NX Mach 3 Mold Design
The fastest and most complete mold design process

Summary
NX™ Mach 3 Mold Design software delivers a state-of-the-art solution to the shrinking lead times and tighter cost controls facing mold manufacturers today. By combining industry knowledge and best practices with process automation, NX Mold Design streamlines the entire mold development process: from part design to tool assembly layout, tool design and tool validation. NX Mold Design excels at even the most challenging mold designs, providing advanced functionality, step-by-step guidance and associativity with part designs to ensure fast response to design changes and quality molds.

Business challenges
Job turnaround and project time
Cost control
Process efficiency
Waste and human error
Tool quality
Process connectivity between tool design and machining

Benefits
Highly automated core/cavity design
Leverage templates and reuse proven designs
Comprehensive mold base, molding component system and standard part design
Fast and efficient design change propagation across entire process (tool design through machining)
Reduce tool design errors
Collaboration with customers and suppliers
Eliminate conventional drawings – achieve paperless processes
Effective data and process management
Decrease CNC programming time

NX Mach 3 Mold Design offers a wealth of industry best practices and process solutions for:

Part and assembly design
Import part geometry and drawings using data translators. Easily model and perform design changes to ensure desired design intent and achieve manufacturability.

Manufacturability assessment
Validate part design for manufacturability using wall thickness checking functions, draft analysis and undercut region detection, and radius evaluation.

Core and cavity design
Automate shut-offs and parting of core/cavity based on manufacturability considerations. Design parting surfaces quickly and associatively. Split mold to accommodate complex slider designs. Automatically check the core/cavity design for interferences.

Mold design and assembly
Layout the core, cavity, component systems and mold base for both prototype and production-scale multi-cavity molds.

Configure the mold based on libraries of standard parts, component systems and mold bases. Easily customize library content without programming.

Design sliders and lifters for undercut areas with automated trimming. Quickly add and trim ejector pins. Insert cooling channels with parametric patterns.

Comprehensive libraries of mold bases, standard parts and component systems accelerate the complete mold assembly.

Effective parting surface and patching functions automate the core and cavity design.
Design reuse
Leverage project templates to reuse and adapt proven designs to new molds. Accelerate and optimize the mold design process by standardizing processes and components.

Mold tool validation
Validate the mold design within the assembly context for proper clearances and reliefs in various positional states.

Documentation and manufacturing information
Document the mold design using automated drawing creation with associative hole tables, 3D annotation, and hole tolerances. 3D annotation enables paperless communication and manufacturing.

Automate manufacturing processes and operation selection via integration of NX Mold Design and NX CAM.

Design change management
Graphically compare versions of a design for similarities and differences. Swap design versions, control the propagation of change, and efficiently update related features, drawings and toolpaths.

Process and data management
Enable team oriented design with multiple designers working concurrently on a single mold design. This approach is an extension of the traditional concept of product/tooling concurrency.

Synchronize and distribute product and process data across tool design and manufacturing teams and re-use proven design practices.

Collaboration
Streamline the collaboration process by packaging 2D drawing and 3D design information with other electronic documentation into a lightweight file that can be emailed and viewed by non-CAD participants in the design process.
NX Mach 3 Mold Design product content

Mold design
- Shrinkage
- Parting line and surfaces
- Shut-off surfaces
- Coolant and cavity split
- Cooling
- Runners and gates
- Subinserts
- Sliders/Lifters
- Template configuration – reuse
- Automated drawing creation and hole charting
- GD&T, 3D annotation, BOM
- Design change control
- Core and cavity split
- Template configuration – reuse
- Design change control

Standard catalog offerings
- Mold bases supported in English and Metric units: DME, Futaba, HASCO, LKM, Meusburger, Omni, PCS, Progressive, Rabourdin, Strack, Superior, Universal
- Standard parts and molding systems supported in English and Metric units (injection, ejection, cooling, sliders/lifters, guides, locks, dowels, screws, springs, pillars): DME, Futaba, HASCO, National, Meusburger, Omni, Progressive, Rabourdin, Strack, Yates
- Die base management
- Standard part management

Validation
- Molded part validation
- Parting check
- Product validation
- Tool validation clearance check

Part and assembly modeling
- Solid and feature modeling
- DesignLogic
- Assembly modeling
- Free form modeling, basic
- Straight break sheet metal
- Assembly modeling
- Free form modeling, advanced

Managed development environment
- Vaulting and version management of product and process data
- Web infrastructure for data accessibility
- 2D drawing and 3D part and assembly visualization/mark-up independent of CAD system
- Supports distributed concurrent team design

Collaboration
- Package design documents for quoting and design review
- Web publishing

Automation
- NX Open and Knowledge Fusion Runtime package

Translators
- DXF/DWG
- IGES
- STEP AP 203 and AP 214

Note: all capabilities described above are also available within NX Mach 4 Advanced Mold Manufacturing.