



User Manual

Addendum

Installation notes for Version 6

and

Changes between Version 5.0 and 6.0

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Introduction

This paper describes the installation process for the actual version as well as the changes between the first version 5.0, released in March 2005 and the version 6.0, released in January 2007. FORMTEC decided to release new versions with new functions continuously via our [web page](#). Thus, the user can access the new functions as prompt as possible. All NCspeed users having a maintenance contract are eligible to download the actual version from our [web page](#) and can participate from our development.

Some of the enhancements are made for modules not belonging to the basic version of NCspeed. If you need an extra module to use a specific function, it is marked with “extra module” in the headline.

Installation notes for Version 6

The usage of NCspeed V6 prerequisites the following operating system

- Windows 2000, Service Pack 4, Update Rollup 1
- Windows XP, Service Pack 2, Windows Installer 3.1
- Windows Server 2003 (only for floating license server)

Windows 2000

For Windows 2000 it is important that Service Pack 4 is installed. If not, please download the actual Service Pack 4 from Microsoft (<http://www.microsoft.com/windows2000>).

It is also necessary that the Update Rollup 1 for Service Pack 4 is installed. You can download the actual version from <http://www.microsoft.com/windows2000>).

Sometimes, a reboot is necessary. If this happens, please perform the re-boot and re-install NCspeed. After the re-start of the NCspeed setup, please choose “repair” for re-installing the software.

Windows XP

For Windows XP you need at least Service Pack 2 which can be downloaded from Microsoft (<http://www.microsoft.com/windowsxp>).

It is important to have the Windows Installer Version 3.1 installed on your computer. Please check the installed software on your computer.

Sometimes, a reboot is necessary. If this happens, please perform the re-boot and re-install NCspeed. After the re-start of the NCspeed setup, please choose “repair” for re-installing the software.

Changes between Version 5.0 and 6.0

- **OpenGL Graphic for displaying the toolpath**

In previous versions, NCspeed used a proprietary graphic for displaying toolpath files. From the first version it was possible to display also large toolpath files on a normal Windows PC, not having any special (and expensive) graphic equipment. The disadvantage of this solution is that it was not possible to dynamically rotate and zoom. The development in the field of the computer hardware makes it now possible to use OpenGL graphic for displaying large toolpath with adequate reaction time. Now, you can use the benefits of dynamically rotate and zoom the toolpath in NCspeed.

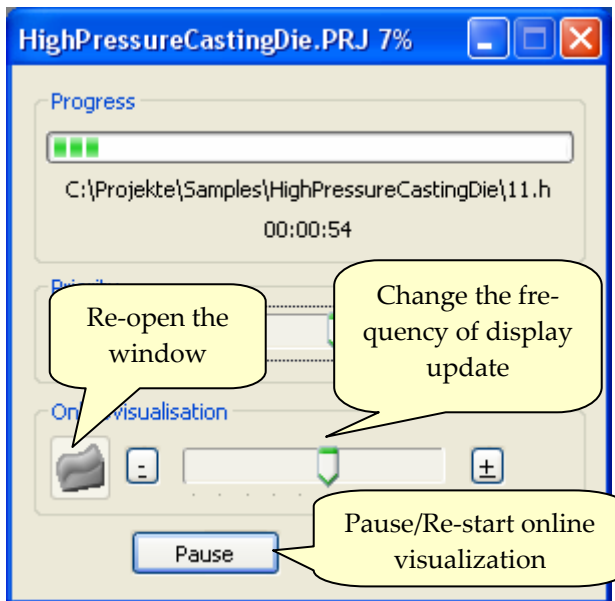
- **OpenGL Graphic for displaying the workpiece**

In the same way we have improved the display of the workpiece. Now it is also possible to dynamically rotate and zoom the workpiece in NCspeed.

