GoFa MDAC1 3D Printing STEM Education Package

This 3D printing cell is a powerful solution that uses the ABB GoFa and Massive Dimension's filament extruder. This solution is ideal for colleges and universities as it includes comprehensive course materials and globally recognized STEM certification.

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*Third-party slicing software required to print with six-axis motion.

Six-axis printing, simplified
This cell is designed with ease of use in mind, eliminating barriers for users looking to move into the future of fused deposition modeling with six-axis motion*. In a compact, lightweight package, the printing cell is easy to transport and deploy and can run on single-phase, low-voltage electrical supplies. ABB's printing software for RobotStudio (which is donated to schools) enables users to go from CAD model to toolpath in thirty minutes or less.

A robot that is strong, yet safe
The GoFa CRB 15000 robot from ABB is designed to handle payloads up to 5kg. It has integrated torque sensors in each of its six joints, offering superior power and force-limiting performance. Together, these bring GoFa to an immediate stop if it senses any contact with an object.

Easy set-up and operation
Set-up and configuration is easy with intuitive, graphical Apps directly on the FlexPendant. With the 3D Printing Powerpac add-in for RobotStudio, converting print files from your preferred slicer into RAPID modules is simple and straightforward.

Compact and mobile
The entire MDAC1 assembly is built on an industrial strength protective frame with an integrated heated build plate and can be easily mounted on a tabletop or cart. Rugged leveling feet ensure that you can place it where you want it and get to production.

Key Features:
Filament Extruder
The filament extruder on the MDAC1 is compatible with any 1.75mm filament and can be configured with nozzle sizes from 0.4mm to 1.2mm. Nozzle changes are quick and easy, as is switching materials. The extruder is direct-drive, eliminating troublesome jams more common with Bowden configurations.

Massive Build Volume
The MDAC1 allows you to break into the world of large-format printing with a 21.5in x 21.5in x 20in build volume.

Go far beyond XYZ
Thanks to the additional degrees of freedom granted by a six-axis robot, the MDAC1 allows slicing strategies beyond the traditional horizontal deposition of gantry-based printers. Explore non-planar, multi-planar, and angled printing as solutions to the limitations of conventional printing, such as unsupported overhangs, or to improve surface finish and mechanical strength.

All-Metal Hot End
The MDAC1 comes standard with an all-metal hot end, capable of withstanding temperatures up to 500° C, allowing you to print with the entire range of thermoplastics including high-performance engineered polymers.

Process Cabinet
The MD Process Cabinet controls temperature settings for the heated build surface and extruder hot end through simple-to-use PIDs that can be configured to match your polymer of choice. Additionally, the process cabinet includes digital and analog I/O cards that can communicate with the Omnicore controller via network - ensuring seamless motor control for the filament drive.

Certification and Course Materials

ABB's Globally Recognized STEM Certification and course materials are an option for this package.
The certification equips and certifies educators to effectively implement, teach, and certify students by using active learning to provide real-world, hands-on examples and interactive labs to boost engagement and student success. Our comprehensive course curriculum supports educators in teaching robotics STEM education.

Program Benefits
- Students can present this certificate at future workplaces globally, which means that it is valid even when they relocate for work
- Provides a strong foundation in STEM
- Obtain IACET recognized robot training from ABB's certified instructors
- ABB donates 100 Premium RobotStudio licenses with access to all PowerPacs to schools to help drive technology

Course Materials Include
- 12 lessons for basic and advanced learners
- 56 hrs of content
- Teacher and student manual
- Teacher guide/lesson plan
- Student test after each lesson
- Over 400 test question bank so the teacher can build their own test
- Interactive online training
- Engaging videos
- Lab exercises to complete on the education cell
- Lab exercises to complete in RobotStudio, the lab exercise files are already prepared and developed in RobotStudio
- Virtual twin of the education cell with simulation available to use in augmented reality system and RobotStudio
- Robot has pre-programmed demo

