

XIONEER

Vortex EZ

3D Printing Support Removal Station



Contents

Introduction.....	4
Product description.....	4
Device specifications.....	5
Safety instructions and warnings.....	6
Preparation.....	9
<i>Scope of delivery.....</i>	9
<i>Set up.....</i>	10
<i>Commissioning and filling.....</i>	10
Operation.....	11
<i>Controls.....</i>	11
<i>Material and temperature recommendations....</i>	12
<i>Placing 3D parts.....</i>	13
<i>Removing 3D parts.....</i>	14
<i>Flushing the solvent.....</i>	15
Cleaning and maintenance.....	16
<i>Propeller maintenance.....</i>	17
Device disposal.....	18
Troubleshooting.....	18
More information.....	19

Introduction

Thank you for choosing a Xioneer product.

Please read these operating instructions carefully. They provide you with the necessary information for operating your Vortex EZ support removal station and avoiding possible dangers.



Note - This icon shows you important tips.



Attention - This symbol draws your attention to special dangers and protective measures.



Caution – Hot surface or hot steam! Risk of burns or risk of scalding.

Product description

The Xioneer Vortex EZ is designed to automatically dissolve 3D printed Xioneer VXL support material and other soluble support materials used in FFF / FDM 3D printing. It is intended for personal and professional use if safety precautions are met.

The device dissolves support materials using water, which is heated and stirred. To enable the dissolution of VXL support materials, solution additives such as VXL EX and VXL SOLVE can be added to the water.

Device specifications

Connection	230 V AC ($\pm 10\%$), 50 Hz, EU plug 110 V AC ($\pm 10\%$), 60 Hz (US Version Only)
Max. Power consumption	Approx. 1360 W
Max. Temperature	85 °C
Fill Volume	38 Liters
Approx. heat-up time (from 25 to 85 °C at 38 liters)	150 min
Max. Weight	60 kg
Outer Dimensions (WxHxD)	640 x 435 x 370 mm
Basket Dimensions (WxHxD)	450 x 205 x 260 mm
Max. Noise Volume	50 dB
Stirring speed	0 - 150 rpm
Device Materials	Lid: PC, steel V2A Tank: steel V2A Basket: steel V4A, other Propeller: steel V2A, PTFE, other
Recommended FFF support materials	Xioneer VXL 70, Xioneer VXL 90, Xioneer VXL 111, Xioneer VXL 130, PVA/PVOH/BVOH and similar
Approved dissolving liquids	Water
Recommended dissolving additives	Xioneer VXL SOLVE, Xioneer VXL EX
Operating Condition	Up to 2000m ASL, < 75 % r.H, < 30 °C
Degree of Pollution	2
Mains Voltage Fluctuation	Class 2

Safety instructions and warnings

The following instructions must be observed when operating the Vortex EZ:

- For safe electric disconnection, pull the cold appliance plug on the back of the device.
- The Vortex EZ may only be operated with water and recommended solution additives. Do not use aggressive lye solvents.
- Never fill the Vortex EZ with flammable liquids, liquids that produce flammable gases, or organic solvents. This increases the risk of an explosion, leading to injury and even death.
- If you place the device next to a wall, please ensure to keep a distance of at least 10 cm to the wall. Make sure that the fan plates on the back of the device are not blocked.
- Vortex EZ may only be carried when empty. Carrying with water or washing solution inside is not permitted. Please empty the tank before each transport.
- Only place the Vortex EZ on a stable, straight, dry, heat- and moisture-resistant surface that can carry the weight of the device including its contents. Do not place the Vortex EZ on a soft or unstable surface.
- The Vortex EZ should only be used indoors in a dry and well-ventilated environment. Make sure that there is good ventilation in the room where you operate the device.

- Only connect the Vortex EZ to a 230 V AC, 50 Hz power supply (unless specified otherwise on the device, e.g., 120VAC, 60Hz for US version). Be careful not to bend the cable or pull on it when unplugging it. Do not use an extension cord. The housing of the Vortex EZ is made of metal, so please use a grounded AC-connection. Only use power supply cables provided by Xioneer.
- Do not reach into the Vortex EZ tank while it is in operation.
- Always use the supplied basket for your parts. Only lift and lower the basket using the handles.
- Place the Vortex EZ out of reach of children. It may only be operated by adults.
- Do not use the Vortex EZ if you notice any damage to its parts or if parts are missing.
- Avoid spilling any liquids on the controls of the device, fan plates, or plugs. Remove excessive moisture with a soft cloth.
- During operation the surfaces of the Vortex EZ and the wash solution inside may become very hot. Never reach into the hot bath with bare hands.
- It is not allowed to prepare or store food inside the Vortex EZ or with any parts of it. VXL Support Material, VXL SOLVE, and VXL EX are not suitable for consumption.
- Only use water as solvent and only use VXL SOLVE, VXL EX or similar products as solvent additives. Do not fill more than 38 liters into the container ("MAX"). Observe the recommended dosage when using VXL SOLVE and VXL EX.

