


aha! star ☆

 Proudly made in India



3D PRODUCTION MACHINES

FROM THE HOUSE OF 

The Star Arrives



How can 3D printing be useful to me?

While exploring the answer to this question, you might have checked out the details of available machines. You'd have done ROI calculations, got parts 3D printed for yourself and tested them for your application. You might even have bought a 3D printer, just as an experiment.

You might or might not be satisfied with what you found out so far, but we can tell one thing for sure - it can be much better!

We at Aha3D have been at work all these years, first to find out the questions, and then to come up with the ultimate answer. And we're glad to say that we have something to show you!



Aha Star design foundations

Presenting the Aha! star. Named after the symbol ★ which means “everything” in computing, it is tailor made to tick every point in your wishlist for the ultimate FFF machine. It is the gist of the experience of Aha3D, India's oldest and deeply seasoned 3D printer design house.

Modular design. Fully customizable and upgradable at any time. Free lifetime software upgrades to deliver latest functionality. Compatible with yet-to-be-released materials, modules and add-ons.

Prints in multiple materials and colours. Uses most commonly available materials. No special operating skills required. Easy installation.

10 times faster than today's prevalent machines. Customized options to achieve even higher production rates.

Future Proof

Smart

Reliable

Proven 24x7x365 operations in industry

Fully unattended operation. Remote monitoring and control. Automatic recovery from errors. Self-monitoring and preventive maintenance notifications.

After Sales

Developed and manufactured in India, backed by experienced staff to ensure zero downtime.

Flexible

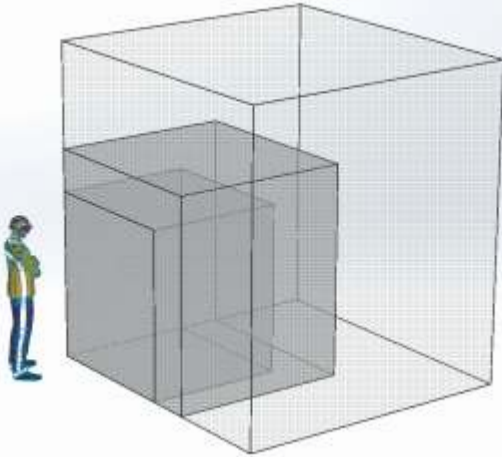
Fast

Precise

Offers a guaranteed positional accuracy of 20 microns. Can achieve accuracies of 4 microns.

Features

Configurable build volume

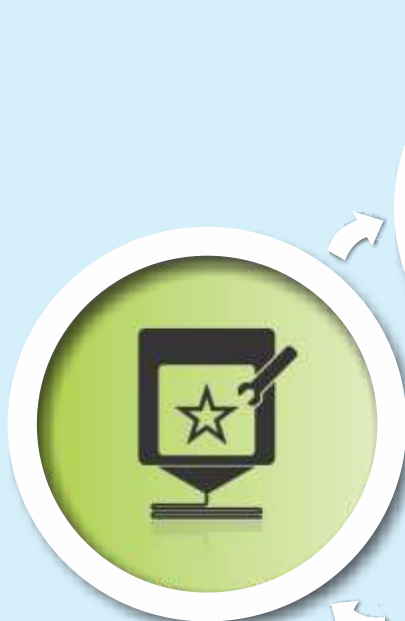


Made to order to your exact requirements, the star can be made as small as 500³ mm cube to 2250³ mm cube, and everything in between!

You can order the right star customized for your application. You might consider sizes for general prototyping jobs (a perfect cube), foundry patterns and moulds (square cuboid where large height isn't required), automobile parts (wider to accommodate parts like bumpers and dashboards), aerospace components (taller to produce tubular structures and blades), and the like.

Interchangeable tool heads

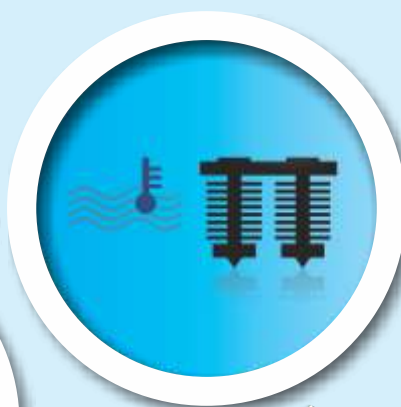
The tool head is what brings the core “making” functionality to the Aha Star. It defines what materials can be used for the job, the speed of material deposition, the number of materials that can be used simultaneously, and to what extent the machine can recover from material flow errors when they happen.



