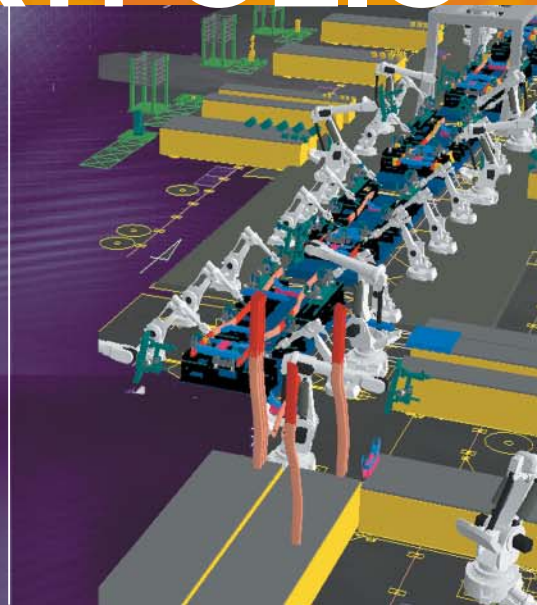


SOLUTIONS PORTFOLIO



DELMIA Solutions

DELMIA offers the most comprehensive suite of **digital 3D Manufacturing Solutions** available in today's marketplace and provides **Process Centric** technologies that deliver **end-to-end solutions** dedicated to critical customer manufacturing processes. It covers **Powertrain, Final Assembly and Body-in-White** in the automotive industry, **Airframe Assembly** in aerospace and general assembly processes across manufacturing industry segments. This allows complete design and validation of the manufacturing processes through digital mock-up. **DELMIA's Digital Manufacturing Solutions** are built on an open **Product, Process and Resource model (PPR)** which enables the continuous creation and validation of the manufacturing processes in the context of the product throughout the design phases. The PPR is the foundation to support efficiently the effects of changes through **3D Collaboration**. Anyone involved in the manufacturing design has full access to the current Product (What to produce), Processes and Resources (How to produce) at any point in time. The Seamless integration of our entire portfolio on the PPR hub covers all the facets of the manufacturing engineering process, which allows the capture of manufacturing **Knowledge** and the reuse of best industrial practices. **DELMIA** is moving forward in providing our customers the technology and the collaborative environment to digitally define the way products are manufactured. Its offerings keep improving and customers are implementing solutions with major benefits in productivity, efficiency, safety, and quality while reducing costs.

DELMIA is fully committed to its customer's success in implementing the digital factory.