- VXL SOLVE and VXL EX are classified as irritants. Therefore, always wear protective clothing consisting at least of safety goggles and protective gloves when using the Vortex EZ. Use the basket when loading and unloading models.
- If your skin comes into contact with the washing solution or dissolving powder, wash it off thoroughly with plenty of water. If you get washing solution or dissolving powder in your eyes, wash it thoroughly with water for several minutes and remove any contact lenses beforehand. If eye or skin irritation persists, please call emergency.
- If you have inhaled the dissolving powder, move to a well-ventilated place and ensure unobstructed breathing. In case of persistent indisposition, please call emergency.
- If dissolving powder or suds are swallowed, drink plenty of water in small sips and seek medical attention. Do not induce vomiting.
- Remove and wash clothing that has been in contact with dissolving solution or dissolving powder.
- There is a risk of scalding in case of contact with the hot wash solution or hot surfaces. In case of scalding, ensure sufficient cooling of the affected areas. There is also a risk of scalding when opening the container due to escaping hot water vapor.
- Do not open the drain valve without the hose connected.
- There is a danger of crushing and cutting on the propeller. Do not touch the rotating propeller.

- Only service or remove the propeller when the unit is switched off, unplugged, cooled down, and completely empty.
- Please mind the minimum fill level (MIN). Do not use Vortex EZ when fill level is lower than “MIN” marking. Do not power on the Vortex EZ when tank is empty.
- Improper usage may impair the protection supported by Vortex EZ.
- Always check Vortex EZ is safe to use after conducting maintenance.

Preparation

Carefully unpack the Vortex EZ. Please check that all parts are in the package according to the scope of delivery. If there is damage to individual components or parts are missing, do not commission the Vortex EZ and contact your vendor. Before initial start-up, the Vortex EZ must be acclimated to the ambient conditions. To do this, leave it in the intended environment for at least 1 hour.

Scope of delivery

The following components are included in the package:

- 1x Vortex EZ support removal station
- 1x Basket
- 1x filling and drain hose incl. hose clamp

Set up

Set up the Vortex EZ on a stable, straight, dry, heat-resistant, and moisture-resistant surface. When setting up, consider the weight of the tank including the wash solution of **approx. 60 kg**. Furthermore, the Vortex EZ may only be used in a dry and well-ventilated indoor environment. Ideally, place the container near a sink or near a water connection. This facilitates filling and subsequent emptying of the solvent.

Commissioning and filling

Fill the container with tap water up to the "MAX" indicator.

To do this, you can use the hose from the accessories and mount it on a faucet with a suitable attachment.

Remove any water splashes on the outside of the unit with a soft cloth.

Plug in the power cord of the Vortex EZ and switch it on. The power cord must not be under tension.

Turn on the stirrer with the stirrer knob. The stirrer should now begin to rotate audibly. You can regulate the stirring speed. Turn the knob all the way to the right for maximum rotation speed.

Close the lid of the container device. Use the large control dial to set the desired temperature (maximum 85 °C). When the desired temperature is reached, the red lamp next to the temperature control will switch itself off.



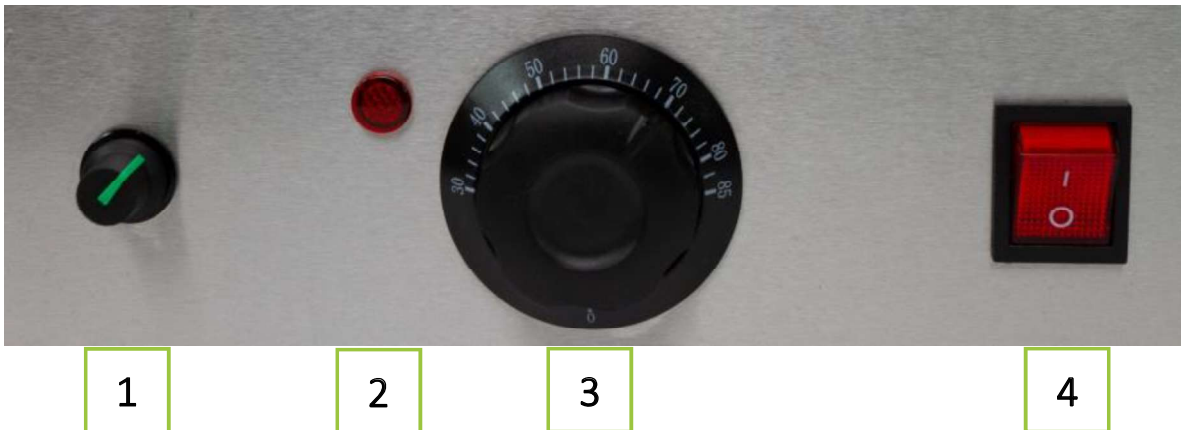
Caution: During operation, hot steam escapes when the container is opened.

