SIEMENS

RobotExpert

Plug-n-Play software solution for robotics simulation and programming

Benefits
- Virtual optimization of robotics processes
- Higher throughput due to optimized cycle time
- Standardized robot programming
- Shortened downtime when introducing a change or a new product
- Avoidance of human hazards and costly damage to equipment during new program introduction
- Easy preparation of special robot program syntax

Features
- 3D modeling of kinematics tools, assistors and robots
- Support for robots from a vast array of vendors

Summary
The use of robots is expanding rapidly in a variety of industries. More and more tasks that were previously carried out by human beings are now done by robots. Tecnomatix® software from Siemens PLM Software is a proven leader in the robotics simulation and offline programming marketplace, and now offers RobotExpert – an easy-to-deploy software system supporting unique industry applications, such as pick-and-place, arc welding, polishing, gluing and others.

RobotExpert software enables the design, simulation, optimization and offline programming of robotic applications to maximize the speed, flexibility and operation of these automated systems. Featuring an intuitive 3D environment, the software combines the simplicity to optimize robotic paths and improve cycle times with the power to simulate virtual mockups of complete manufacturing cells and systems.

As a manufacturer, you need to maximize your return on capital investment. Yet the complexity of options available from today's robot vendors means the planning, design and implementation of your system is

Above: RobotExpert supports simulation of robots used in various applications.

critical for getting the highest return. RobotExpert is an independent software solution, which supports robots from multiple vendors and is based on more then two decades of experience delivering robotic solutions, for some of the most complex applications.

RobotExpert can generate the most suitable combination of equipment to meet specific manufacturing requests, supporting faster product introduction as well as early evaluation of manufacturing times, costs and project investments.

Workcell layout design and modeling
RobotExpert includes a comprehensive library of robots, and facilitates easy 3D modeling of additional robots and automation, with unique capabilities that support modeling of complex kinematics devices.

Utilizing the JT™ data format, which is an International Organization for Standardization standard (ISO 14306:2012), RobotExpert provides smooth 3D data integration with any system that can create JT models. You can model 3D models from scratch using RobotExpert, or import 3D models from other computer-aided design

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RobotExpert

Features *continued*

• Collision detection

• Gantt chart representation

• Offline-robot programming

• Accurate cycle time calculation using realistic robot simulation (RRS)

• Highly customized user interface and functionality

• Intuitive and native Windows environment software

• Ability to upload robot programs from the shop floor
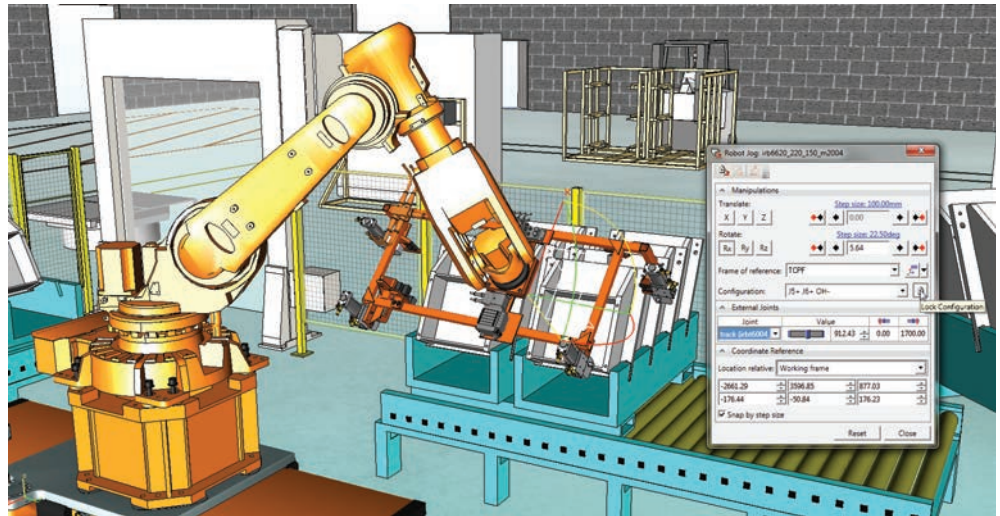
*A pick-n-place robotics workcell modeled and simulated with RobotExpert.*

(CAD) tools or formats. The import is supported by a rich variety of CAD translators, including conversion from NX™ software, Solid Edge® software, SolidWorks, CATIA and Pro/Engineer as well as native formats such as IGES, STEP and Parasolid.