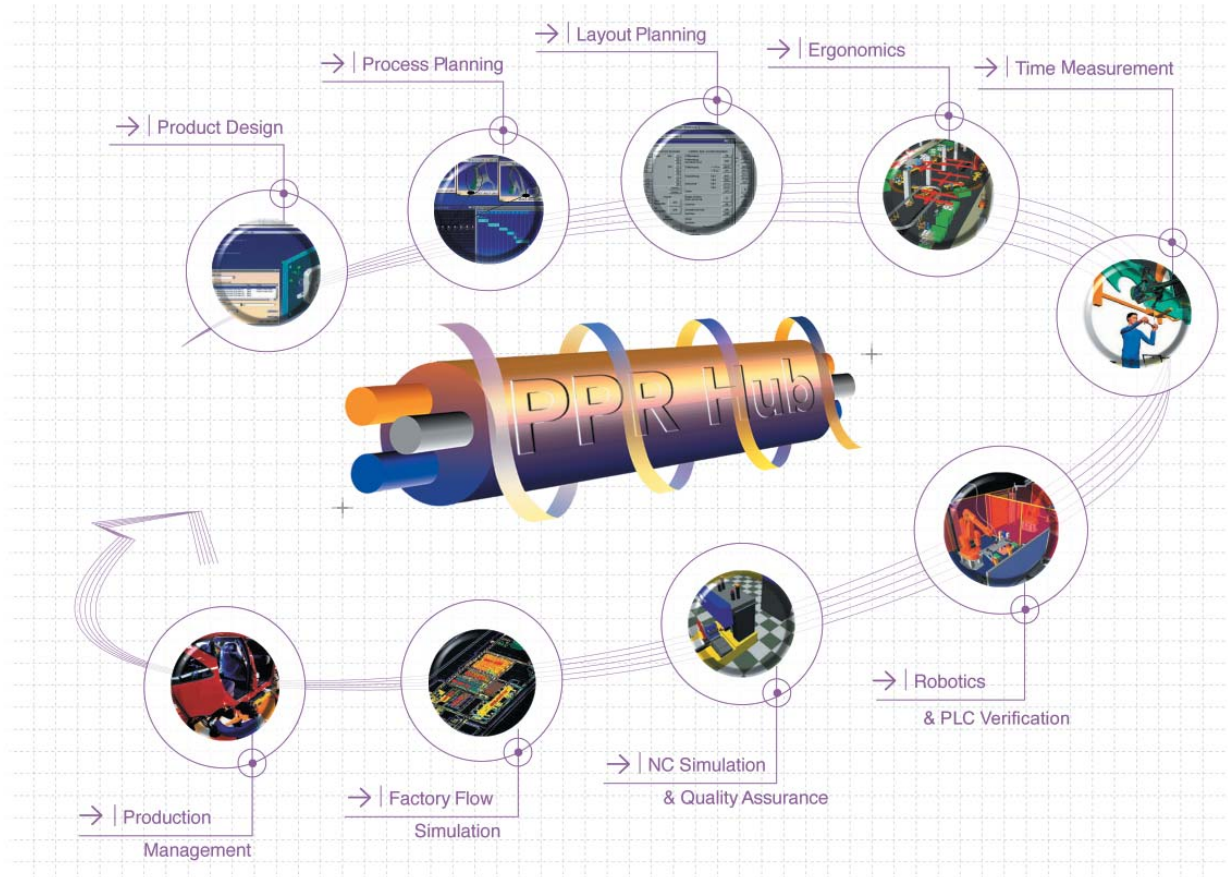
> contents

>	PROCESS PLANNING SOLUTIONS	
	The DELMIA Process Planning Solutions provide 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.	
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>	PROCESS DETAILING & VALIDATION SOLUTIONS	
	The DELMIA Process Detailing & Validation Solutions employ the structure and diagrams of the Process Planning solutions into the application specific disciplines of manufacturing to verify process methodologies with actual product geometry and define application processes to a greater level of detail.	
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	The DELMIA Resource Modeling & Simulation Solutions provide the tools to develop, create and implement resources, application routines and mechanical programming that are integral with the Process Planning and Process Detailing / Validation solutions. Within this set of solutions, resources such as robots, tooling, fixtures, machinery, automation and ergonomics are defined and infused into a complete scenario of manufacturing.	
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PPR Hub

The **Product-Process-Resource** data collaboration system, called the **PPR Hub**, is a unique data model for the digital factory that provides storage and management of all product, process, and resource information required for production system design - from product concept through manufacturing implementation.

The PPR model is at the heart of Dassault Systemes' 3D Product Lifecycle Management (PLM) solutions, ensuring the integration between CATIA, ENOVIA and DELMIA. CATIA provides the product solution; DELMIA provides the process and resource solution; and ENOVIA provides the data and workflow management capability within the 3D PLM offering.



The PPR Hub is an application-oriented database solution based on worldwide data standards that:

PPR Hub

- > **Integrates isolated solutions** with historical data, making it available for company-wide use.
- > **Retains the data in logically-linked relationships** so that data must only be physically stored once.
- > **Provides the ability to generate status reports** during every planning phase.
- > **Increases planning accuracy** by promoting the transparency and consistency of data.
- > **Provides** all users the same up-to-date data.
- > **Displays the data** virtaining to thew pee current task.
- > **Reflects any data change immediately** for all users.
- > **Provides costing** based on current data status.