CUSTOM TOOL HEAD

Sky is the limit. Literally.

Think speed colours, materials, composites, clay, plastic pellets, cement, chocolate, and the idea in your mind!



BASIC TOOL HEAD

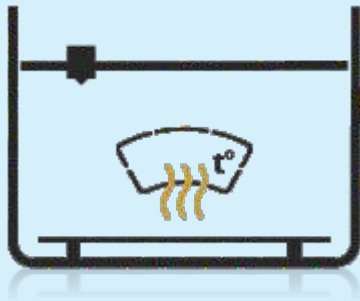
- Economical option
- Air cooled
- Production rate upto 15 cc/hr
- Working temperature upto 300°C
- Works with many materials



STANDARD TOOL HEAD

- Standard option
- Liquid cooled
- Production rate upto 150 cc/hr
- Working temperature upto 500°C
- Works with most materials
- Can detect material feed errors
- Variable filament pressure

Temperature controlled build and environment



High-performance engineering plastics like ABS, Polycarbonate and Ultem are challenging to process because they undergo deformations like warpage, shrinkage and delamination while 3D printing.

To achieve great results with such materials, the Aha Star offers you a temperature controlled bed and build chamber. This enables maintaining the perfect environment for the material being printed, both during and after printing. This ensures accurate and strong prints even with the most challenging of the materials.

Choice of servo drive systems

The drive system moves the toolhead as per design to be created. Conventional 3D printers use “stepper” drive system, which makes the toolhead move accurately, but can’t notice the motion that is actually happening. It blindly executes the commands coming from the design program, heedless of real-world motion errors.

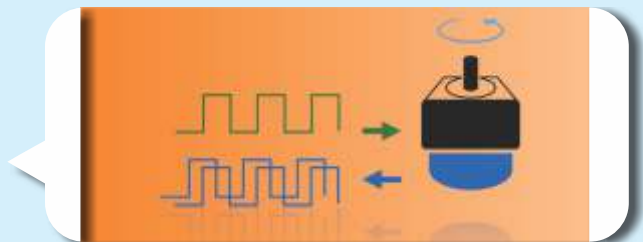
With the star you have a range of options:



STEPPER DRIVE

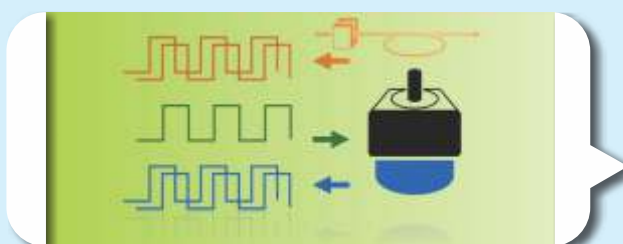
- Economical
- Medium accuracy
- Good performance in small and medium sizes
- Can't detect & correct motion errors

SERVO DRIVE
Industrial Ⓢ
High accuracy Ⓢ
Very reliable performance Ⓢ
Self-correcting for most drive system errors Ⓢ



DUAL SERVO DRIVE

- Industrial
- Ultimate accuracy
- Very reliable performance
- Self-correcting for all drive system errors



Powered by Aha! Sense OS

The new Aha sense OS is the on-board software inside which, together with the hardware inside the Aha Star, makes it, in six words, **“the machine of the future, today.”**

Conventional 3D printers are essentially CNC robots, mostly blind to their own output. Aha Sense OS constantly monitors machine operation, and manages any unexpected events to keep job on track. Parallely, it gives you useful insight into the machine’s operation status and history, and enables you to control the machine from any browser.



REMOTE SOFTWARE UPGRADES

The machine downloads latest features from the Aha Server via software upgrades and keeps delivering latest functionality to you.



SELF-MONITORING

Monitors parameters like filament feed, pressure, status, belt tension, motion & age of components. Preventively notifies for maintenance.



SELF-CORRECTING

Handles filament empty jam, slip, power cuts motion errors, abrupt print stop, manual emergency stops etc.



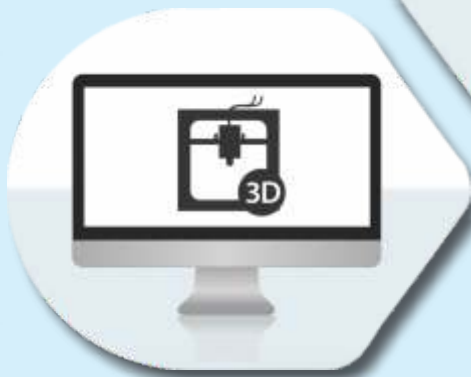
MACHINE PROFILES

Aha 3D regularly releases “Guaranteed Working” presets of all machine and print parameters for each material for the star. This eliminates human errors. Profiles of new materials are distributed via software upgrades.

