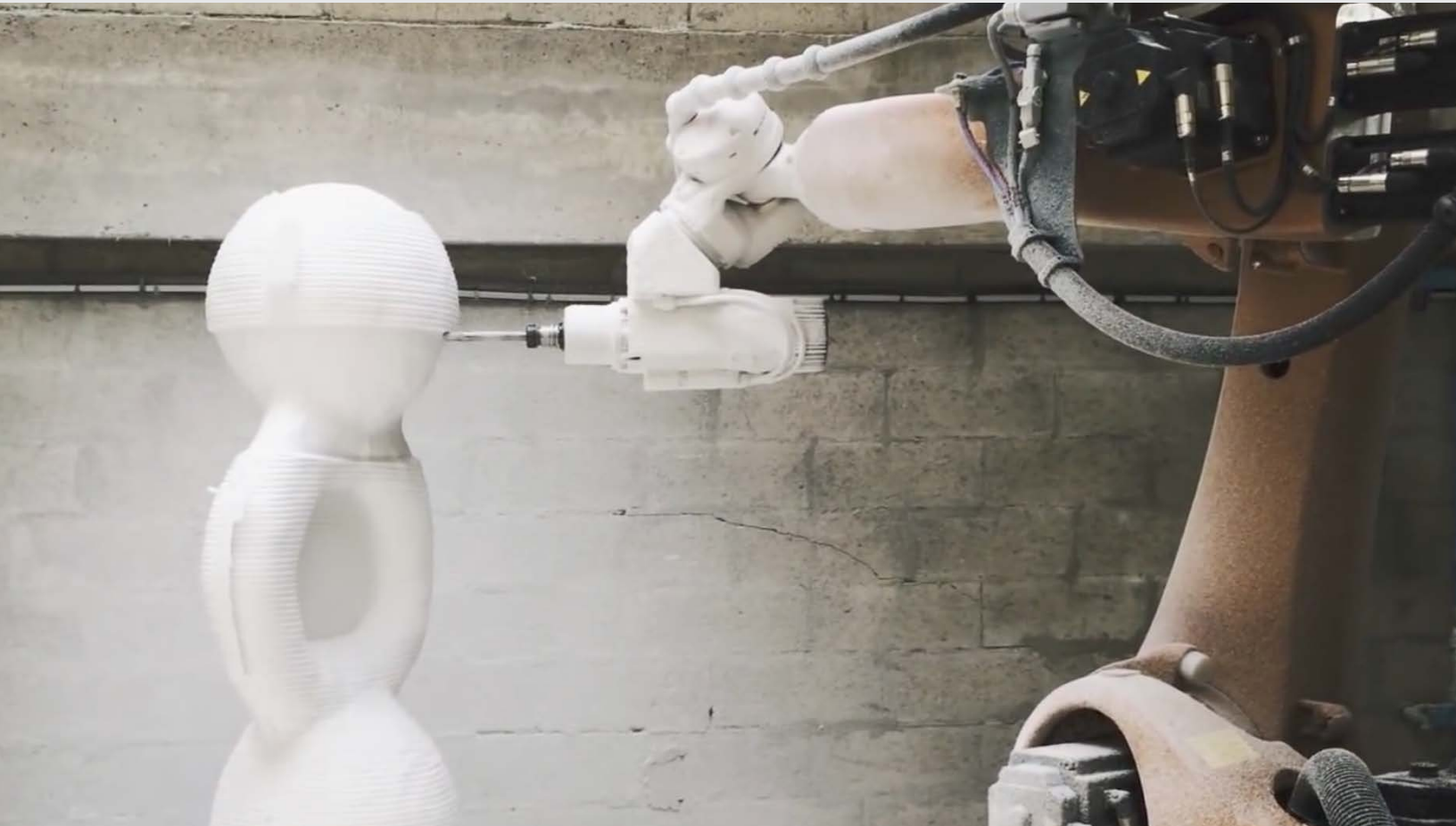


# Material removal

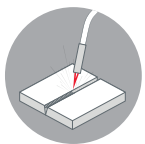


## Offline robot programming to maximize your robot's capabilities

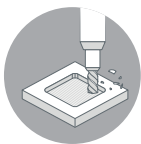
Generate error-free robot programs with powerful and easy-to-use offline programming software.

Reduce programming time and eliminate robot downtime on production runs of all sizes.

Enable your process experts to unlock your robot's full potential without the need for robotics expertise.