> PROCESS PLANNING SOLUTIONS

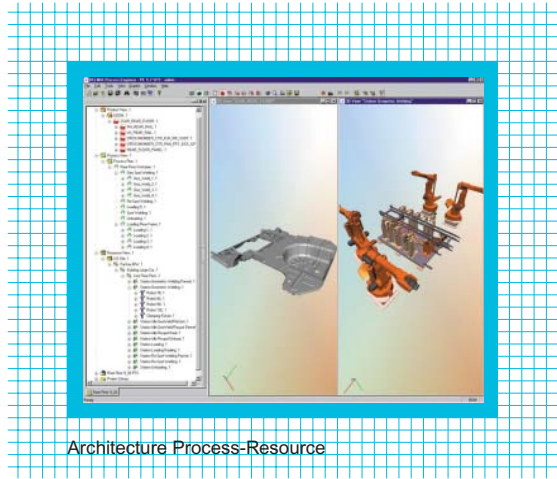
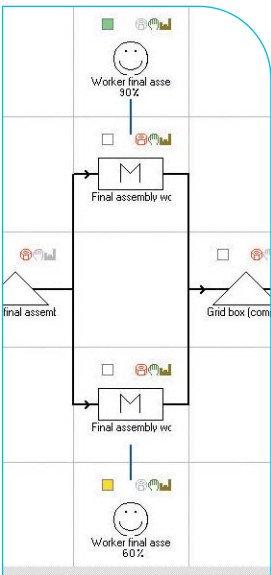
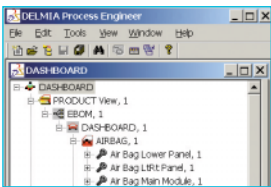
> DELMIA PROCESS ENGINEER



DELMIA Process Engineer is a powerful tool for process and resource planning, providing a high quality solution for early recognition of process risks, re-use of proven processes, traceable changes and decisions, and access to scattered process knowledge. This comprehensive treatment of the relationships between product, process and manufacturing resource data, including plant layout, helps to avoid planning mistakes and obtain a precise overview, early in the process, of the required investment costs, production space and manpower.

DELMIA Process Engineer:

- > Provides a structured methodology that systematically leads to an optimal solution by considering all process-related costs and analyzing alternatives early in the planning stage
- > Presents a clear view of the overall system performance versus target values during all planning phases
- > Reduces risks by the re-use of proven processes
- > Supports multiple users, shortening planning time
- > Organizes each project based on the unique structure of the product, processes, resources and plant involved with easily configured project structure
- > Customizes the user interface and reporting formats to meet your individual requirements
- > Promotes an identical planning environment for all projects
- > Provides built-in documentation of the planning history
- > Reflects any data change immediately for all users
- > Allows native integration with CATIA and ENOVIA and interfaces with other CAD and PDM systems

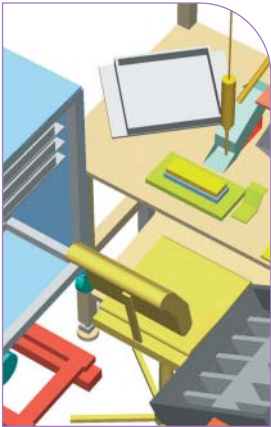


DELMIA Process Engineer is part of DELMIA's integrated suite for digital manufacturing, which provides a range of solutions for process planning, cost calculation, factory layout, ergonomics, robotics, machining, quality control, factory simulation and execution.



PROCESS DETAILING & VALIDATION SOLUTIONS

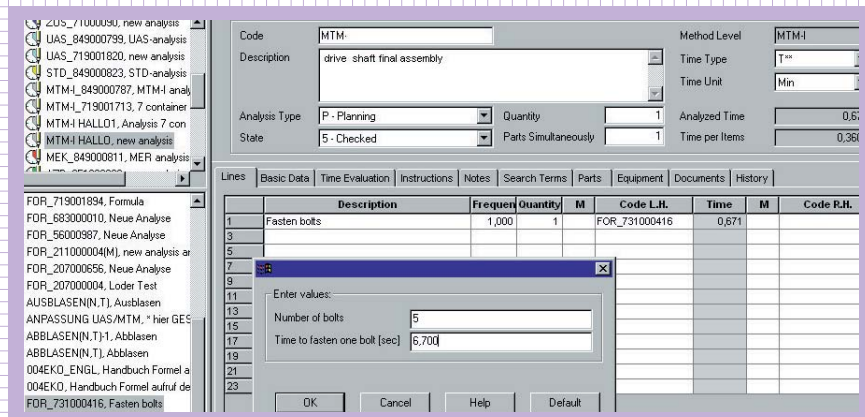
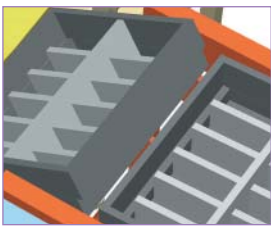
> DELMIA INDUSTRIAL ENGINEER



DELMIA Industrial Engineer allows users to efficiently and reliably determine the time required to perform a specific job sequence based on commonly used time measurement methods or company-proprietary time standards. Its intuitive user interface is compatible with the Microsoft Office standard, and allows multiple users to work efficiently after only a brief familiarization period.

