Voxelab Aquila S3

Voxelab Aquila S3 3D Printer User Manual

Model: Aquila S3 | Brand: Voxelab

Introduction

This manual provides essential information for the safe and efficient operation of your Voxelab Aquila S3 3D Printer. Please read it thoroughly before assembly and use to ensure optimal performance and longevity of your device.

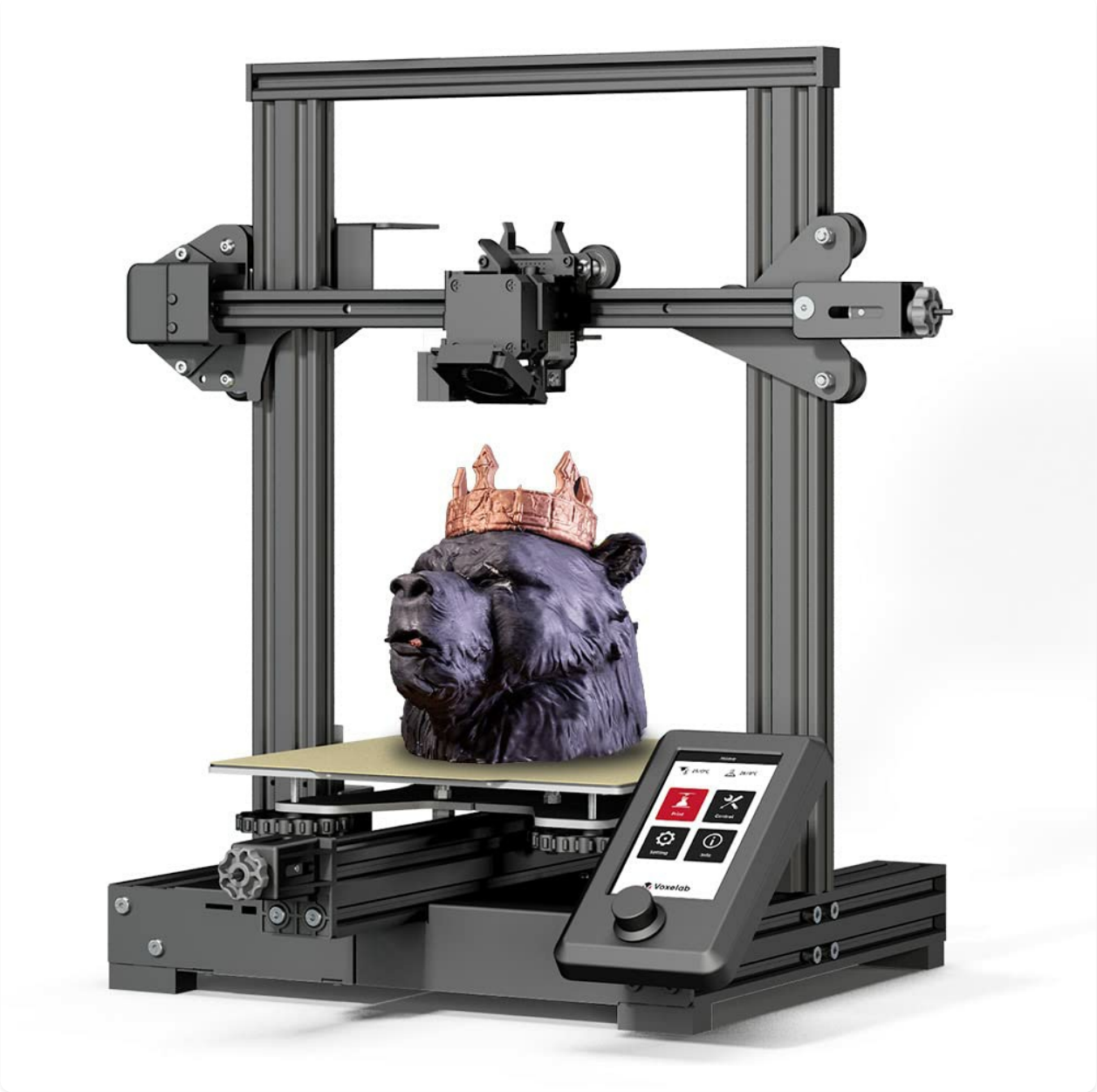

Image: The Voxelab Aquila S3 3D Printer, showcasing its design and a sample 3D print.