Motion simulation for robots and mechanisms
RobotExpert generates configurable motion paths based on the controller features. It allows calculation of cycle times, analysis of real-time performance and saves testing time.

When used in combination with the realistic robot simulation (RRS) based on the actual controller motion planning software, RobotExpert provides extremely accurate cycle time calculation.

RobotExpert helps you dynamically detect collisions during robot simulation and motion, improving shop floor workers' safety and preventing costly damages to equipment. Using the collision detection mechanism, you can closely analyze whether there is a penetration, contact collision or near miss.
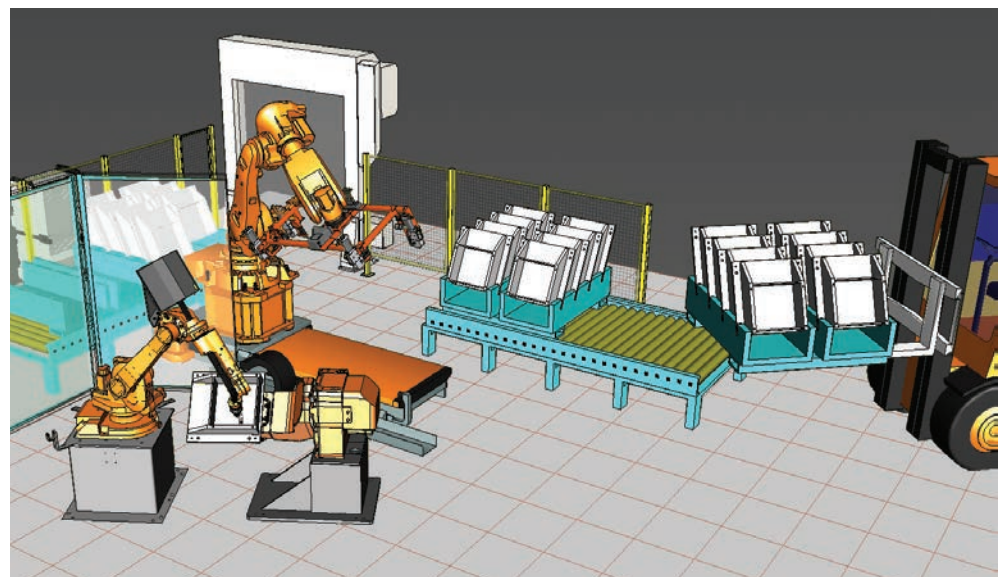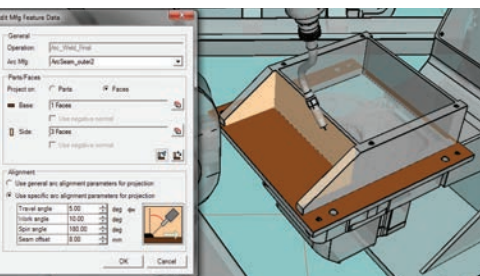
Arc welding simulation with RobotExpert.
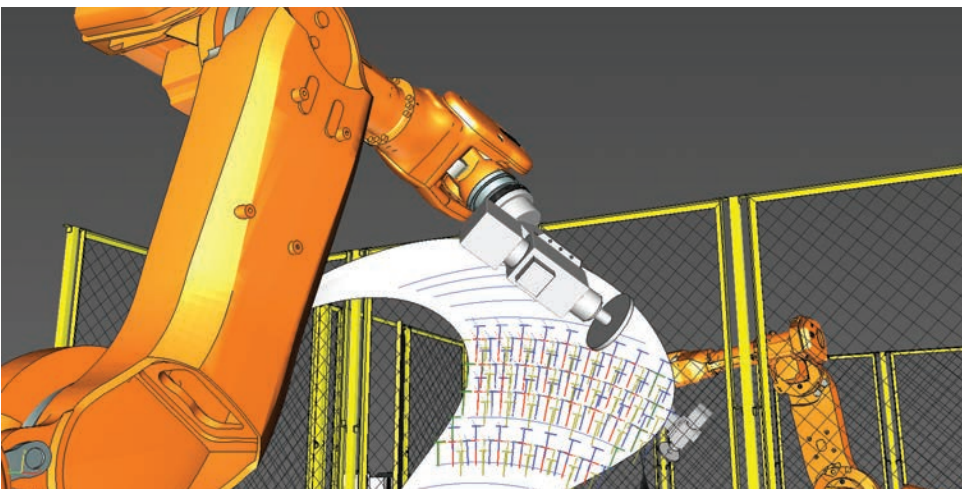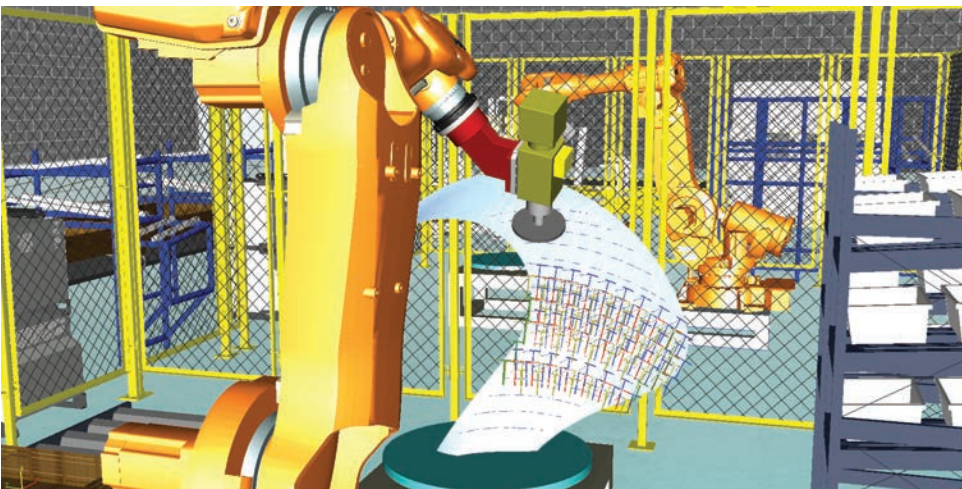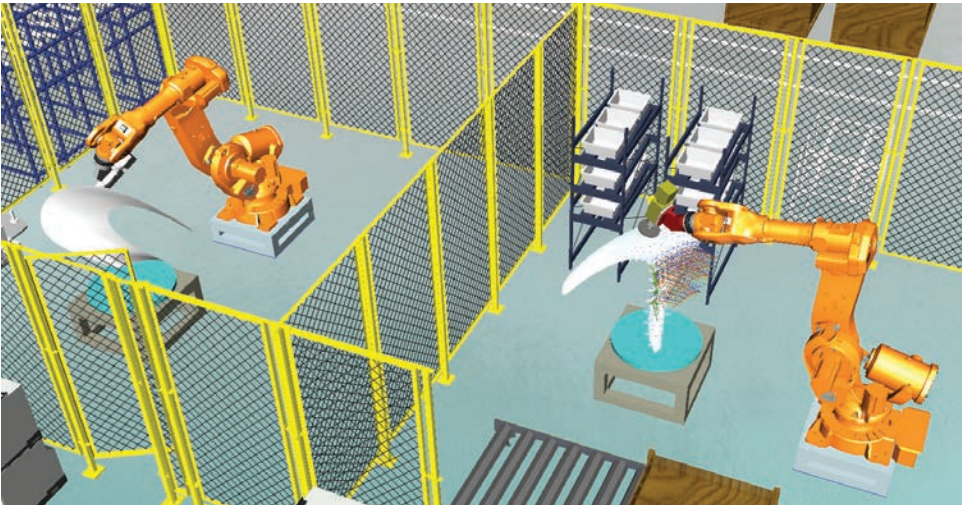
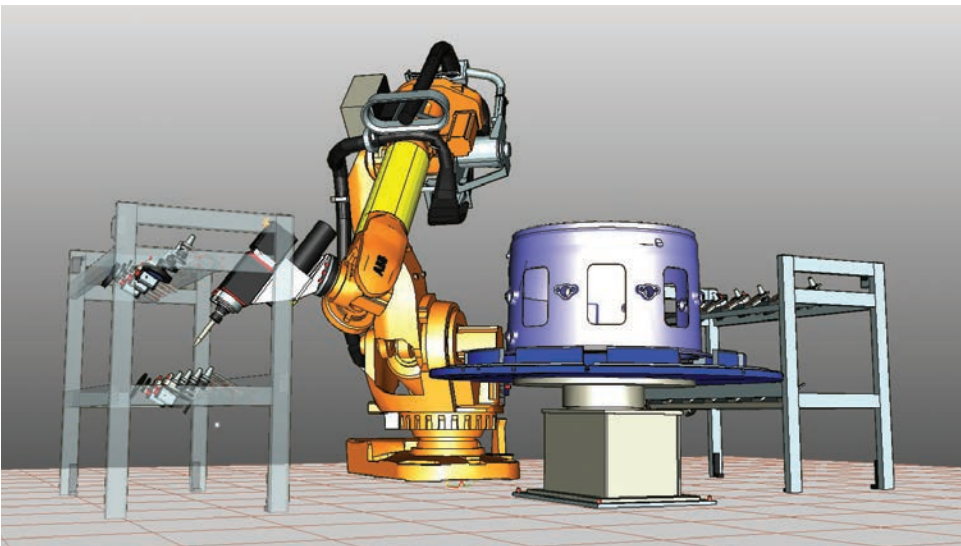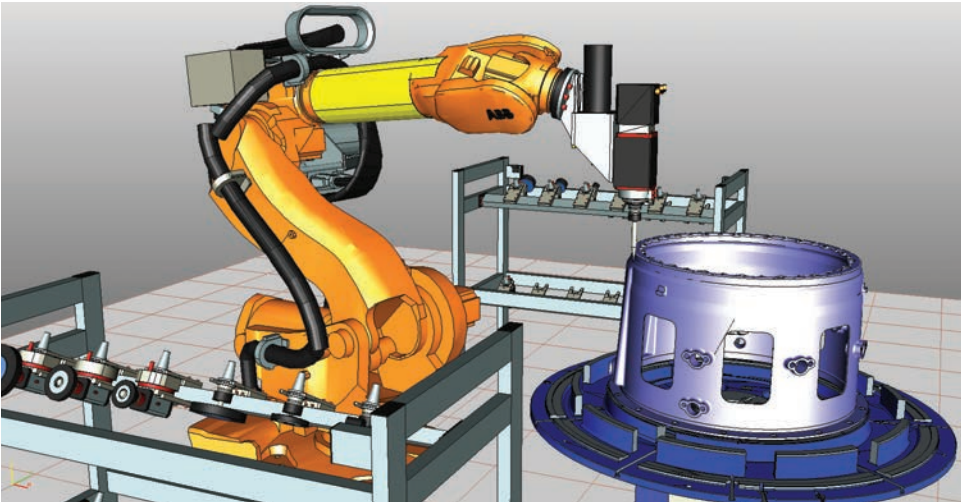*Blade polishing simulation with RobotExpert.*