DELMIA Industrial Engineer allows:

- > Quick and efficient generation of time analyses with all common analysis procedures (MTM and WF)
- > Capture and management of estimated and recorded time values
- > Creation of user-defined data cards
- > Creation of user-defined formulas for determining process times
- > Design of user-defined print forms
- > Checking of rules for accuracy and totality (MTM-1, UAS, MEK, MTM standard data, WF)
- > High productivity through the creation and usage of time macros (library elements) and of analysis templates
- > Data compression capability over any number of data levels
- > Structured data management into work processes/work stations
- > Flexible search mechanisms using key words and search patterns
- > Time analysis directly associated with workstation layout
- > Automatic updating of time values
- > Extensive user configuration options



Time Analysis and Tools for Data Management

Additionally, **DELMIA Industrial Engineer** includes a notification system that alerts other **DELMIA Process Engineering Solutions** users about changes via e-mail. The relevant data is transferred to the recipient along with the e-mail, enabling users who do not have **DELMIA Industrial Engineer** to view the analysis in an Internet browser and immediately take appropriate action.



> PROCESS DETAILING & VALIDATION SOLUTIONS

> DELMIA DPM ASSEMBLY

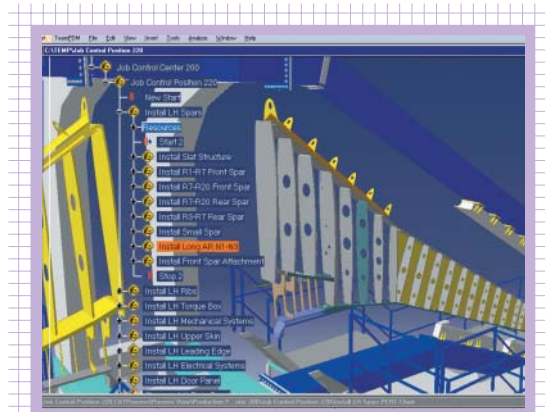
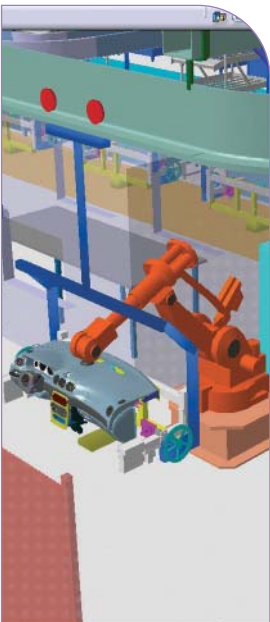


DELMIA DPM Assembly is an assembly process planning and verification solution for developing manufacturing and maintenance processes.

This single, unified interface for pre-planning, detailed planning, process verification and shop-floor instructions provides the capability to link and view product data from any major CAD system, author and view assembly sequences and processes, and link each process step to the manufacturing resources.

DELMIA DPM Assembly allows process planners and manufacturing engineers to speed time to market and reduce costs by:

- > Easy cataloging of best practices and manufacturing resources for future reference
- > Development of the sequence of operations, assignment of resources, determination of throughput and cost estimation
- > Automatic display of all design changes in the process validation
- > Evaluation and feedback of assembly feasibility
- > Detection of collisions
- > Detailed internal part inspection



Aerospace Assembly and Integration

DELMIA DPM Assembly guarantees users state-of-the-art visualization and simulation performance. Its superior integration with DELMIA and CATIA products enable problem-free data exchange between DELMIA V5 and CATIA V4 and V5 products.