Key Features

The Voxelab Aquila S3 3D Printer incorporates several advanced features designed to enhance your 3D printing experience:

- **25-Point Automatic Leveling:** Simplifies bed leveling with a single-button operation, significantly reducing manual adjustment time.
- **All-Metal High-Temperature Extruder:** Features a reduction ratio design for up to 70N wire feeding force, minimizing clogging risks. Supports nozzle temperatures up to 300°C.
- **High-Efficiency Printing:** Includes simultaneous preheating of the nozzle and build platform. Achieves typical print speeds of 100mm/s, with a maximum of 200mm/s.
- **Wide Material Compatibility:** Supports various filaments including PLA, ABS, PLA-CF, PETG, PETG-CF, PET-CF, PA12-CF, PA, PC, and TPU.
- **Low Noise Operation:** Designed with mute nozzle and motherboard fans, operating at less than 50dB.
- **Removable PEI Magnetic Steel Platform:** Provides excellent adhesion and easy removal of printed models.

Image: An overview of the Voxelab Aquila S3's key features, including all-metal body, high precision printing, PEI plate, resume printing, fast heating, direct extruder, max printing speed, color screen, and 25-point auto leveling.

Setup Instructions

Careful assembly is crucial for optimal printer performance. Follow these general steps for setting up your Aquila S3:

1. **Unpacking:** Carefully remove all components from the packaging. Verify that all parts listed in the packing list are present and undamaged.
2. **Base Assembly:** Secure the gantry to the printer base using the provided screws. Ensure all connections are firm.
3. **Extruder and Hotend Installation:** Mount the extruder assembly onto the X-axis carriage. Connect the necessary cables for the hotend, fans, and stepper motor.
4. **Filament Holder:** Attach the filament spool holder to the designated location on the printer frame.
5. **Wiring:** Connect all electrical cables according to the wiring diagram provided in the quick start guide. Pay close attention to power supply connections and motor cables.
6. **Power On:** Connect the power cable and turn on the printer. The display screen should illuminate.
7. **Initial Bed Leveling (25-Point Auto Leveling):**

- Navigate to the "Leveling" menu on the printer's display.
- Select the "Auto Level" option. The printer will automatically probe 25 points on the build plate to create a mesh for accurate printing.
- After auto-leveling, perform a Z-offset adjustment if necessary, using a piece of paper to set the correct nozzle height above the build plate.

