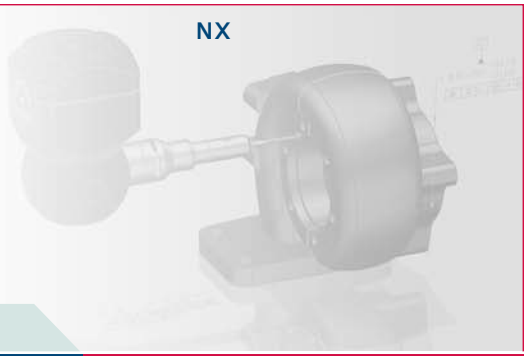


NX CMM Inspection Programming

Automate inspection programming to save time and improve accuracy

fact sheet

Siemens PLM Software

www.siemens.com/nx

Summary

NX™ software's CMM Inspection Programming capabilities provide a state-of-the-art solution for off-line programming that reduces programming time, frees up expensive CMM machine resources and ensures fast responses to design changes. By combining industry knowledge and best practices with process automation, NX CMM Inspection Programming streamlines the entire CMM inspection program development process from feature definition and path creation to program generation and validation. Integration with Teamcenter® software ensures that the correct revisions of parts are programmed and executed on the shop floor.

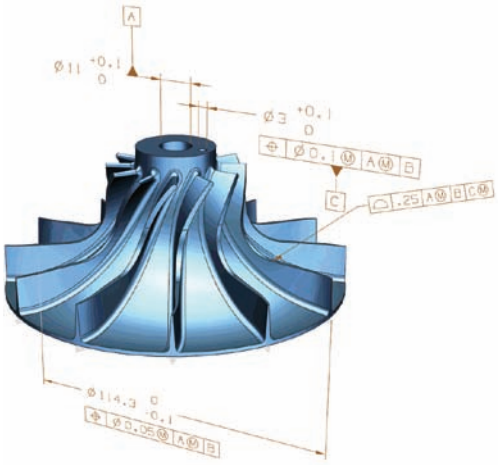
Benefits

- Dramatically reduce programming time (up to a 80 percent reduction)
- Ensure all part requirements are inspected according to company standards
- Capture and share best practices
- Create programs off-line without using a physical part or machine
- Facilitate fast and efficient design change propagation across entire process
- Simplify software deployment footprint (single system for CAD, CAM and CMM)
- Minimize training requirements

Use included probe and machine models or create your own probes/models.

NX CMM Inspection Programming enables you to use streamlined workflows to minimize ramp-up time and quickly generate collision-free programs. You can reduce non-conformance and ensure accuracy to design requirements by programming directly on the CAD model.

By using product and manufacturing information (PMI) on the model (including GD&T and 3D annotations) to automatically generate programs, you are well positioned to guarantee completeness. You can further automate the programming process by applying your own standard inspection path methods, tools and project templates.



Automate creation of inspection programs by using PMI on CAD model.

Program definition

- *Manual program creation*, which you can leverage to rapidly create highly accurate inspection programs directly from a 3D solid CAD model
- *Automatic program generation*, which lets you automatically generate inspection features, tolerances, and inspection paths from PMI on the CAD model

Program validation

- *Tolerance application*, which automatically checks all tolerances to ensure that they are correctly applied to their associated features
- *Collision prevention*, which enables you to identify and eliminate collisions before sending programs to your machines
- *CMM machine simulation*, which you can use to run kinematic model-based simulations of the machine to verify that all features are reachable, as well as to verify that machine limits are not exceeded

NX SIEMENS

Features

Ability to automatically create programs from PMI

Collision prevention

Machine simulation and program verification

Embedded probe and machine models

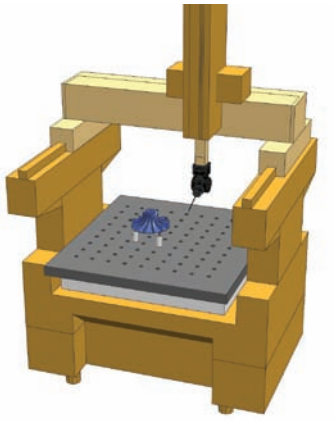
Ability to easily create own probes and machines