> PROCESS DETAILING & VALIDATION SOLUTIONS

> DELMIA DPM BODY IN WHITE



***DELMIA DPM Body in White** provides a scalable solution for the Automotive Body in White process-planning domain which allows engineers to design automotive body assembly processes, manage spot welds and other fasteners, select resources and validate the process plan using an interactive 3D environment.*

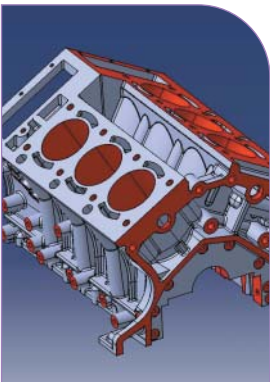
DELMIA DPM Body in White allows users to optimize both the process engineering and the body in white assembly process by enabling users to author and validate their manufacturing process plan long before equipment is installed or moved inside the plant. Designers use **DELMIA DPM Body in White** to plan the details of how an assembly will be built. Starting with the concept, process activities are created and linked together to form a sequence.

Using this information, as well as known company standards and the latest technology, the work is divided into a set of processes. The designer studies the amount of work and cycle time available and determines the resources required.

DELMIA DPM Body in White addresses the needs of the automotive industry by providing critical weld management, enabling users to configure a digital model of weld commands and helps decide which welds are performed at which step. It further aids the automotive industry by allowing users to recapture information in a way that is usable and can be leveraged across products.



> DELMIA DPM POWERTRAIN



***DELMIA DPM Powertrain** delivers a machining process planning solution for the automotive powertrain industry, incorporating a single, unified interface for reviewing the results of machining operations based on the operation's sequence in the process plan, providing a basis for generating process sheets.*

DELMIA DPM Powertrain offers the following functions:

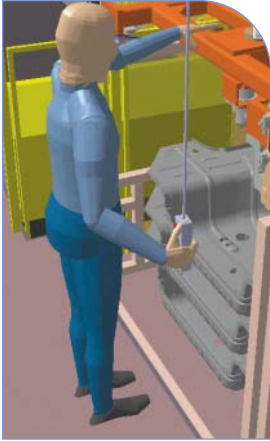
- > Creates machining features based on design parameters
- > Creates and sequences machining operations
- > Generates 3D in-process models
- > Provides framework for in-process tolerances
- > Generates associative 2D drawings or process sheets from 3D geometry
- > Integrates with other V5 products

With DELMIA DPM Powertrain, users can easily change and update machining operations and sequences and automatically update process documentation, greatly reducing the time between design change and notification of all manufacturing and production process professionals involved.



> RESOURCE MODELING & SIMULATION SOLUTIONS

> DELMIA HUMAN

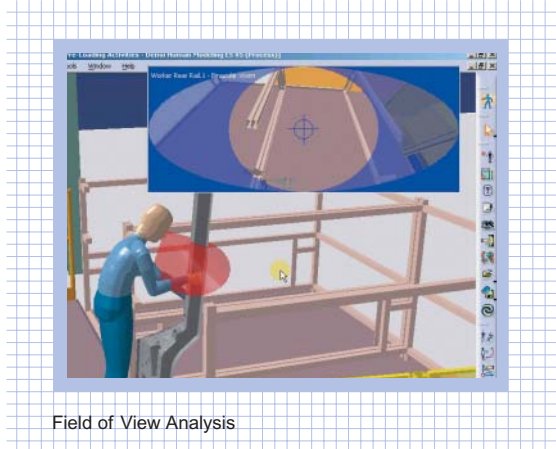
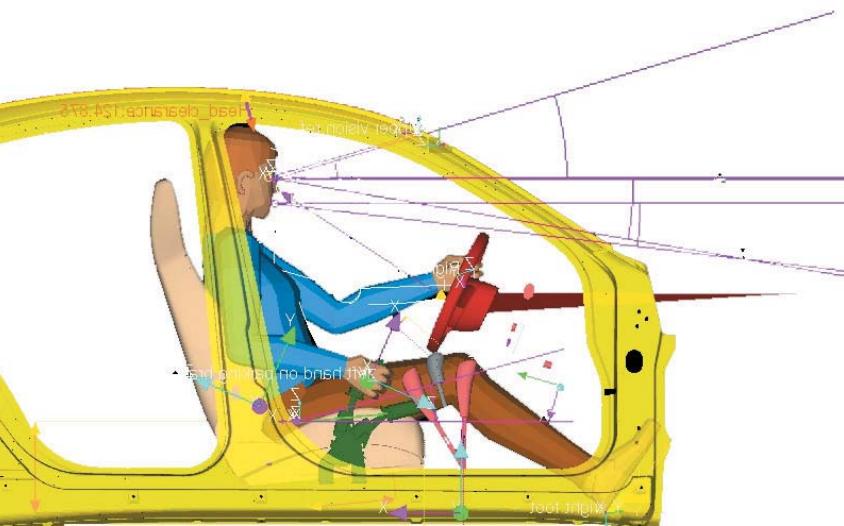