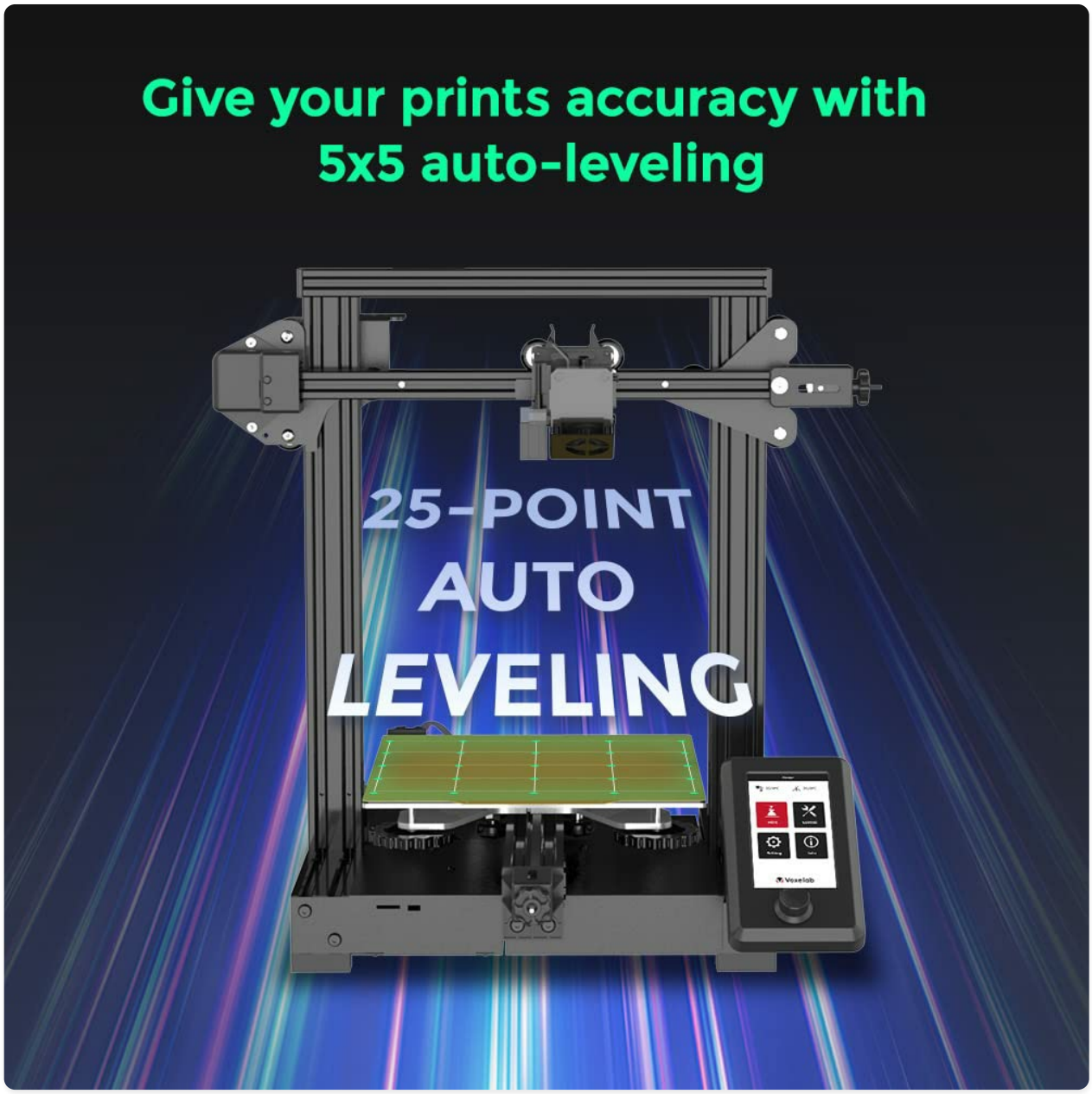

Image: Visual representation of the 25-point automatic bed leveling system, highlighting its precision.

Operating Instructions

Filament Loading

1. Place the filament spool onto the filament holder.
2. Preheat the nozzle to the recommended temperature for your filament type (e.g., 200-220°C for PLA).
3. Insert the filament into the extruder's intake hole and push it gently until it engages with the extruder gears.
4. Use the "Load Filament" function on the printer's display to automatically feed the filament through the hotend until it extrudes smoothly from the nozzle.

Preparing a Print (Slicing)

Before printing, 3D models (STL, OBJ, AMF files) must be converted into G-code using slicing software. Compatible software includes Cura, Simplify3D, and Voxelmaker.

1. Import your 3D model into the slicing software.
2. Configure print settings such as layer height (0.1-0.4mm), infill density, print speed (typical 100mm/s, max 200mm/s), nozzle temperature (up to 300°C), and bed temperature (up to 100°C).
3. Generate supports if your model requires them.
4. Slice the model to generate the G-code file.
5. Save the G-code file to a memory card.

Starting a Print

1. Insert the memory card containing the G-code file into the printer's card slot.
2. On the printer's display, navigate to the "Print" menu.
3. Select your G-code file from the list.
4. Confirm the print job. The printer will begin preheating the nozzle and bed simultaneously, then start printing.

