

Siemens PLM Software

## DFMPro for NX

Getting it right the first time pays off

### Benefits

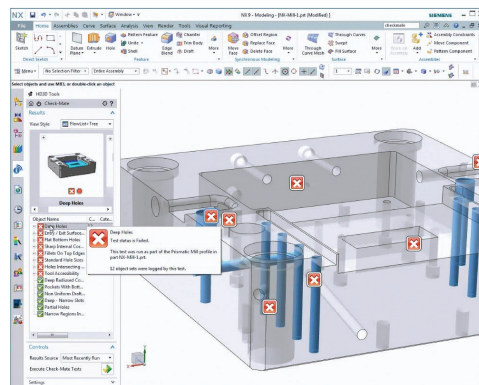
- Leads to overall cost reduction
- Captures mistakes early in the design stage
- Ensures past mistakes are not repeated, especially by new design engineers
- Leverages experience of experts
- Decreases overall cycle time
- Facilitates on-the-job training of design engineers

### Summary

The importance of checking designs for manufacturability cannot be overestimated. Meeting project schedules, achieving a high level of quality management, controlling production costs and improving innovation all hinge – to some extent – on getting designs right the first time. In fact, according to Wohlers Industry Report, a small engineering change that could cost \$100 or less in the concept phase, could balloon to over \$1 million if design changes need to be made once the product is in the field.

By using DFMPro for NX™ software from Siemens PLM Software, companies are able to significantly reduce engineering change orders (ECOs), and reap immediate benefits by reducing defects, costs and delays. Specifically, DFMPro for NX enables you to:

- Validate upstream manufacturability, identifying design areas that are difficult, expensive or impossible to manufacture
- Automate and formalize the design review process for manufacturability
- Provide a mechanism for best practice knowledge capture and re-use for continuous improvement
- Reduce rework cost



DFMPro for NX accelerates the highlighting of problems and suggests corrective action based on best-practice handbooks and a knowledge repository. It uses the existing, familiar and proven NX Check-Mate framework, and provides an HD3D interface for problem navigation and tagging. It facilitates out-of-the-box validation checking for machining, sheet metal, injection molding,

# DFMPro for NX

## Features

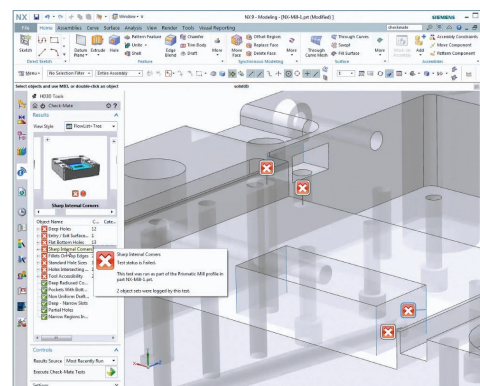
- Identifies and highlights problem areas on the CAD model
- Suggests better solutions to address design problems
- Implements common manufacturability checks
- Supports native as well as imported CAD models
- Package and share these rules with other departments and suppliers
- Integrates easily with PLM/ PDM and enterprise systems

assembly and casting manufacturing processes. It also uses NX Check-Mate results tools and Teamcenter® software integration, and is seamlessly part of NX, running inside Check-Mate, reducing the learning curve for new Check-Mate users.

DFMPro for NX can be used for:

### Injection molding manufacturability

The injection molding module in DFMPro for NX helps designers automatically validate the design of injection molded plastic parts. The design checks include standard rules and guidelines to improve the moldability of the designs and the life of the mold, increase the operational life of the part and reduce manufacturing costs. Some of the important rules supported for injection molding include uniform wall thickness, appropriate rib design parameters, minimum mold wall thickness, undercuts detection, minimum radius at the tip/base of a boss and minimum draft angles. It also supports multiple pull directions that are required in cases in which side action is required for features in mold.



### Machining manufacturability

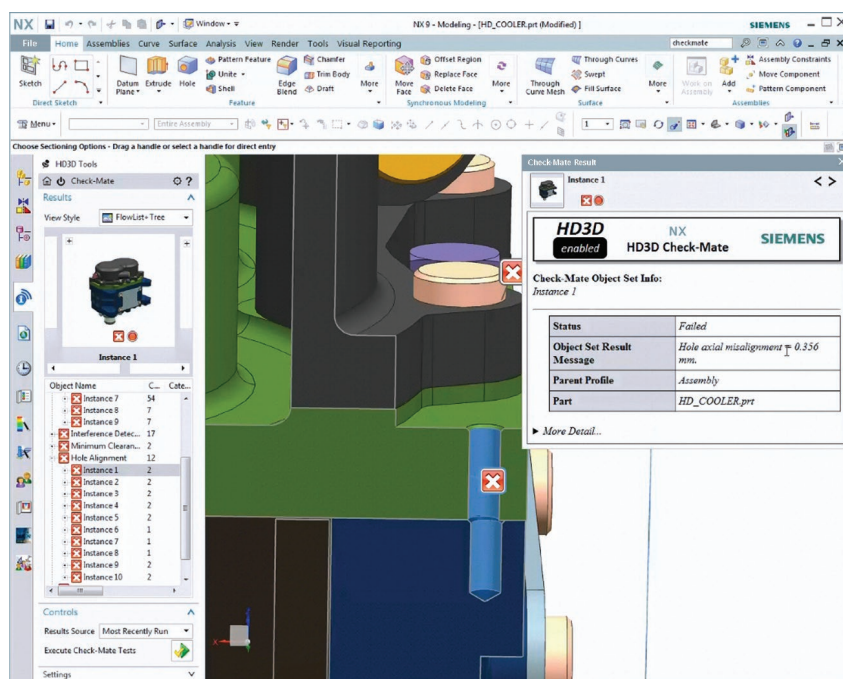
The machining module supports common design-for-manufacturing (DFM) guidelines for machining, which helps in manufacturing parts economically and quickly, while ensuring quality with readily available machining tools. DFMPro for NX has rules for the machining process that include drilling, prismatic milling and lathe machining or turning. Some of the common design guidelines built in the product enable you to avoid deep holes with small diameters, design milling areas so that longer end mills are not required to machine and make sure that features are accessible to the cutting tool in the preferred machining orientation.

