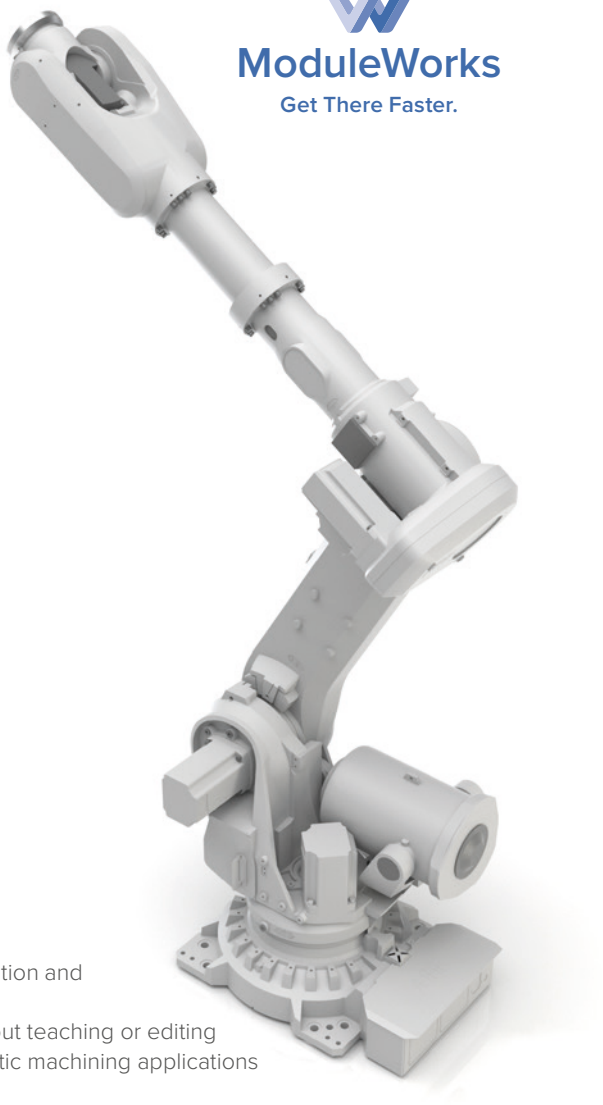
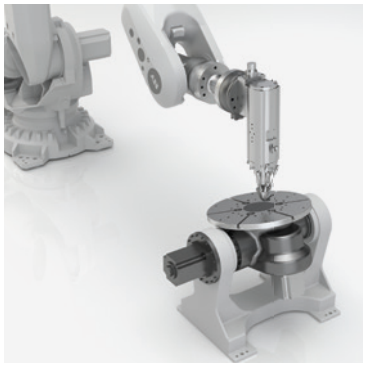
ModuleWorks
Get There Faster.

Robotics
Component



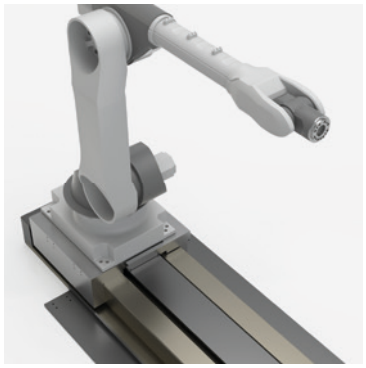
The ModuleWorks Robotics package consists of the kinematics solver (MXP), Machine Simulator and NC-Code Post Processing Framework.
Via API integration, the system can run in the background to transform the calculated toolpath into robot NC-coordinates. This enables seamless and automatic offline planning for complex multi-axis toolpaths.