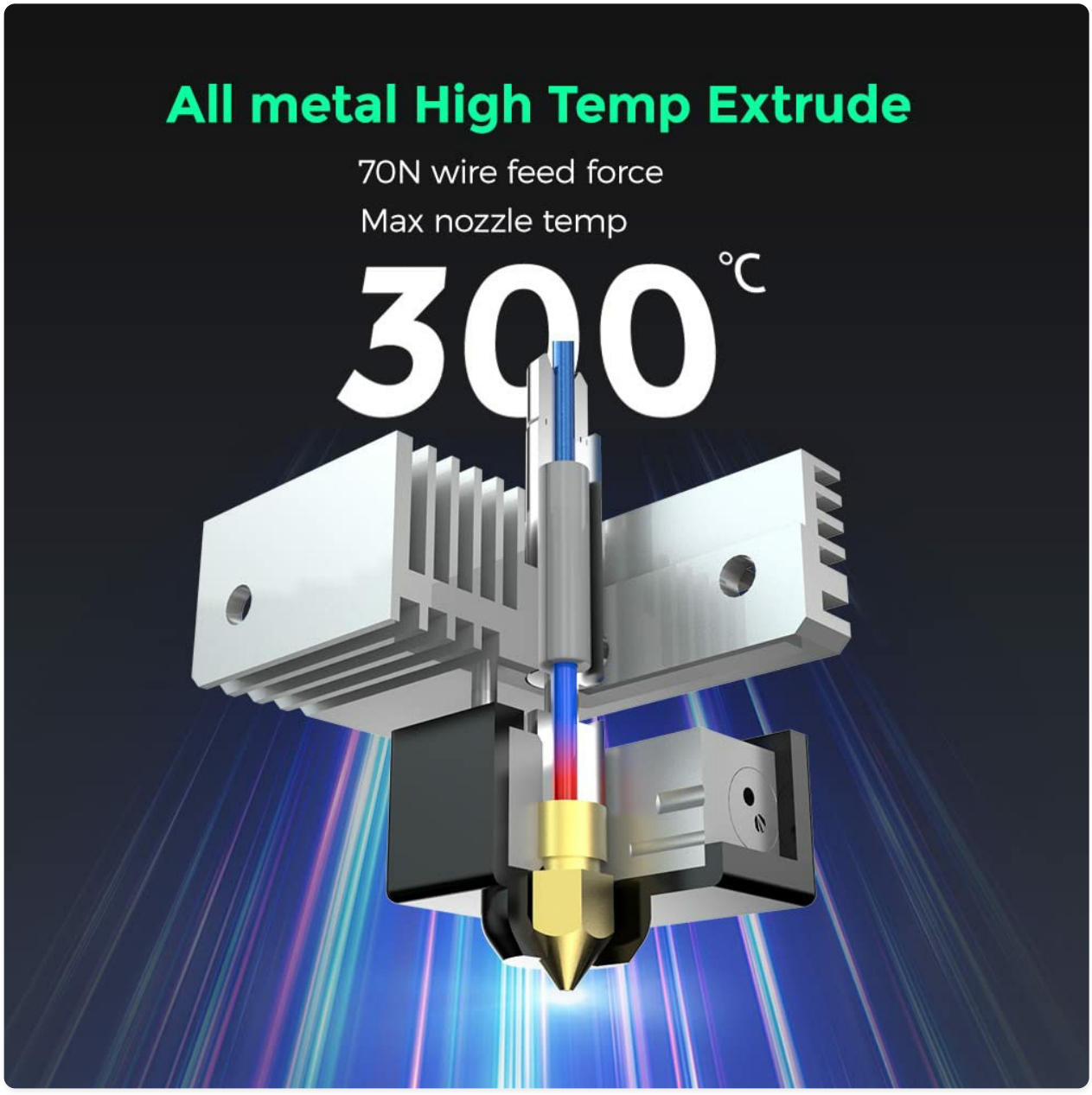

Image: Detailed view of the all-metal high-temperature extruder, showing its internal components and maximum temperature capability of 300°C.

Image: A display of various 3D printed objects, demonstrating the printer's compatibility with multiple filament types like PLA, ABS, PETG, PA, PC, and TPU.

Maintenance

Regular maintenance ensures consistent print quality and extends the lifespan of your printer.

- **Clean the Build Plate:** After each print, allow the build plate to cool and carefully remove the printed object. Clean the PEI surface with isopropyl alcohol to maintain adhesion.
- **Nozzle Cleaning:** Periodically check the nozzle for clogs or debris. Use a thin needle or cleaning filament to clear any blockages.
- **Extruder Maintenance:** Inspect the extruder gears for filament residue. Clean them with a brush if necessary to ensure proper filament feeding.
- **Lubrication:** Apply a small amount of lithium grease to the Z-axis lead screw and smooth rods every few months to ensure smooth movement.
- **Firmware Updates:** Check the Voxelab official website for any available firmware updates to improve performance and add new features.