DELMIA Human provides such organizations with a suite of human simulation and Human Factors (HF) tools specifically geared towards understanding, and optimizing, the relationship between humans and the products they manufacture, install, operate and maintain.

Virtually every major automotive, aerospace and heavy engineering manufacturer can benefit from some form of human modeling solutions to support product design and development. Visionary leaders in these companies were the first to seek advanced technology solutions to better understand the capabilities, as well as limitations, of the people who manufacture, install, operate, maintain and even decommission their products.

This technical toolset for quantifying human-factors studies offers widely recognized benefits found in many areas:

- > Leveraging an enterprise's capabilities to generate intellectual property through international research (proprietary or generic) and in-house knowledge accumulation
- > Ensuring that the appropriate level of ergonomics functionality is readily available to designers
- > Creating a common human modeling file-format for disseminating human-factors knowledge throughout the enterprise, not just within the engineering and manufacturing units
- > Saving time in dealing with human factors and ergonomics, by introducing human factors earlier into the product life cycle.
- > Resulting in better products sooner, often at lower cost



Field of View Analysis

Manikins, often referred to as "workers", can be easily linked to objects in DPM to quickly construct "functional" digital 3D environments. No conversion is needed as DELMIA Human Solutions are fully integrated into DELMIA V5 process simulation design and review solutions. Advanced analysis of interferences, sectioning, measurements and 3D geometry comparisons can be performed among manikins and multiple objects in the simulation with the full suite of DPM simulation and validation tools. This creates a truly "holistic" environment for analyzing fundamental "human in the loop" issues. In turn, users can identify problem areas early in the product lifecycle, when remedies are most cost-effective.



> RESOURCE MODELING & SIMULATION SOLUTIONS

> DELMIA IGRIP® & DELMIA ULTRA® PRODUCTS



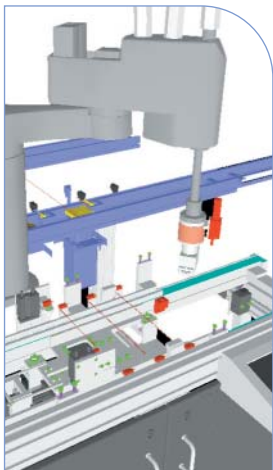
DELMIA IGRIP and DELMIA ULTRA Products are physics-based, scalable robotic simulation solutions for modeling and off-line programming of complex multi-device robotic workcells.

Incorporating real world robotic and peripheral equipment, motion attributes, kinematics, dynamics and I/O logic, DELMIA IGRIP produces extremely accurate simulations and programs.

DELMIA IGRIP and ULTRA products allows users to:

- > Quickly and graphically construct workcells for applications such as welding, painting, dispensing, and material removal
- > Optimize robot locations, motions and cycle times
- > Eliminate costly collisions between robots, parts, tools, fixtures and surroundings
- > Reduce implementation costs and robot programming time

> DELMIA CELL CONTROL



DELMIA Cell Control is a powerful 3D solution to design, validate and implement automated production systems.

As a comprehensive add-on solution for DELMIA IGRIP it provides a collaborative 3D environment to:

- > Design, simulate, test and enhance the performance and productivity of a workcell
- > Allow concurrent design of workcell and control scheme to increase productivity, decrease design time, confirm targeted production rates and reduce cost
- > Allow engineers to share data within the same workcell model to detect errors early in the design process
- > Allow users to generate reports to communicate precise descriptions of designs
- > Enable the user to design several possible control solutions, analyze them and choose the solution that best meets design requirements

DELMIA Cell Control can be used for any type of automated workcell or production line including robotics, gantries, transfer lines and other special machines.