Welding process with Robot plus table

Key Benefits

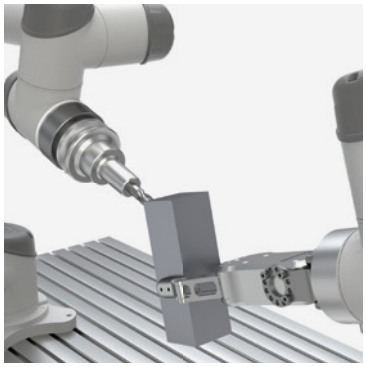
- 6-axis processing
- 6-axis rail
- 6-axis table
- Supports cooperating robots
- Robotics simulation, toolpath simulation and automatis collision checking
- Robotics NC-code generation without teaching or editing
- Highly automated for complex robotic machining applications



Robot on rail

Basics

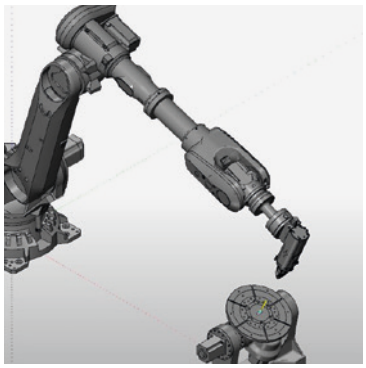
- Simple configuration of the kinemtatics solver using an open XML-format
- Optimized point distribution for free-form motion planning
- Visualization of joint positions, TCP, fixtures etc
- Integrated material removal or additive simulation



Cooperating robots

Machining Highlights

- Optimized arm positioning by weighted arm configurations
- Exception handling for toolpath singularities
- Support NC-Code Post-Processing through open Python scripting framework
- Integration of kinematic solver into CAM-Automation system (SDC)

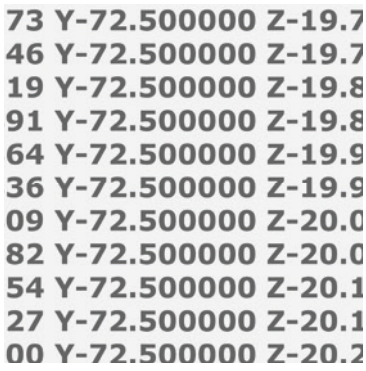


Machine Simulator

Simulation

The Machine Simulator lets you visualize the robot's motion and check for potential collisions. The toolpath, machine components, fixtures and workpiece are shown in a 3D window. Motion point collisions are reported and colliding parts are highlighted in red.

- 3D visualization of the full machine.
- Material removal and material additive simulation.
- Toolpath statistics.
- Axis motion sliders for jog mode.
- Kinematics tree editor.



NC-Code

Posting Framework

The MW NC-code post-processing Python framework (PPF) uses a custom post script to generate NC-code from the output of the MW kinematic solver or any other source. PPF runs on a network server and on any operating system that supports Python. The output can be streamed to any device or machine.

- Flexible scripting for any controller or output format
- Fast NC-code generation
- Open kinematics format definition via ModuleWorks MXP
- API integration interface

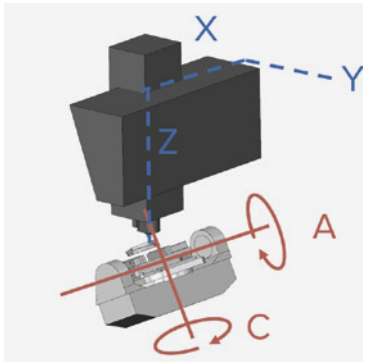


Illustration of a Multiaxis machine

MultiXPost

MultiXPost is the MW kinematics general solver for inverse and direct machine kinematics. It converts MW toolpath objects from the CAD/CAM coordinate system to the machine tool coordinate system. The kinematics solver can be constrained by the kinematics model of the machine to refine the kinematics solution.
The machine model description is defined in an open and editable XML file format.

- Open XML format for machine definition
- Fast kinematics solver: >50K moves/sec
- Supports 2-6 axis machines
- 6-axis robots, rails tables, grippers etc.

For information on other CAD/CAM components, including 3-axis and 5-axis toolpaths, visit:
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