



DELMIA

ULTRASpot®



*The Spot Welding
Process Simulation
and Robot Offline
Programming Solution*

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DELMIA UltraSpot® is a physics based, scalable robotic spot welding simulation and offline programming solution. Use UltraSpot to quickly and graphically program complex robotic welding systems – from single robot systems to complex multi-robot applications. Complex pedestal welding applications are also supported.

The DELMIA UltraSpot Advantage

UltraSpot is a powerful tool for the comprehensive and efficient analysis of spot welding tools, fixtures and production systems to assure the optimal process plan before robot programs are created. With UltraSpot, you can design tooling into the manufacturing process rather than designing the process around the tooling.

- **Eliminate collisions**
- **Accurately program robots off-line**
- **Minimize down-time**
- **Save time and start-up costs**
- **Rapidly develop models**
- **Import existing CAD data**
- **Create complex simulation programs via simple interface**

Generate Off-line Programs with Confidence

DELMIA UltraSpot's complete line of calibration and off-line programming and post-processing tools allow users to accurately program robotic systems off-line, thus minimizing the impact on production schedules. UltraSpot saves you time and startup costs by programming robots before installation and allowing you to stay in production while programming off-line. Calibration tools let users adjust the simulation model to accurately reflect real world device relationships, while the signature interface enables programmers to easily modify robot devices to gain accurate robot motion. Finally, users download the optimized simulation programs using UltraSpot's post-processors.

Eliminate Damage and Reduce Risk

UltraSpot's standard collision detection functionality allows the user to verify collision free trajectories. The user can define groups (collision/near-miss queues) of objects to check for collisions and ensure safe robot trajectories.

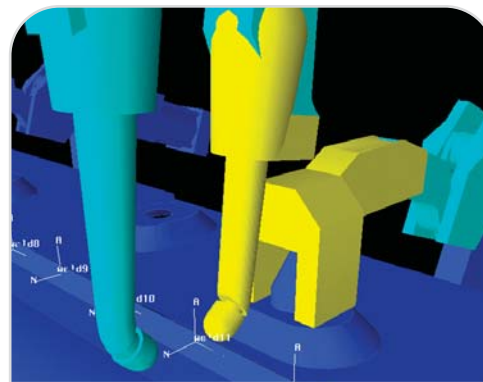
Analyze Real Time Performance

Simulation cycle times can be displayed and charted. Use the RRS (Realistic Robot Simulation) option to obtain extremely accurate cycle time predictions using native robot controller algorithms. UltraSpot also allows the user to display a trace of the robot trajectory, time log of when points are reached, and strip charts with continuous feedback.

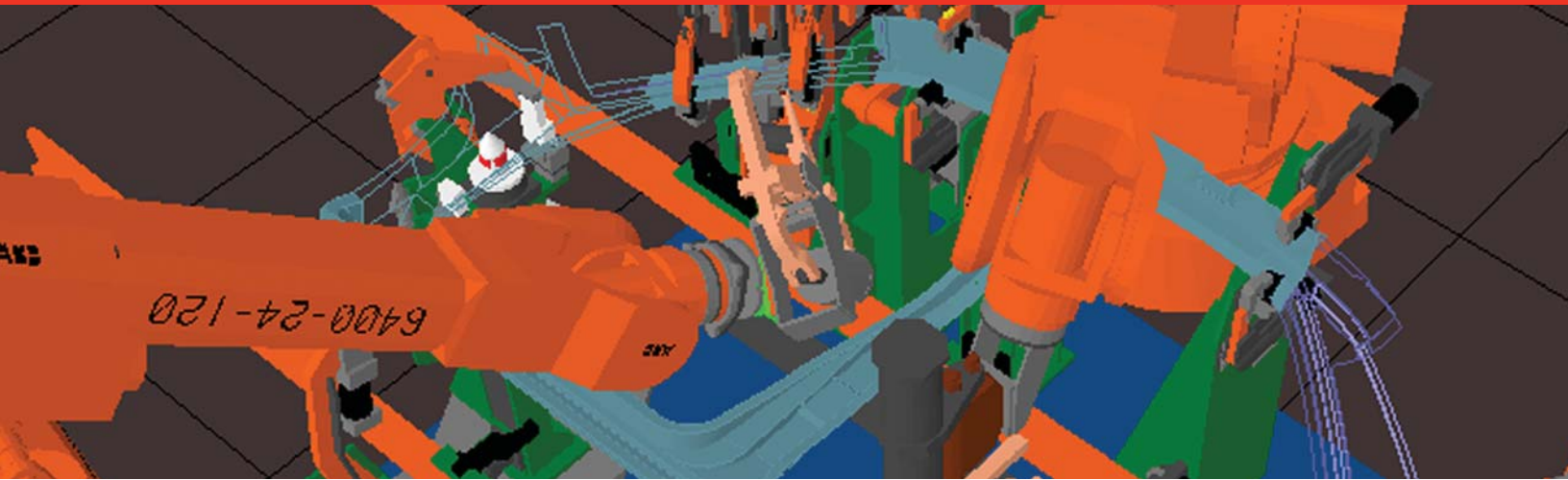
Rapid Modeling

UltraSpot includes the most comprehensive library of Spot Welding robot models and weld guns available. UltraSpot features specific functions for modeling weld gun arms, shanks, holders, and tips. Special tools automatically create weld point section stack ups for weld gun design, define kinematics for weld guns, and calculate robot load

based on the combined masses of each part of the weld gun. Complete, sophisticated, library searching capabilities ensure that you get the correct weld gun for your application.