Operation

This section describes the operation of the Vortex EZ and gives you an indicator for a usable temperature range depending on the model and support material of your 3D printed object.

Controls

The following picture shows the controls of the Vortex EZ.



Description:

1. Propeller speed control. You can use it to reduce the rotation speed of the propeller to prevent the liquid from foaming. Turn the knob all the way to the left to turn the propeller off completely.
2. Heater indicator lamp. (ON when heating, OFF when not heating).

3. Large rotary control for setting the temperature (up to 85 °C)
4. Main switch for switching the device on and off.

Material and temperature recommendations

The table below lists recommended VXL support/model-material combinations together with dissolution temperatures. Please refer to latest updates on recommended materials and temperatures on our website.

Regularly check the temperature and the fill level of the wash solution to prevent damage to your 3D parts. Ask the manufacturer of the model material about the maximum dissolving temperatures. As a general guideline, you can set 20 - 30 °C less than the glass transition temperature (Tg) of your model material. If you know the heat deflection temperature (HDT) of the material, you can use it as a reference too. If you set the temperature too high, your model may be irreparably damaged, as your model may be deformed by the residual stresses created during 3D printing. If you do not receive any recommendation from the material manufacturer, test the materials before dissolving them for the first time. To do this, you can print a reference bar, and test it for deformation in the solvent bath.

Support Material	VXL 70	VXL 90	VXL 111	VXL 130
Model Material	TPU	TPU	TPU, PET(G), ABS, ASA HIPS, TPU, PA,	TPU, PET(G), ABS, ASA HIPS, TPU, PA, PC,
	PET(G)	PET(G) ABS		

		ASA	PC, PEEK, PPS	PEEK, PPS
Bath Temperature	Min. 40°C	Min. 55°C	Min. 65°C	Min. 80°C

Placing 3D parts

Use protective equipment (goggles and gloves) when loading the parts to avoid scalding and irritation. Before loading the parts, switch off the Vortex EZ, open the lid and lift the basket out of the basin. Place the basket on the stand on top of the device frame.

Open the lid of the basket and carefully place the parts in the basket. Close the lid of the basket. Carefully lower the basket back into the tank. Close the lid, and turn on the power of the Vortex EZ.



Note: To accelerate the dissolving process, you can mechanically remove support material that is easy to reach before putting it into the basket. When doing so, make sure that you do not damage filigree areas of the print object.



Caution: When mechanically removing parts of the support structure, always wear the enclosed, tight-fitting protective goggles. Splintering parts of the support structure can damage the eyes or cause cuts. Wear suitable protective gloves for this purpose.

Removing 3D parts



Attention: When removing objects during the dissolving process, it is essential to wear protective equipment (safety goggles and protective gloves). Before opening the lid, the Vortex EZ should be switched off.



Caution: Hot steam may escape when opening the lid.

The duration of the dissolving process is strongly dependent on the geometry of the part, the model material, the support material and the bath temperature. The model material determines the maximum dissolving bath temperature.

To reduce the dissolution time, set the temperature of the washing solution as high as tolerable by your 3D part material (maximum 85 °C). The thicker and more difficult a support structure is to reach, the longer the process will take. The dissolution time can range from less than an hour to several hours.



Note: As soon as a ratio of approx. 1:1 of VXL support material to VXL EX dissolving powder is reached, the dissolving time increases significantly. Use a fresh wash solution from this point on.

After removing the parts, they must be cleaned from the washing solution on all sides for a few minutes under warm, fresh water. You can do this by submerging your parts in clean water or by placing them under running water.

After the cleaning process, the damp parts should be dried (e.g. by placing them on a paper towel), as washing solution may still escape from parts. Make sure to turn the

part to opposite sides every few minutes to let the liquid drain from all sides. The time required for the part to dry depends strongly on its geometry and the material used, and can take from a few hours to a few days.

You can dissolve up to 1 kg of support material VXL with one filling of the Vortex EZ. So you do not have to renew the dissolving bath after each part.