> DELMIA ROBOTICS



DELMIA's Robotics is a scalable solution that leverages the power of the PPR Hub to deliver integrated, scalable, flexible, and easy-to-use solutions for robotic workcell setup programming, simulation and verification.

With DELMIA Robotics users can easily:

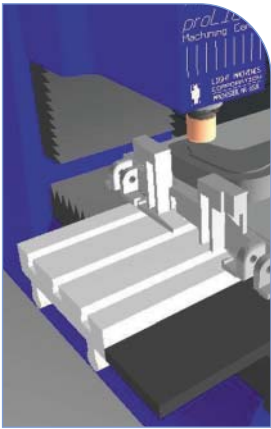
- > Load robots and other tooling resources from a searchable resource catalog of more than 400 robots
- > Leverage work done by layout planners
- > Contribute to the layout plan by adding or refining resources assigned to a process, as well as their positions

DELMIA Robotics enables users to streamline their manufacturing processes and achieve major productivity gains by eliminating the need to transfer data, thereby enhancing productivity.



> RESOURCE MODELING & SIMULATION SOLUTIONS

> DELMIA VIRTUAL NC®

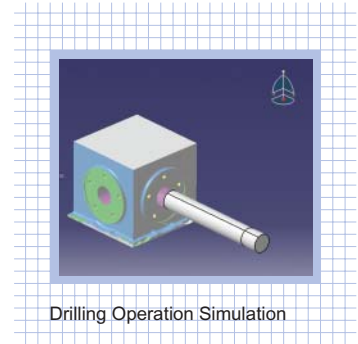


DELMIA VIRTUAL NC is the complete digital manufacturing solution for rapidly emulating, validating and optimizing NC machine processes.

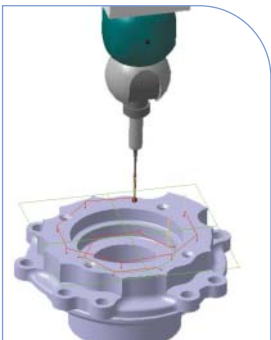
DELMIA VIRTUAL NC:

- > Enables quick, efficient NC program validation off-line
- > Allows part quality improvement
- > Saves resources and time
- > Increases machine utilization
- > Reduces engineering change orders

From concept to customer, DELMIA VIRTUAL NC offers the only complete solution for improving quality, reducing costs and speeding time to market.



> DELMIA INSPECT™



DELMIA INSPECT is a unique CMM programming, simulation and verification application that offers direct “associativity” between inspection features, tolerance parameters and geometry features of the CAD master model.

DELMIA INSPECT:

- > Automatically updates CMM programs to reflect design or tolerance changes in the master model
- > Integrates seamlessly with other products like Process Tools, the PPR Hub and DPM Machining to define measurements of In-Process Models
- > Contains rule-based inspection parameters that greatly simplify programming steps
- > Includes a library of the most popular coordinate measuring machines, including machines physical dimensions, available axes strokes and motion properties for accurate program validation

> DELMIA QUEST®/ADVANCED QUEST®



DELMIA QUEST is a complete 3D digital factory environment for process flow simulation and analysis. It provides a collaborative environment for industrial and manufacturing engineers and management to virtually develop and prove out best manufacturing flow practices.

- > Allows experimentation with facility layout, resource allocation kaizen practices and alternate scheduling scenarios
- > Improves designs, reduces risk and cost and maximizes efficiency, thereby ensuring accuracy and profitability
- > Facilitates effective presentation of results to customers, managers and those in other engineering disciplines
- > Provides a single model that can be integrated with existing design tools for use from conceptualization to implementation, including documentation, analysis and communication of results

Also available is DELMIA Advanced QUEST, specially designed to increase the user's productivity by providing an easy way to conduct analyses without requiring extensive operations research training. DELMIA Advanced QUEST allows the user to specify a variety of important relationships to control the targeted outcome, such as ranges of key parameters, budget limitations and machine capacities.

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