Troubleshooting

Here are solutions to common issues you might encounter:

Problem	Possible Cause	Solution
Filament not extruding	Clogged nozzle, tangled filament, incorrect temperature.	Clean the nozzle, check filament path, verify nozzle temperature settings.

Problem	Possible Cause	Solution
Poor bed adhesion	Unleveled bed, dirty build plate, incorrect bed temperature, too large Z-offset.	Perform auto-leveling, clean the PEI plate with isopropyl alcohol, adjust bed temperature (e.g., 55°C for PLA), fine-tune Z-offset.
Prints detaching mid-print	Similar to poor bed adhesion, drafts, excessive print speed.	Ensure proper bed adhesion, avoid drafts, reduce print speed for the first few layers.
Layer shifting	Loose belts, motor issues, excessive print speed.	Check and tighten X and Y axis belts, inspect motor connections, reduce print speed.
Excessive noise	Loose components, worn bearings, fan issues.	Inspect for loose screws, lubricate moving parts, check fan operation. (Note: Printer is designed for <50dB operation).

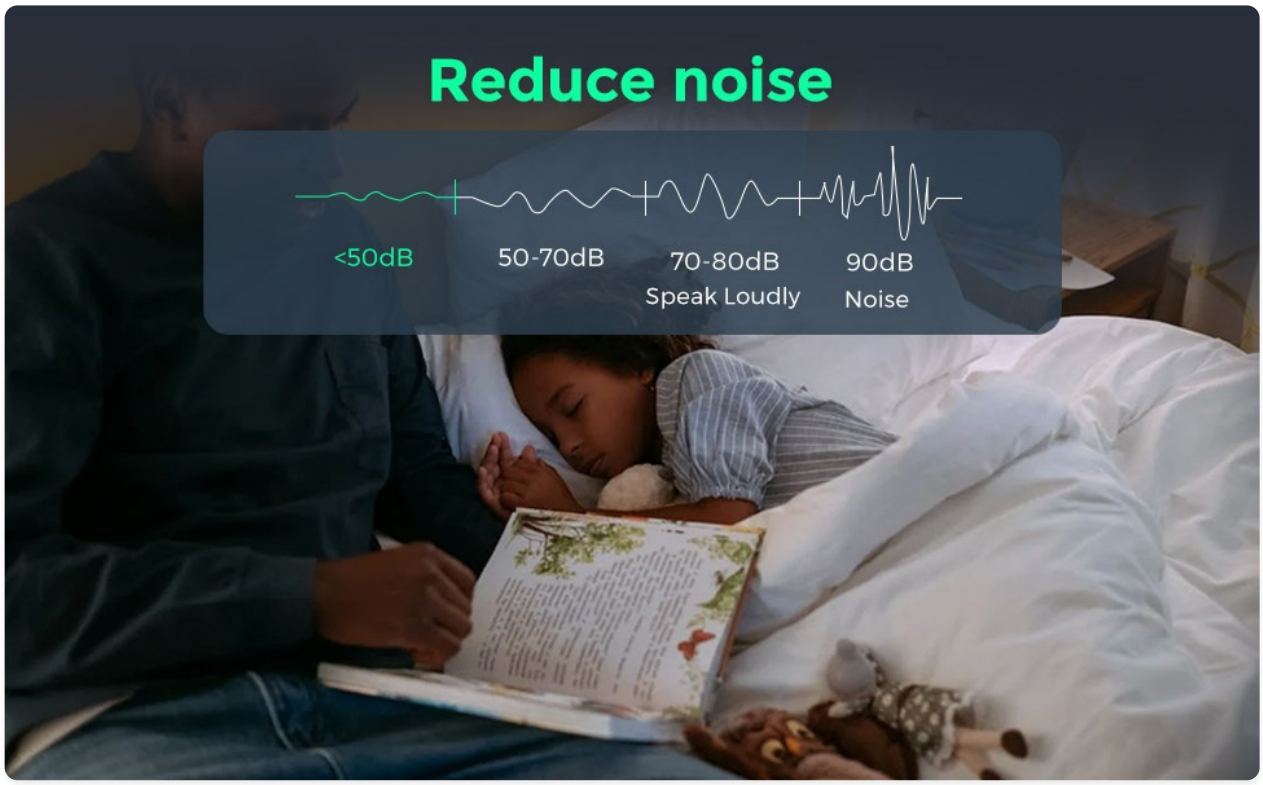

Image: A graphic demonstrating the low noise level of the printer, indicating it operates below 50dB.

