

ROBOTICS

RobotStudio® 3D Printing PowerPac

Digital manufacturing with state-of-the-art 3D printing



ABB enables 3D Printing via RobotStudio® for faster digital manufacturing. 3D Printing PowerPac eliminates manual programming.

From CAD files to final modeling processes in just 30 minutes

ABB is enhancing RobotStudio simulation and offline programming software with state-of-the-art 3D printing capability, which will enable users to progress from the CAD design stage to the final modeling of a product in just half an hour. Coupled with the high performance of our robots, this means manufacturers can now produce high-quality 3D printed objects for a variety of industrial applications more efficiently.

The entire process can be visualized and simulated in RobotStudio

Traditional methods of 3D printing using machines are time-consuming as programming the printing paths involves plotting millions of points and trajectories.

With ABB's new 3D Printing PowerPac, any standard slicer software design can be 'translated' into ABB's simulation environment and robot code. This new piece of software allows ABB to generate robot commands from standard g-code files automatically. This allows manufactures to visualize and simulate the entire process in RobotStudio.

Additive manufacturing

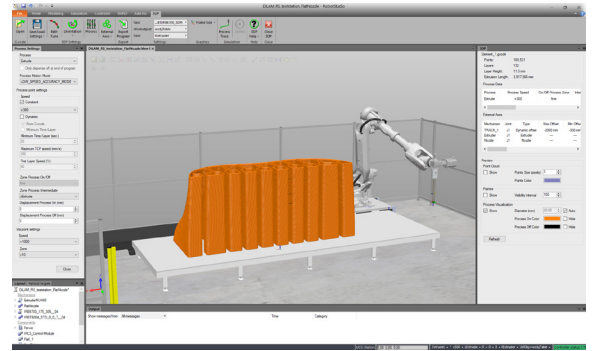
3D Printing PowerPac supports a variety of additive manufacturing processes, such as welding, printing with granules or concrete, and is ideal for low-volume, high-mix printing. Typically, manufacturers print 3D prototypes before mass production, architects print building components and models, and they can now print shapes that could not otherwise be produced.

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01 Preview of object to print.

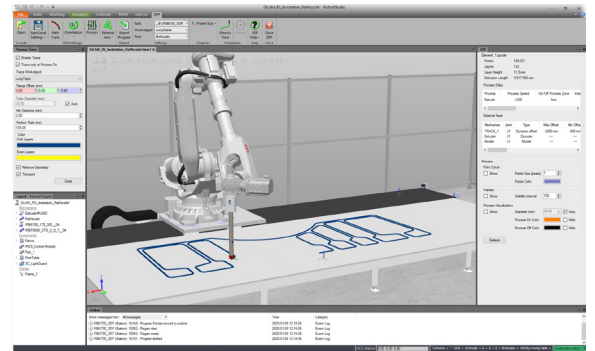
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02 3D printing simulation with robot mounted on track.

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03 3D printing simulation with robot and coordinated turntable.

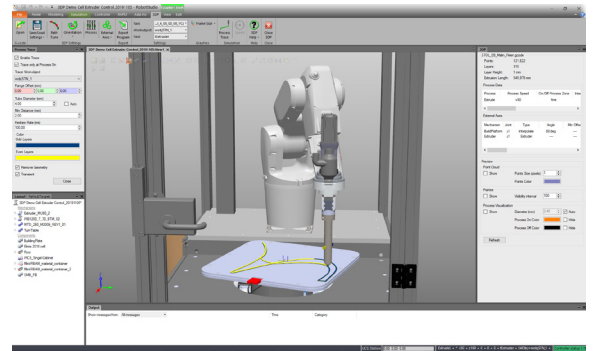
- **Converts G-code to RAPID code with support for multiple print processes**
The PowerPac reads G-code files and converts them to RAPID code, supporting processes such as welding, dispensing, and granulate extrusion.
- **No manual RAPID programming needed**
The complete RAPID print program is generated automatically; no additional RAPID programming is needed.
- **Interpolation of external axes**
Tools available for calculating interpolation of linear and rotational coordinated external axes to provide smooth movement.
- **Granulate extrusion can be controlled as an integrated robot axis**
If the extruder screw is driven by an ABB compatible motor, it can be controlled as an integrated robot axis, which provides precise process control.
- **No limitation on the number of G-code coordinate points**
Coordinate data is loaded dynamically during execution, which enables printing very large objects.
- **Filtering G-code points**
Different tools to filter out unnecessary G-code points for smoother robot movement.
- **Reachability control**
Tools to check the reachability of the whole printing area before the print starts.
- **Simulate printing on RobotStudio**
Before the print program is transferred to the physical robot, it can be simulated and verified on RobotStudio.



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