DMIS 5.1 output

Ability to create custom postprocessors for specific CMM languages

Associativity for rapid design change updates

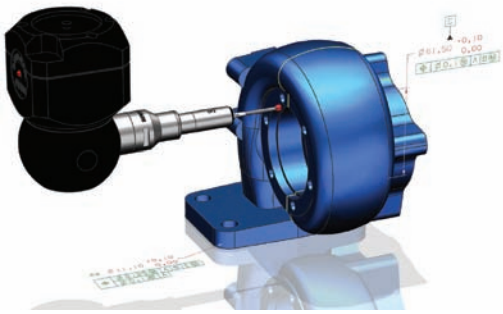
Ability to manage programs revisions with Teamcenter



Output DMIS 5.1 or create a custom postprocessor for a specific CMM.

Program output

- DMIS output, which enables you to output DMIS 5.1 out-of-the-box
- Customized output, which enables you to write custom postprocessors using the TCL language to generate programs for specific CMM languages



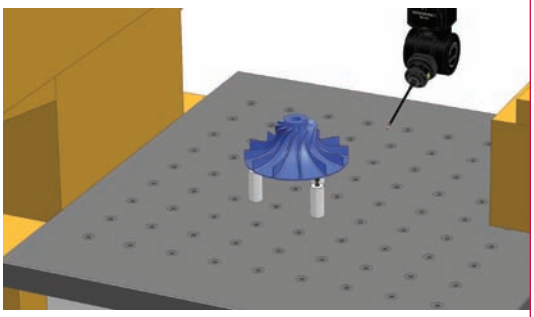
Generate collision free programs directly from CAD model.

Re-use of company standards

- *Probes and CMM machines*, which provide you with the option of using included machine models or created models of your own when producing specific CMMs for simulation and fixture design. You can use these capabilities to easily assemble probe components and define tip geometry. You can use your own models or the included Renishaw catalog geometry for these purposes.
- *Re-use library*, which you can leverage to store probes in a library for use in new programs or to share these probes with other members of your team. CMM machine models can also be stored in the library and used in new projects.

Integrated solution

- *Design change control*, which enables you to use associativity to quickly update programs and immediately reflect design changes.
- *Process and data management*, which enable you to leverage Teamcenter to ensure that you are always working with the correct file version, as well as to manage your data and processes. You can use these capabilities to easily share setups, programs and postprocessors with your entire team – regardless of a team member's geographic location.



Leverage the machine environment to easily design holding fixtures.

NX CMM inspection program content

Feature types

- Points
- Lines
- Planes
- Circles
- Arcs
- Cylinders
- Cones
- Torus
- Open slot/tab
- Closed slot/tab
- Spheres
- Surfaces
- Patterns
- Curves

Tolerance types

- Linear distance
- Diameter
- Radius
- Coordinate dimensions
- Width
- Angle between
- Cone angle
- Surface profile
- Line profile
- Datum definition
- Position symmetry
- Concentricity
- Angularity
- Perpendicularity
- Parrallelism
- Circular runout
- Total Runout circularity
- Flatness
- Cylindricity
- Straightness

Construction methods

- Best fit
- Intersection
- Projection
- Perpendicular-to
- Parallel-to
- Offset

Head types

- Fixed
- Indexable
- Variable

Probe types

- Straight
- Elbow
- Single tip
- Multi-tip

Path types

- Points
- Scan line
- Scan curve
- Scan arc

Output language

- DMIS 5.1
- Custom

Machine types
Up to 3 linear axes

Standard catalog offerings
- Renishaw sensors
- Extensions and tips

Managed development environment
- Vaulting and version management of product and process data
- Web infrastructure for data accessibility
- Support for distributed concurrent team design

Online resources
Help documentation with tutorials

Automation
NX Open and Knowledge Fusion runtime package

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

Contact
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