AFINIA

H480 3D Printer

Technical Overview

Includes

- H480 3D Printer
- 1 roll of Premium Natural Filament (700g)
- Power Supply
- Accessory Kit
    - Power Cord
    - USB Cable
    - Filament Hanger
    - Platform Calibration Probe and Data Cable
    - Hex Wrenches
    - Filament Guide Tube
    - 3 Perf Boards (used for print surface)
    - Nozzle Wrench
    - Spare screws & washers
    - Gloves
    - Exacto Knife and blades
    - Putty Knife
    - Snipping Pliers
    - Tweezers
- Installation Disc
    - PC and Mac installations on one disc
    - User Documentation
    - Spare Parts (also install on computers during installation)
    - Technical Videos
- User's Manual
- Quick Start Guide

Printer Specifications

Operating System Support	PC: Win XP, Vista (32- and 64-bit), Windows 7/8/8.1 (32- and 64-bit) Mac: 10.6-10.8
Print Materials	ABS, PLA
Filament Diameter	1.75mm
Nozzle Diameter	0.40mm
Input Format	STL, UP3, UPP
Max Print Size	140 x 140 x 135mm
Vertical Print Resolution	0.15mm to 0.40mm
Horizontal Print Resolution	Can vary, but in general parts should be 1.0mm thick minimum
Print Speed	10-100cm^3/hour (depends on print settings)
Model Support	Auto-generated by software
Printer Size	245 x 260 x 350mm
Printer Weight	11 lbs (5 kg)
Operating Temperature, Platform	105° C maximum
Operating Temperature, Extruder	210° C to 270° C (depends on material selected)
Power Requirements	100-240 VAAC, 50-60Hz, 200W
Environmental Temperature	60° F to 85° F recommended
Relative Humidity	20% to 50% recommended

Frequent Pre-Sales Questions

Does the printer come with 3D design software?
No. The software included with the printer is used to prepare an existing 3D part for printing only, not for design. You have to provide the 3D models.

Is the filament material recyclable?
Technically, yes, but you may need to find specific sites for drop-off.

Does the printer require ventilation?
While the supported print materials are not associated with any harmful effects, ventilation may be wanted simply due to the smell of the fumes.

Can I use other print surface methods?
Yes, provided they fit on the existing platform and that the nozzle height is set correctly. A few are mentioned in the User's Manual.

What is the difference between the Premium and Value Line ABS filament?

- The Premium filament has been designed specifically to the specifications of the H480 3D printer. The most important factor is the extrusion temperature of 260° C. The Value-Line filament has an extrusion range of 210°-250° C. This range allows for broad support for a number of different 3D printer models currently on the market.
- The higher extrusion temperature of the Premium filament causes the raft and support material to adhere more lightly to the model than the Value-Line, making removal of the raft and support material just a little easier.
- The matched extrusion temperature of the Premium filament gives slightly more control on the extruded material, making for a better tolerance control of the final printed part's dimensions. Both filaments work well, but the Premium will give results more closely matched to the original design.
- The Premium filament is sold in 700 gram rolls, packaged in a vacuum-packed foil bag with a desiccant pack. The Value Line is sold in 1 kg rolls, packaged in a sealed clear plastic bag with a desiccant pack.
- The Premium and Value Line filaments are both 1.75mm in diameter; the Premium line has tighter tolerances on that diameter, but both meet the printer's tolerances.
- Odor from both filament lines is about the same. Unless you are running the printer in an unventilated area, you will probably not notice the odor of either.
- The Premium filament line includes 6 colors, the Value-Line currently includes 17 colors. There will be some variation between the colors that are available in both lines. Both lines are color-fast.

Is there a difference in strength in the filaments when comparing color vs. natural?
The Natural filament is slightly stronger and slightly more precise than the color filaments, due to the additional ingredients needed to add the color. For most applications there should be no real impact from these differences, but we do recommend the Natural if you need the most print accuracy.

How does the support material work?
Support material is made up of thin layers to help shape and hold up the main model when necessary. The connection between the support material and the main model is much weaker than the layers of the model, allowing it to be broken or peeled away from the part.

What maintenance on the printer is needed?

- The printer nozzle will need to be cleaned occasionally. The best method of cleaning the nozzle is to soak it in acetone overnight after removing the nozzle from the printer (nozzle removal is covered in the User's Manual).
    - Some people purchase an additional nozzle in order to have the printer available while one nozzle is being cleaned.
- The bearing rails will need to be lubricated periodically, depending on use. White lithium bearing grease is recommended.
- Occasional re-leveling of the platform may be required. Recommend that the platform level be checked regularly. Level

What does the warranty cover?
The warranty covers parts and labor on the printer for a period of one year except for the perf boards and nozzles; those come with a 90-day warranty.

What does the extended warranty cover?
The extended warranty is a 2nd year warranty covering all the parts and labor for the H480, excluding the nozzle and perf boards which are only covered by the original warranty of 90 days.

3D Design Applications

There are a large number of software packages available that can be used to create the .stl format that is required for use with the Afinia 3D Printing software. This is not a complete list of available software that may be used without additional cost.

Software	Availability
AutoCAD	Free limited Student version available for those that qualify
Autodesk Meshmixer	Freeware
Autodesk Inventor Fusion	Freeware (currently – may change)
Meshlab	Freeware
netFabb	Freeware
Blender	Freeware
TinkerCAD	Free, with limitations; can purchase license
Trimble (Google) SketchUp	Free to create objects, but must have license to download files
openSCAD	Freeware

Aside from the list above, there are a number of commercially available 3D design software packages that can create 3D objects and save them in the necessary .stl format. A list of these includes, but is not limited to:

- 3D Studio Max
- Alibre
- AutoCAD
- AutoDesk Inventor
- CADKey
- DataCAD
- Deskartes-3D Data Expert
- IronCAD
- Mechanical Desktop
- Pro E
- Pro E Wildfire
- Revit
- Rhino
- SolidEdge
- SolidWorks
- Think3
- UGS NX 6
- Unigraphics