Flushing the solvent

The dissolving solution will become depleted once you dissolve 1 kg of VXL in 1 kg of VXL EX, and will become ineffective at dissolving further support material.



Note: Make notes on the amount of support material dissolved in order to renew the wash solution in time.



Caution: Wear protective equipment (safety goggles and gloves) when emptying the tank.



Caution: Never empty washing solution while it is still hot. Always wait until the wash solution has cooled down.

When emptying the tank, make sure to follow these steps:

1. Switch off the Vortex EZ and disconnect the power plug. Allow the wash solution to cool down.
2. Have another container ready if you do not have a drain nearby. We recommend using a household drain or a graywater container.
3. Never carry the Vortex EZ with the dissolving solution inside!

4. Connect a hose to the valve on the left side of the Vortex EZ. Make sure the hose is secured. Do not use tools to tighten the connection.
5. Place the other end of the hose into a drain or gray water container with a minimum capacity of 38 liters and secure the hose from falling out.
6. Now slowly open the valve. Check whether the wash solution flows into the prepared container and no spillage or dripping occurs outside.
7. When the Vortex EZ is almost empty, tilt it slightly to allow the wash solution to drain off completely.
8. Rinse the Vortex EZ with fresh water.



Note: The washing solution can be disposed of down the drain. When doing so, please make sure that you comply with wastewater disposal regulations in your country/state/area.

Cleaning and maintenance

To increase the lifespan of the Vortex EZ, we recommend cleaning it after each emptying.



Caution: Be sure to disconnect the Vortex EZ from the power supply before cleaning. Avoid splashing water on the operating elements or the power plug. Do not use abrasive or aggressive cleaning agents for cleaning. Wear protective goggles and gloves.

To clean your device, follow these steps:

1. Follow the steps for disposing the solvent as described before.

2. Open the lid and remove the basket. Rinse the basket with water.
3. The device can be cleaned using a soft brush, soft cloth or sponge. Use water and a household cleaning agent. Rinse the device with clear water afterward. Remains of support material can be disposed of in the household plastic waste.
4. To remove persistent deposits and scale, fill the Vortex EZ with 38 liters of water. Add about 50 g of household citric acid. Turn on the device, let it heat up to 60 °C. Allow the citric acid to remove the deposits for a few hours. Empty the basin and rinse it well with water.



Caution: Make sure that there is no more citric acid in the tank the next time you use it. The acid neutralizes the dissolving powder and could lead to further accumulation of deposits.

Propeller maintenance



The propeller and tank are equipped with strong magnets. Pay attention to your surroundings (credit cards, and especially pacemakers)!



When mounting or replacing the propeller, be aware of the strong magnets pulling the propeller down. Hold the propeller tightly while sliding it slowly onto the pin. Do not let it drop because a strong impact may damage the propeller's bearing.

To remove deposits underneath the propeller, you can remove the propeller. To do this, open the mounting

screw in the center of the propeller and lift the propeller with the screw. After cleaning, mount the propeller back onto the shaft. Tighten the screw ("hand-tight").

Device disposal

To protect the environment, resources and your health, we ask that you recycle the Vortex EZ responsibly.

Troubleshooting

The Vortex EZ does not have automatic fault detection. There is a self-resetting heater fuse to prevent the unit from overheating. Always make sure that there is always enough liquid in the tank of the Vortex EZ.

If you cannot detect any flow in the dissolving bath, make sure that the propeller is turning. Empty the basin and set the temperature controller to 0.

Fill about 10 liters of fresh water into the basin and switch on the unit. Slowly turn up the speed control knob. If there is no rotation, turn off the unit, disconnect the power plug and drain the water. Remove the propeller as described in the "Maintenance" section and clean the area under and around the propeller. Reinstall the propeller. Test again as described above. If no rotation can be detected, please contact customer service.

If you notice a leak in the container, switch off the device and empty the container according to the steps described in the sections before. Please contact the customer service.

If needed, you can obtain replacement baskets and propellers from customer service.

More information

For further information, please contact us at

BellandTechnology AG

Kühlenfelser Str. 47

91278 Pottenstein

Germany

Website: www.xioneer.com

Email: wecanhelp@xioneer.com

Phone: [+49 \(0\) 171 220 006 7](tel:+49(0)1712200067)

Disclaimer

The material in this manual is for informational purposes only. The products it describes are subject to change without prior notice, due to the manufacturer's continuous development program.

BellandTechnology AG or its subsidiaries make no representations or warranties with respect to this manual or with respect to the products described herein.

BellandTechnolgy AG or its subsidiaries shall not be liable for any direct, indirect, or incidental damages, costs or expenses arising out of or in connection with the use of this material or the products described herein.

XIONEER