BOD2

THE FASTEST AND MOST FLEXIBLE 3DCP PRINTER GLOBALLY

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WE 3D PRINTED THE FIRST BUILDING IN EUROPE.

The goal of 3D printing the first building in Europe was to demonstrate how 3D printing technology could be applied in the traditional construction industry in Europe. The idea for the project came from our participation in the Danish government-funded project “3D Construction Printing”, during which we visited more than 35 3D construction printing projects worldwide. We realized that Europe was falling behind, and we took on the challenge to be the first in Europe to 3D print a building fulfilling the strict building codes of Europe.

We printed the BOD building with our first printer, the BOD1. On the basis of everything we learned we decided to develop a new and much improved version named the BOD2.
INTRODUCING BOD2

BOD2 is an upgraded and improved version of the printer which was used to 3D print the first building in Europe, The BOD.

With its unique modular design, BOD2 is the perfect solution for a wide variety of jobs. The combined experience from years of field research and from printing the first building in EU has been leveraged to design this 2. generation 3D Construction Printer. All parts of the BOD2 are made from high quality materials and have been carefully engineered to meet the high requirements of the industry both in terms of printing speed, stability and durability.
The BOD2 modular truss structure solves two large issues within 3D Construction Printing:

- All projects are different sizes and shapes and with the modular build BOD2, the printer can be configured exactly to each project.
- The light weight combined with the incredible stiffness of the truss structure guarantees a rigid, sturdy construction that will endure rough treatment and ensure stable and reliable printing year after year.

The re-engineered tangential nozzle enables a completely new dimension of control of the surface quality and texture unseen before. By continuously following the movement direction of the print head the nozzle have the added functionality of smoothing or texturing the walls as it prints.

- Reducing the amount of plastering and post treatment of walls.
- Reducing water evaporation by minimizing wall surface area.

The BOD2 printer is the fastest 3D construction printer on the market, with a print speed of up to 1000 mm/s. The speed makes the technology even more competitive compared to traditional construction technology.

The BOD2 only needs to be manned by two operators when printing. The easy of use and minimal manning lowers the labor cost significantly and optimizes the efficiency of the construction site.
UNIQUE ADVANTAGES

FLAPS FOR SMOOTH WALLS

- Enables the smooth printing of vertically straight walls (requires tangential control).
- Smoothen the printed layer and layers below creating an aligned and straight wall ready for plastering.

EASY CHANGE OF PRINT NOZZLES

- Quick release nozzle system allows for easy change between nozzles in less than 2 minutes and for printing various layer widths (30-100 mm possible) and layer heights (10-30 mm possible).
- Optional tangential control (software and hardware) secures that the print head follows the print direction, resulting in printing straight and smooth walls.

HIGHEST QUALITY

- Motors and other crucial parts are made in Germany of the highest quality components.
- All steel trusses are made with very tough and durable S355 steel.
- All cables and wiring are made according to IP67 for outdoor heavy duty usage and safe to use in wet environments.
UNIQUE ADVANTAGES

STATE OF THE ART SOFTWARE

• The proprietary slicer follows the industrial standard G-code and converts CAD files to 3D printable files in minutes, which removes the need for robotic programming.

• The sensor mapping compensates for slabs that are not entirely even.

• The web interface software assures user friendly control of the printer via WiFi or ethernet across all devices.

• 2 Cameras are mounted on the printhead providing live monitoring of the print on all controlling devices.

COMPLETELY SAFE AND EU CERTIFIED

• The BOD2 is equipped with 8 emergency stops.

• All trusses below 5 meter are covered by panels to avoid pinching, fingers getting stuck etc.

• The complete BOD2 printer has been CE certified.

• Without a safety fence, the printer can be operated at speeds of up to 250 mm/s. For faster speeds, a safety fence needs to be installed to comply with EU Certification.

• Due to the above the BOD2 printer is fully compliant with the EU robot directive.
FLEXIBLE MATERIAL FEEDING OPTIONS

- Printhead hopper: Small batches of concrete can be manually fed directly into the printhead hopper via the opening on the side of it. Useful for testing new materials.

- Mixer-pump: For prints requiring a continuous flow of large amounts of concrete, we recommend using a mixer-pump that supplies the concrete to the printhead via a hose.

- Reservoir: Stopping and starting printing/extrusion at any point is possible, which is needed when printing walls with openings for doors and windows.

FREEDOM OF CHOICE OF MATERIALS

To ease the process of compliance with industry standards as well as open up to a wider spectre of materials, the BOD2 has been developed to print with a wide range of materials. The extruder can handle up to 10 mm aggregates and thus print with real concrete and not just mortars.

PRINT ON UNEVEN SURFACES

When printing on an uneven or poorly levelled surface, the printer measures the distance to the foundation and collects the data in a “height map”. When printing the first layers, the printer can automatically compensate for these uneven surfaces, layer by layer, until the resulting print is completely level. This will ensure a level top wall even for very uneven slabs.
**BOD2 SPECIFICATIONS**

Max printing length: As long as you like
Max printing width: 14.6 m
Max printing height: 8.1 m
Max printing speed: Up to 1000 mm/s (1 meter/s)
Layer height: Up to 40 mm
Layer width: Up to 300 mm
Movement system: Servo
Material flow: < 3.6 m²/hour
Max aggregate size: < 10 mm
Printer setup time: 4-6 hours
Printer takedown time: 3-4 hours
Manning: 2 operators
Connection: Wifi or LAN
Interface: Web client
Slicer software: COBOD Slice (Windows, MacOS), Third party slicers
Power supply: 32 A, 400 V, 3 phase
Get in touch.

3D construction printing is beginning to make its mark in the construction industry, and we are here to support that. Please get in touch if you would like to know more about our modular construction printers.

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