OBJECTIVE
DELMIA® Milling Machinist creates, optimizes and validates complex milling programs using 2.5- and 3-axis milling routines. With the additional probing capabilities, DELMIA Machinist allows you to create NC programs and probing operations quickly. With five-axis indexing capabilities, programmers can generate sophisticated toolpaths that leverage the capabilities of today's multi-axis machines.

OVERVIEW
DELMIA Milling Machinist delivers the ability to program milling machines to produce 3D parts that require advanced 2.5-axis and 3-axis milling, axial and probing operations as well as the ability to switch to 5-axis motion. Built on the 3DEXPERIENCE® platform, a lifelike virtual workplace is provided to create, optimize and validate milling programs. Programmers quickly access current information for machining resources, NC programs and part setup. DELMIA Machinist offers a full set of features for workpiece setup, cutter tool assembly and toolpath simulation that includes material removal and NC code generation.

BENEFITS
Reduce NC programming time
NC programmers are more efficient with features such as intuitive graphic dialog boxes, traffic light indicators for undefined machining parameters and a help icon for each parameter operation. When NC programs are authored or edited, the machine tool’s kinematic definition is taken into account.

Increase machine tool efficacy
The wide range of operations and strategies helps programmers create toolpath programs that reduce non-value-added motion. DELMIA Milling Machinist takes the in-process part into account to generate collision-free toolpaths. The 3-to-5 converter option provides the best of both worlds: high-speed milling wherever the first constant tool axis can be held and high-quality machining without tool change with 5-axis motion locally.

Mitigate risk to production
A better understanding of the machining cell helps to ensure that the toolpath and machining strategy take the tool’s physical environment into account. It reduces the risk of unexpected issues at the machine and any resulting production delays.

Leverage intellectual property
Users can define and store machining processes for multi-pocket operations as dedicated templates and store them in catalogs for reuse. Enterprise Intellectual Property (IP) is capitalized and recycled to make programming more efficient.

Better understand engineering changes
DELMIA Milling Machinist offers industry-best support of design changes and design variants and the rapid creation of programs for families of parts. Native implementation links connect machining programs to engineering and manufacturing data, for cutters, for example. These links can be used to see which machining programs are impacted by engineering or manufacturing changes, ensuring that machining data is up-to-date with engineering changes.

CAPABILITIES
A Setup Wizard and an immersive, context-based UI
DELMIA Milling Machinist immerses users in a realistic 3D environment. A toolpath creation wizard and context-based menus are available to help do quick 3D setup and create the NC toolpath. Traffic lights signal if parameters need to be defined. If a user clicks on a help icon while editing a setting, an image describing the parameter pops up in the panel. Users can quickly organize programs in the activity process tree using copy-and-paste functions. Tool changes and machine rotations are automatically generated and can be visualized in the activity process tree.

Manage and program machining resources
DELMIA Milling Machinist lets users manage CNC machines, accessories, tools and tool assemblies. These resources can be retrieved through standard search capabilities—using relevant machining attributes—and instantiated in a machining cell. Users can see the impact of changes on the definition of objects—such as parts or cutting tools—across all NC processes and programs. DELMIA Milling Machinist supports default or customized representations of the cutter and tool assemblies that are used for verification, simulation with material removal and collision checking.
Automatic association of prismatic machining features with part design

DELMIA Milling Machinist automatically recognizes the prismatic machining features of the product design, thus a manufacturing view of the design part is generated, including all drilling and milling features. Through this embedded feature-recognition technology, DELMIA Milling Machinist enables toolpath programming for geometrical-machined, feature-creation design parts—even those with no design feature specifications.

Efficient programming of milling machines

DELMIA Milling Machinist offers a broad range of machining operations for toolpath definition, including pocketing, facing, and contouring, and a full set of axial operations from standard drilling to complex boring and chamfering. It offers unique functionalities for creating and verifying milling, drilling, and probing activities. Probing operations are very flexible and can be customized with associated user parameters. It extends the 2.5-axis capabilities by offering a best-in-class 4-axis pocketing operation that includes a variety of strategies, island management and user-defined lead angle on the tool axis for better cutting conditions. This operation also supports non-cylindrical and non-conical surfaces and revolution surfaces going beyond the 180 degrees.

High-end strategies from roughing to finishing

DELMIA Milling Machinist offers a full set of high-end strategies from roughing to finishing, such as complete, Z-Level, contour-driven machining and curve machining. It automatically generates toolpaths for the entire part. Users can also author operations needed to machine specific features. High-speed milling features and specific pattern operations for hard-material machinings, such as concentric, trochoid and helix 3D are included. The concentric strategy controls the radial engagement to maximize the efficiency of the machine while protecting the cutter.

Powerful roughing and seamless roughing rework

Users can select a roughing strategy—such as back-and-forth, helical, concentric or part-offset—based on the material being machined and the shape of the part. As roughing operations are defined, the in-process portion is computed and used as the starting point for the next set of actions. Users can then create a new roughing process with a smaller diameter tool. This toolpath is automatically generated based on material that remains.

On-the-Go (Disconnected Mode)

The new On-the-Go option allows Simulation Engineers to disconnect from the 3DEXPERIENCE platform for up to 30 days. Once disconnected, users can continue to use the capabilities of the machining application. Toolpaths, operations, profiles and other features can be created and edited while disconnected. Upon reconnecting, automatic data reconciliation will ensure changes are preserved in the database.

Early resolution of NC machine kinematics errors

DELMIA Milling Machinist lets users identify potential machine-tool kinematic errors during toolpath computation and automatically correct them. Errors such as axis out-of-limit and singularity issues usually discovered downstream are now detected and solved at the earliest possible point in the business process—during toolpath computation—resulting in substantial productivity gains.

Instant Update Technology and advanced design change management

Adjusting parameters in the machining operation, fine-tuning the approach/retract macro and optimizing path sequencing is achieved almost instantaneously. DELMIA Milling Machinist offers complete associativity with design tools, product engineering, manufacturing processes and resources. Users are automatically alerted to product design changes and can quickly assess their impact on the machining process, enabling users to quickly update the toolpath program.

Advanced simulation capability

DELMIA Milling Machinist has powerful simulation capabilities for toolpath validation to identify potential issues earlier in the process. It can compute the volume of gouges in the workpiece, making it easier for users to prioritize and process gouges in machining programs. Near misses—which are the user-defined safety distance—are also identified, and multiple tool change locations are also supported by a more accurate simulation of the machine motions. The simulation context—saved in the 3DEXPERIENCE platform—allows users to organize their reviews in the most convenient way and also ensures traceability of the validation task.

Seamless NC data generation

DELMIA Milling Machinist offers a smooth generation of the APT source and NC Code ISO format through the integrated post-processor execution engine, the library of standard post-processor syntax mapping tables and Post Processor samples. The output formats can easily be customized. The output is generated and managed in the 3DEXPERIENCE platform. Additional files created by the post-processor are also automatically saved, so all relevant outputs for any part are current and available at the same location. Critical information can be exported as documentation for ready reference on the shop floor.

Our 3DEXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes’ collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 220,000 customers of all sizes in all industries in more than 140 countries. For more information, visit www.3ds.com