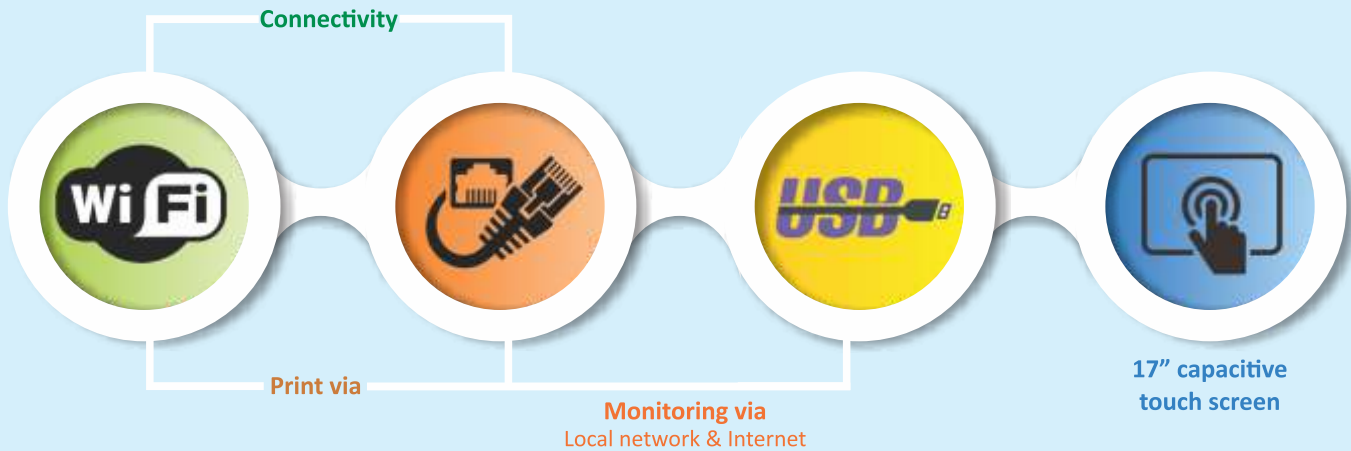


REMOTE MONITORING AND CONTROL

You can control your Aha Star from the intranet or the Internet, and receive live status of the machine as well as the current job.



Standard Interfaces



Specifications

This section elaborates all the specifications of the Aha Star, including those covered by optional add-ons:

FUNCTIONAL		
S.No.	SPECIFICATION	DETAILS
1	Technology	Fused Filament Fabrication
2	Build volume	500 × 500 × 500 mm cube to 2.25 × 2.25 × 2.25 metre cube, each dimension user-selectable from 500, 750, 1000, 1500, 2250 mm
3	Printing material	<p>All engineering thermoplastics and plastic composites commercially available or manufacturable in filament form including ABS, HIPS, HDPE, PC, Nylon, TPU, TPE, carbon fiber composites, metal composites, particle composites etc.</p> <p>Machine profiles for new materials support is continuously added via remote software upgrades.</p> <p>Machine can also accept custom-built toolheads for other materials like pastes (clay, ceramics, etc), pellets, or any other user-specified requirement.</p>
4	filament diameter	3 mm (Standard)
5	Number of extruders	Basic Toolhead: 2 Standard toolhead: 2 Customized toolhead: 3 or more (as per user requirement)

S.No.	SPECIFICATION	DETAILS
6	Layer height	100 to 500 microns (standard)
7	Rate of production	Basic toolhead: upto 15 cc per hour Standard toolhead: Upto 150 cc per hour
8	Maximum extrusion temperature	Basic toolhead: 300°C Standard toolhead: 500°C
9	Tool head cooling	Basic toolhead: air cooled Standard toolhead: liquid cooled
10	Build platform	Temperature controlled upto 150 °C
11	Build chamber	Temperature controlled upto 100 °C
12	Custom toolheads	Toolheads can be designed for a specific material, rate of production, working temperature, and/or number of extruders as per the user's requirement.
13	Positional accuracy	Better than 50 microns (stepper) Guaranteed better than 20 microns (servo) Guaranteed better than 4 microns (dual servo)

AHA SENSE OS

S.No.	SPECIFICATION	DETAILS
1	Machine performance parameters	Status and counters for useful machine and job parameters.
2	Machine self monitoring	Machine performs preventive maintenance based on sensor inputs and software logic.
3	Automatic error handling	Automatic handling of filament errors, motion errors power cuts, manual & automatic print interruptions.
4	Software upgrades	Functionality enhancements via regular software upgrades, free for life.