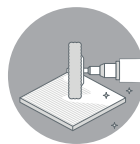
Welding



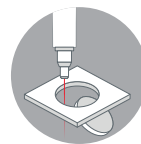
Milling



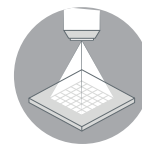
Additive



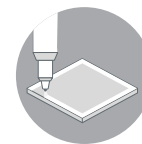
Surfacing



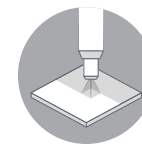
Material Removal



Inspection



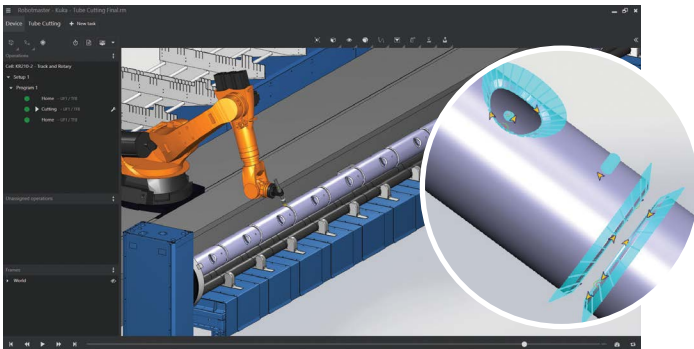
Dispensing



Spraying

## Challenges with teach pendant programming

- Complex parts are time consuming to program using the teach pendant method
- When using a teach pendant, the operator is required to have robotics, programming, and process expertise which is hard to find in a shrinking skilled labor market
- Heavily reliant on the skill of the laborer which is subject to variability making it impossible to achieve accurate results
- Subject to human error resulting in waste and scraps which cuts into profitability
- Production is capped by the number of skilled laborers available creating a bottleneck in the process
- Laborers performing these processes generally experience a tough, hard, and dangerous work environment



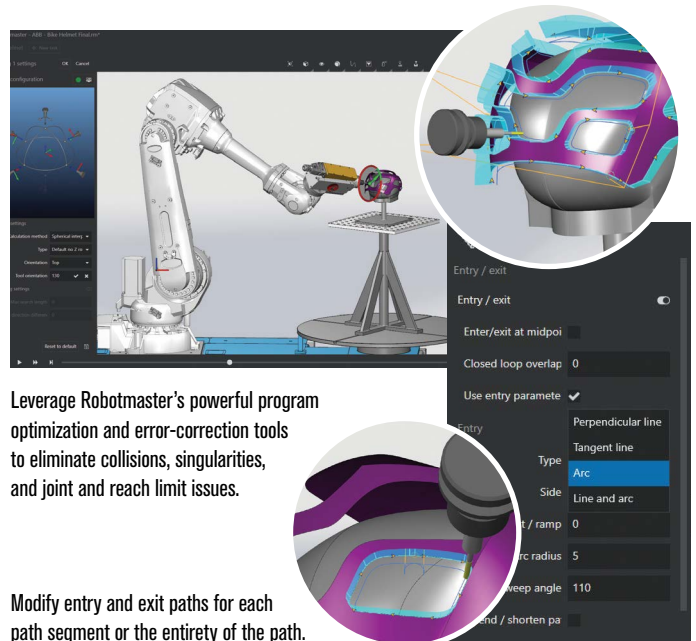
Simply select the cut edges on the part to automatically generate the cut paths. Use the path parameters automatically set by the software based on the CAD model and tooling or make manual modifications to meet process requirements.

## Material removal applications programmed with Robotmaster:

- Laser cutting
- Plasma cutting
- Waterjet cutting
- Trimming
- Routing
- Deburring

## Key advantages of offline programming with Robotmaster

- Reduce programming time and achieve consistent results with an easy-to-use robot programming solution ideal for complex parts and small batch runs
- Import an existing program from any CAM system or generate programs from CAD within a few clicks and eliminate the need for additional software solutions
- Program simple to complex material removal applications with full control of process-specific parameters such as diameter and depth for optimal results
- Manipulate entry/exit paths and navigate constricted areas with ease
- Manage external operations such as activating and deactivating the spindle or tool, within a single solution
- Achieve optimized programs via automatic tool orientation control for minimizing wrist rotation and maximizing robot reach
- Create a virtual model of your robotic system within the software and leverage validation tools for engineering and workspace analysis
- Generate optimized paths that are free of robot singularity, collision, joint and reach limit issues
- Simulate the programmed process prior to running the program on the robotic system to eliminate unknowns and verify the desired result is achieved
- Maximize profitability and increase the robots return on investment



Leverage Robotmaster's powerful program optimization and error-correction tools to eliminate collisions, singularities, and joint and reach limit issues.

Modify entry and exit paths for each path segment or the entirety of the path.

For more information, visit: [www.robotmaster.com](http://www.robotmaster.com)

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Please visit [www.hypertherm.com/patents](http://www.hypertherm.com/patents) for more details about Hypertherm Associates patent numbers and types.

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