- **Online visualization improved**

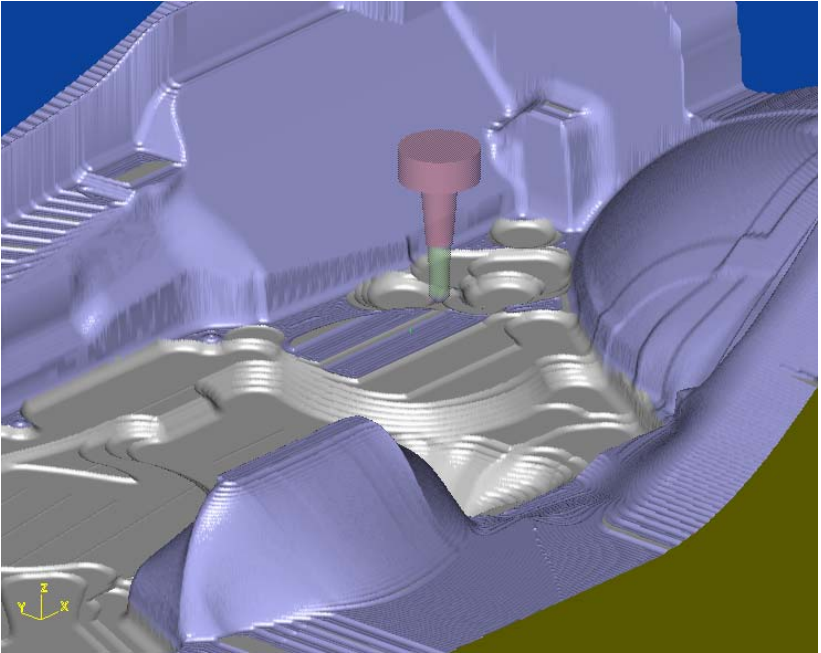
In version 6 it is possible change the parameter of the online visualization.

- Via a slider you can change the frequency of display update during the visualization process.
- You can re-open the display window when it was closed.
- You can pause and re-start the online visualization for a better inspection of the workpiece and the engagement situation.



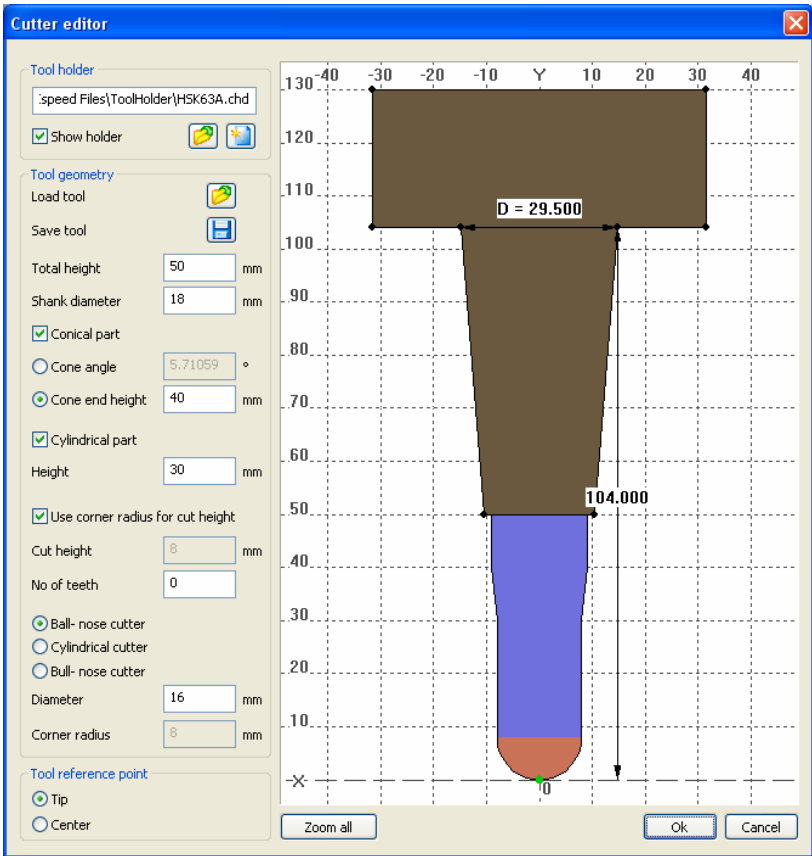
- **Display holder and tool in online visualization improved**

We have improved the display of the tool and the holder in the online visualization, see picture.