Course Lessons
1. Introduction to Robotics, Safety, and RobotStudio
2. Jogging
3. Wizard Easy Programming and End of Arm Tooling
4. Material Handling, I/O, and Program Structure
5. WorkObjects, Operator Communication and Program Logic
6. RobotStudio AutoPath and Material Handling
7. Programming in RAPID
8. 3D Printing PowerPac
9. Skill Creator
10. Integrated Vision
11. Visual SafeMove
12. B&R HMI Programming and Use
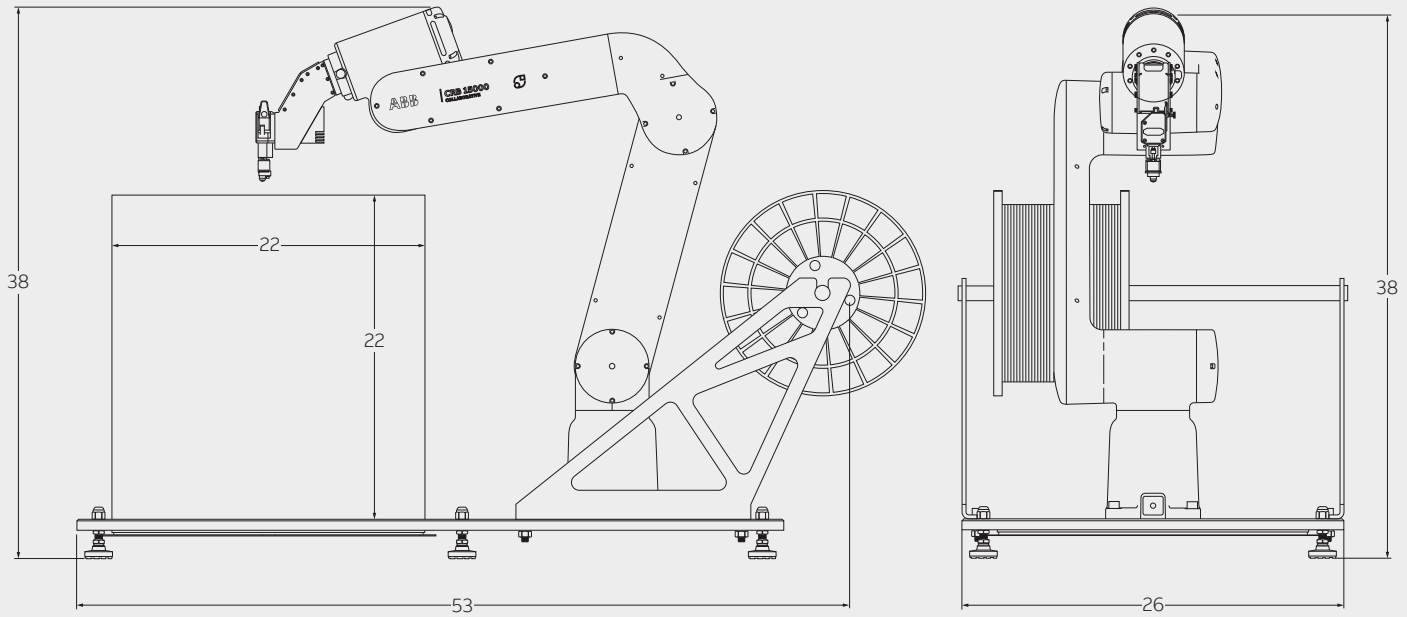
GoFa MDAC1 3D Printing specifications

MDAC1 Includes:

- ABB GoFa CRB 15000 Robot
- MD Process Cabinet
- MD Filament Extruder
- All-Metal Hot End
- Heated Build Surface
- 1 kg PLA Filament

Robot version	CRB 15000
Reach (m)	950
Payload (kg)	5
Number of axes	6
Controller	OmniCore C30
Filament Size	1.75mm
Hot End	500° C Temperature Rating
Nozzle Size	0.4mm to 1.2mm
Build Volume	21.5in x 21.5in x 20in
Power Input	120 VAC (OmniCore Controller) 208-240 VAC (MD Process Cabinet)
Physical Characteristics	Weight: 130 lbs Dimensions: 53in (L) x 26in (W) x 38in (H)

To get more information and pricing:
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