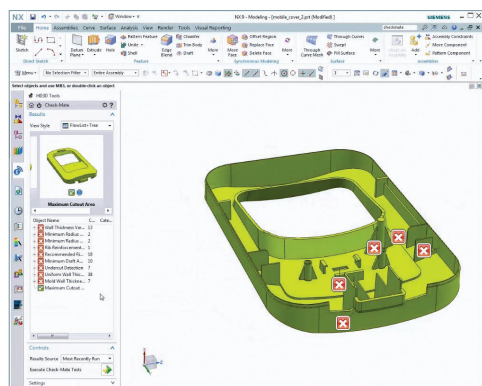
### Sheet metal manufacturability

The sheet metal module of DFMPro for NX supports several common sheet metal design guidelines that help the user produce parts economically, with better quality and in a shorter duration. Some of the common sheet metal design guidelines included in the module are minimum distance between holes, cutouts, slots to part edge and bends; multiple bends in same direction and minimum bend radius; minimum radius of rolled hem, open hem and tear drop hem; minimum flange width and minimum size of slots and holes.

### Castings manufacturability

The castings module helps designers automatically validate the design of castings parts. The design checks include standard rules and guidelines to improve the produc-

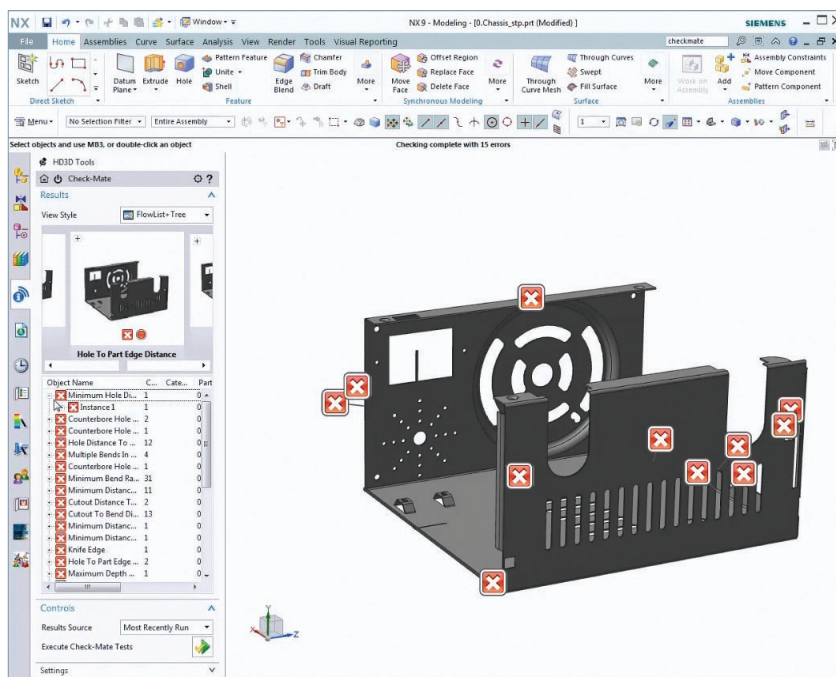




ibility of the designs, increase the operational life of the part and reduce manufacturing costs. Some of the important rules supported for castings checks include fillet radius, surface finish for machined faces, uniform wall thickness, mold wall thickness, wall thickness variation, draft angle and undercut detection.

### Assembly manufacturability

DFMPro for NX not only supports analysis of parts, but also assemblies. Minimum clearance requirements can be easily specified as a set of rules or checks for individual as well as a set of generic components. The analysis results can also be exported and shared with other users. This drastically reduces the time required for clearance analysis in assemblies, and ensures adherence to nominal clearance specifications. The new assembly module also checks interference between assembly components. It is useful in designing large and complex assemblies. Other checks include hole alignment and fastener clearance.



### Packaging and availability

DFMPro for NX [NX30626] is available as an add-on software module, in both floating [NX30626] and named user [NX30626NU] licenses. Both require an NX Check-Mate run-time license. The NX Check-Mate run-time license is available as NX510635 and is also included with NX Mach 2 and 3 Product Design solutions, NX Mach 3 Mold Design and NX Mach 3 Industrial Design.

DFMPro for NX with Check-Mate [NX30628] includes all of the capabilities of NX Check-Mate [UG10635 run-time] and is available as an add-on software module for all NX design products.

### Contact

Siemens PLM Software  
Americas +1 314 264 8499  
Europe +44 (0) 1276 413200  
Asia-Pacific +852 2230 3308

[www.siemens.com/plm](http://www.siemens.com/plm)

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