.
	A valve or a filter of the filtration equipment is closed or plugged.	Make sure the filtration equipment is functioning properly.
	The membrane or the internal valve of the pump is defective.	Contact us.
Flow rate, suction height, or pressure height is insufficient.	The flow rate of the pump is significantly lower than the standard value.	Check the flow rate of the pump. Standard value is 3.5 L/min. If the result is below half of this standard value, contact us.
	The liquid is too viscous.	Maximal viscosity of the liquid is 150 cSt.
	The hose barbs or the hoses are plugged.	Make sure the hoses and the hose barbs are clean and that the hoses are not plugged or folded.
	The hose connections are not watertight, or one of the hoses is leaking.	Make sure the hoses are connected properly to the hose barbs. And make sure the hoses are not plugged, folded, or damaged.
	The membrane or the internal valve of the pump is defective.	Contact us.

Ordering Information

Description	Quantity/Pack	Cat. No.
EZ-Stream® Pump	1	**EZSTREAM1**
Silicone hose Autoclavable Internal diameter: 9.5 mm ($^3/_8$ in) Length: 5.0 m (196.8 in)	1	**STREAMTUB**
PVC hose Not autoclavable Internal diameter: 9.5 mm ($^3/_8$ in) Length: 3.0 m (118.1 in)	1	**XX6700034**
EZ-Fit® Filtration Units, pink base - without pad		
EZ-Pak® filtration unit, white plain PVDF membrane, 0.45 µm 100 mL	48	**EFHVW10IS**
EZ-Pak® filtration unit, white gridded MCE membrane, 0.45 µm 100 mL	48	**EFHAW10MS**
EZ-Pak® filtration unit, white gridded MCE membrane, 0.45 µm 100 mL	48	**EFHAW25BS**
EZ-Pak® manifold, accessories, filtration pump		
EZ-Pak® manifold, 3-place for EZ-Fit® filtration units	1	**EZFITSAM3**

For a complete list of microbiological analysis items, please consult your representative.

Standard Product Warranty

The applicable warranty for the products listed in this publication may be found at: **SigmaAldrich.com/terms** (within the “Terms and Conditions of Sale” applicable to your purchase transaction).

We make no warranties of any kind or nature, express or implied, including any implied warranty of merchantability or fitness for any particular purpose, with respect to any technical assistance or information that we provide. Any suggestions regarding use, selection, application or suitability of the products shall not be construed as an express or implied warranty unless specifically designated as such in a writing signed by an officer or other authorized representative of our company.

Technical Assistance

For more information visit **SigmaAldrich.com/techservice**

MK_UG9450EN Ver. 3.0
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10/2024