DELMIA UltraSpot includes a CAD modeling package, automated weld and via path creation tools, and a full library of industrial spot welding robot models and weld guns.



Dynamic Cabling

Avoid interferences and entanglements by accurately simulating cable motions. By using single button functions, cables, hoses, and springs can be created or modified. Then, the simulation can verify the capabilities of a fully “dressed” robot. Easily change cable and spring parameters to test extremes of flexibility and rigidity, validating even the tightest conditions.

Cell Layout

Use UltraSpot’s built-in tools to automatically place robots in optimum locations to minimize cycle time. Robot paths can be automatically generated using one of the many path creation and optimization functions that also ensure collision free trajectories. Or, import existing paths from CAD systems or from production robots.

Tooling

UltraSpot includes a tooling creation and programming module that allows for rapid design and kinematic definition of tooling clamps and fixtures. A single program can control all of the tooling for a station. This program is automatically created by defining a sequence of operations in an interactive GANTT-style popup. This chart shows the details of each operation as well as a graphical timing chart for each entry.

Graphical Programming

Create complex simulation programs using UltraSpot’s simple graphical programming interface. Use one interface to program an entire simulation, including multiple robots, fixtures and material handling devices. UltraSpot’s teach pendant interface offers an alternative programming interface for those more comfortable using robot teach pendants.

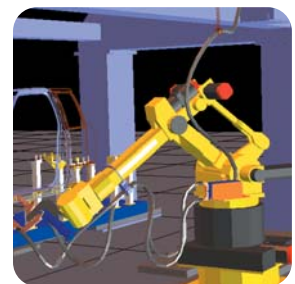
Seamless Integration

UltraSpot is part of the DELMIA solution for Digital Manufacturing. DELMIA’s core infrastructure enables a seamless environment to exchange data between various solutions such as process planning, factory layout, assembly, inspection, process flow analysis, human modeling and others. Data from other DELMIA work-cells and human models can be easily incorporated into UltraSpot and UltraSpot data is easily linked to process planning and incorporated into process flow analysis solutions for a complete Digital factory solution.

Reduce Setup Time With Libraries



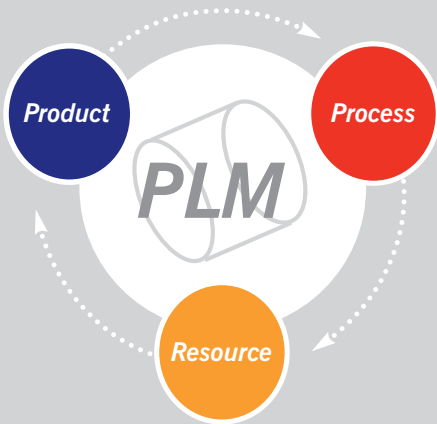
Comprehensive library of robots & weld guns



Accurate cable simulations

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ULTRASPOT®



UltraSpot & the Manufacturing Hub

DELMIA's entire solution portfolio work on top a unique data model called the Manufacturing Hub, which allow manufacturers to store, manage and reuse all product, process, and resource information required throughout the product lifecycle.

The Manufacturing Hub is part of a collaborative, PPR data system that supports Dassault Systemes' Product Lifecycle Management solution. This PPR data system ensures the seamless integration between CATIA, ENOVIA, SMARTEAM and DELMIA. CATIA provides the product design solution; DELMIA provides the manufacturing engineering solution; and ENOVIA & SMARTEAM provide the lifecycle applications and decision support tools.

With DELMIA digital manufacturing solutions, companies have the power to capture, manage and share their best practices and ensure everyone has access to the right information, at the right time.

The DELMIA Digital Manufacturing Solution

DELMIA's portfolio of digital manufacturing solutions are categorized in three distinct domain suites, based on how they impact the flow of the manufacturing process. Each domain employs a set of tools that steps through the entire manufacturing process from concept to implementation.



Process Planning

Provides a comprehensive process and resource planning support environment. The resulting process diagrams can provide a clear overview of the sequences and links between processes and resources early in product design conception.

- *Layout Planning*
- *Time Measurement*
- *Process & Resource Planning*
- *Product Evaluation*
- *Cost Analysis*
- *Line Balancing*



Process Detailing & Validation

Employs the structure and diagrams of the Process Planning solutions into the application specific disciplines of manufacturing. Verify process methodologies with actual product geometry and define processes to a greater level of detail within a 3D environment.

- *Manufacturing and Maintenance*
- *Assembly Sequences*
- *Factory/Cell Layouts*
- *Machining Operations*
- *Workforce Performance and Interactivity*
- *Shop Floor Instructions*



Resource Modeling & Simulation

Provides a comprehensive process and resource planning support environment. The resulting process diagrams can provide a clear overview of the sequences and links between processes and resources early in product design conception.

- *Factory Flow Simulations*
- *Robotic Workcell Setup and OLP*
- *NC Machining*
- *Virtual Reality Scenarios*
- *Ergonomic Analysis*
- *Inspection*