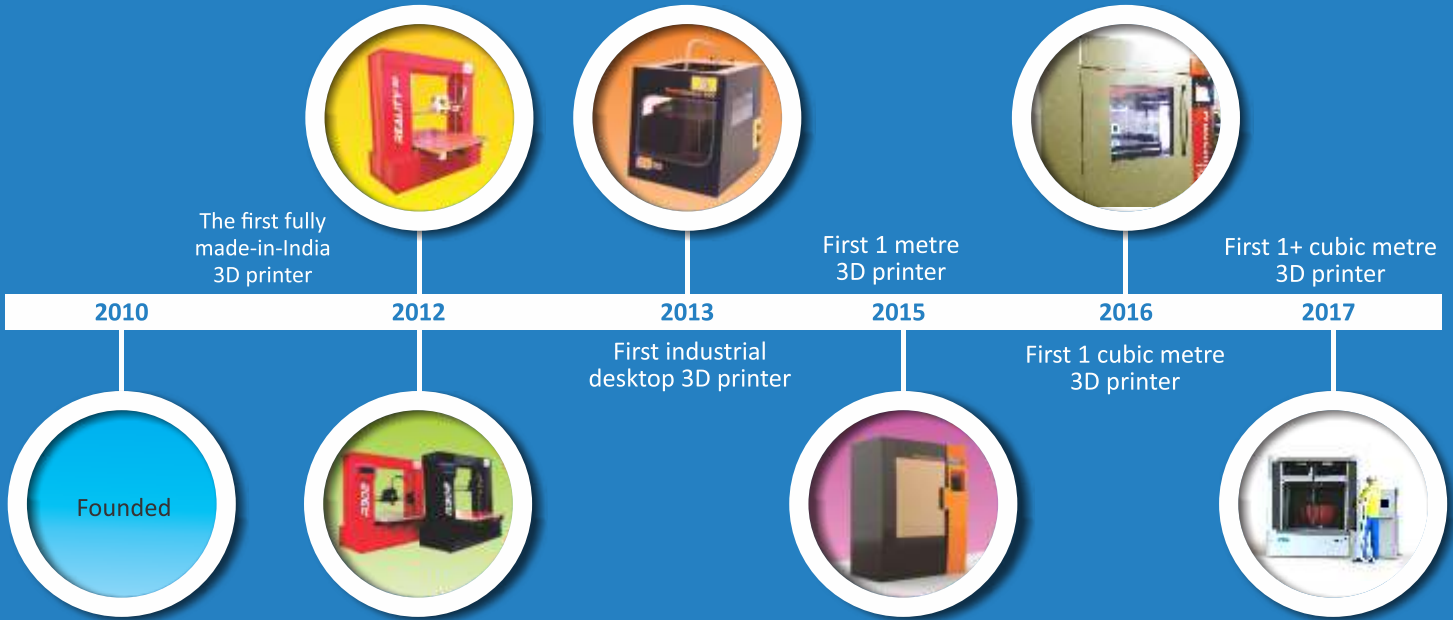
ELECTRICAL

S.No.	SPECIFICATION	DETAILS
1	Power requirement	220V AC, single or three phase (based on specifications)
2	Power consumption	From 5 KW to 25 KW (based on specifications)
3	Special operational requirements	None

INPUT PROCESSING

S.No.	SPECIFICATION	DETAILS
1	Data import format	STL, AMF, OBJ
2	Per-processing software licensing	Single seat, perpetual license
3	Workstation compatibility	Windows XP, Windows 7, Linux

Aha 3D Innovations has given India



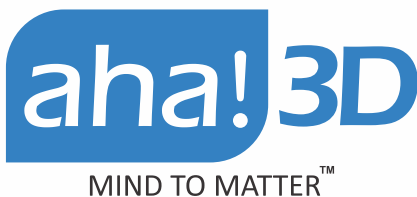
Industrial partner to IIT Bombay, SMART foundry 2020 | Certifications: NSIC, ISO 9001:2008

We are proud to serve



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3D Printers | turnkey rapid prototyping services & solutions



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