A Gantt chart is used to represent operations and tasks, which are performed with production resources such as robots and automation equipment. This capability enables you to visualize and easily optimize the entire workcell cycle via an intuitive graphical user interface (GUI).

Out-of-the-box solution, with high degree of customization
RobotExpert provides an out-of-the-box solution for robotic simulation and planning. However, company-specific requirements or standard procedures associated with robot programming can be supported by the RobotExpert software through a very powerful software development kit, and based on a state-of-the-art .NET application programming interface. This provides a high degree of possible customization to the functionality, look and feel of RobotExpert through the graphical user interface and dialog forms, which can be tailored to specific tasks.

Offline programming
RobotExpert enables accurate simulations of robot motion sequences and the delivery of programs to the shop floor. The software interfaces with most industrial robots, adjusting the program to the specification of the controller. You can add controller-specific information, including motion and process attributes, to the generated robot paths. RobotExpert then generates the program, which can be downloaded to the real robot controller.

A unique capability of RobotExpert is the ability to upload existing robotics programs from the shop floor, which enables re-use and optimization.

You can customize your own offline programming commands in a parametric fashion and maintain commands and macro libraries, thus ensuring program standardization across the organization. If a special robotics application requires specific syntax through programs, you can easily build this syntax into libraries, which can be re-used whenever needed to avoid extra engineering effort.

Deburring simulation with RobotExpert.