Technical Specifications

Feature	Detail
Brand	Voxelab
Model Number	Aquila S3
Product Dimensions	46.99 x 46.99 x 47.98 cm (18.5 x 18.5 x 18.9 inches)
Item Weight	9.36 kg (20.6 lbs)
Print Volume	220 x 220 x 240 mm

Feature	Detail
Material	Alloy Steel
Color	Black
Nozzle Quantity	1
Nozzle Diameter	0.4 mm (includes 0.3/0.4/0.6/0.8mm copper nozzles in package)
XY Axis Precision	±0.2 mm
Layer Thickness	0.1-0.4 mm
Max Nozzle Temperature	300°C
Max Hotbed Temperature	100°C
Print Speed	Typical 80-100 mm/s, Max 200 mm/s
Compatible Filaments	PLA, ABS, PLA-CF, PETG, PETG-CF, PET-CF, PA12-CF, PA, PC, TPU (1.75mm diameter)
Compatible Slicing Software	Cura, Simplify3D, Voxelmaker
File Format	STL, OBJ, AMF
Connectivity	USB, Memory card (offline printing)
Resume Printing Function	Yes
Input Voltage	AC 115/230V 50/60Hz
Output Voltage	DC 24V
Total Power	350W
Compatible OS	Windows 7/10, Mac OS

Parameter			
Nozzle quantity	1	Print volume	220*220*240 mm
Nozzle diameter	0.4 mm	Input voltage	AC 115/230V 50/60HZ
XY axis precision	±0.2 mm	Output voltage	DC 24V
Compatible slicing software	Cura/Simplify 3D/ Voxelmaker	Total power	350W
Language switch	EN/CN	Filament	Φ1.75 mm PLA
File format	STL/OBJ/AMF	Connectivity	USB/Memory card offline printing
Hotbed temperature	≤100℃	Nozzle temperature	≤300℃
Resume printing fuction	Yes	Print speed	≤200 mm/s, 80-100 mm/s normall
Supports (OS)	windows 7/10 / Mac OS	Filament	PLA, ABS, PLA-CF, PETG, PETG-CF, PET-CF, PA12-CF, PA, PC, TPU
Layer thickness	0.1-0.4 mm		

Image: A detailed table outlining the technical specifications and parameters of the Aquila S3 printer.

Warranty and Support

Voxelab FDM 3D printers come with a one-year warranty and lifetime technical support.

- **Warranty Period:** One year from the date of purchase.
- **Technical Support:** Lifetime technical assistance is available for any operational or technical queries.
- **Contact:** For support inquiries, please contact the Voxelab after-sales team. Responses are typically provided within 24 hours.
- **Returns:** For information regarding returns within 30 days of receipt due to a change of mind, or for defective/damaged products, please refer to the Amazon return policy pages. Specific information for Marketplace purchases is also available on Amazon's help pages.

Related Documents - Aquila S3

	Voxelab Aquila 3D Printer User Manual Comprehensive user manual for the Voxelab Aquila 3D printer, covering setup, operation, troubleshooting, and after-sales service. Includes detailed instructions, specifications, and safety guidelines.

	Voxelab Aquila X2 3D Voxelab Aquila X2 3D 3D
	Voxelab Aquila X2 3D Printer User Manual Comprehensive user manual for the Voxelab Aquila X2 3D printer, covering product introduction, assembly, operation, troubleshooting, and after-sales service.
	Voxelab Aquila D1 3D Printer User Manual Comprehensive user manual for the Voxelab Aquila D1 3D printer, covering setup, operation, maintenance, and troubleshooting.
	Voxelab Polaris 3D Printer Quick Start Guide A comprehensive guide to setting up and operating the Voxelab Polaris 3D printer, including installation, leveling, first print, post-processing, and software usage with CHITUBOX and VoxelPrint.
	Voxelab Aries 3D Printer User Manual Comprehensive user manual for the Voxelab Aries 3D printer, covering unpacking, assembly, operation, maintenance, troubleshooting, and specifications. Includes detailed instructions and safety guidelines.