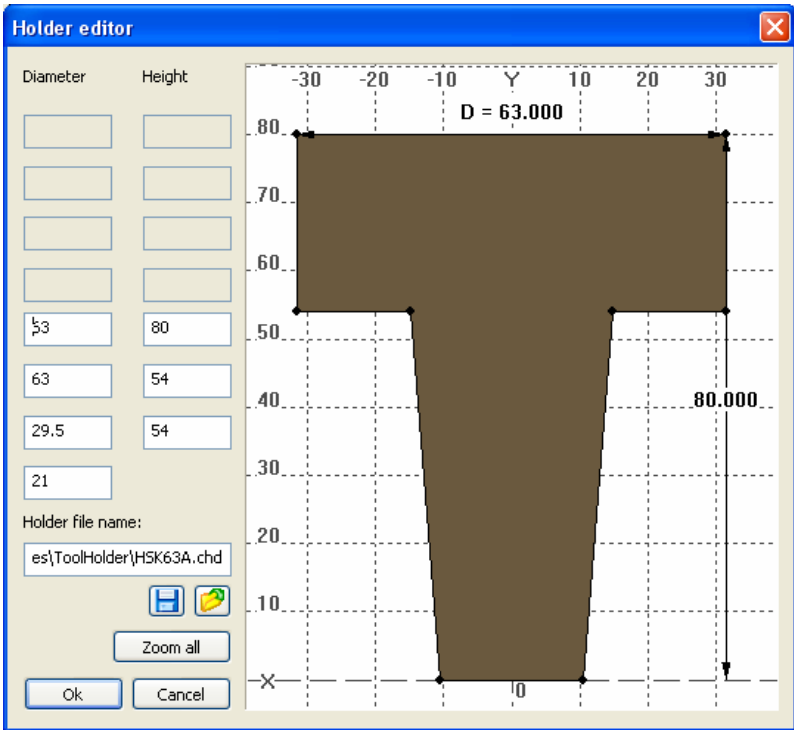


- **Editor for tool and holder**

It is now possible to define tools with a complex shank as well as to define a holder. You can edit save and re-use holders and you can measure coordinates in the assembly.



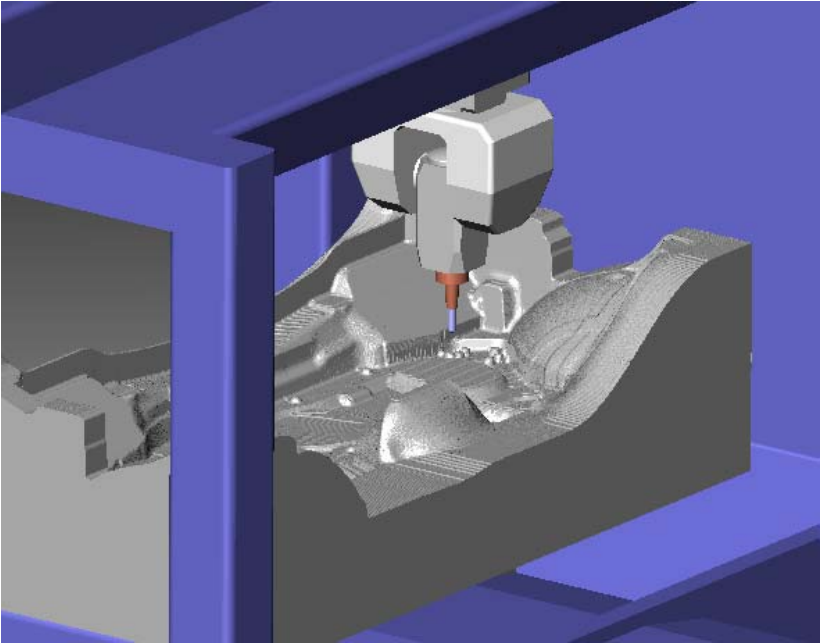
The holder can be defined by using the mouse or by direct entering the coordinate values.



The complex tool and holder information is used for a better and more realistic graphic display. In future versions it will be possible to calculate shank and holder collisions with respect to the actual stock as well as to calculate the minimum shank length for avoiding collisions between the actual stock and the holder.

- **Machine simulation (Extra module)**

It is now possible to simulate the whole machine with complete collision check. The collision is checked against the machine parts as well as against holder, tool shank and the actual workpiece geometry.



- **CAD comparison (Extra module)**

With this function you can compare the actual stock, calculated by the simulation with a given reference geometry. The reference geometry can be given as an STL file or an IGES file. The differences between the stock and the reference geometry are displayed graphically. We have improved this function for a better display of the deviations as well as we have improved the accuracy of the calculated deviations.

This function helps you to detect areas with too much material as well as areas where the reference surface is violated.

- **Maximum tool load control**

We have added a new function taking care about the maximum tool load. You can enter a maximum axial depth of cut and a radial engagement. If these values are exceeded, a warning message arises indicating that there might be something wrong in the toolpath.

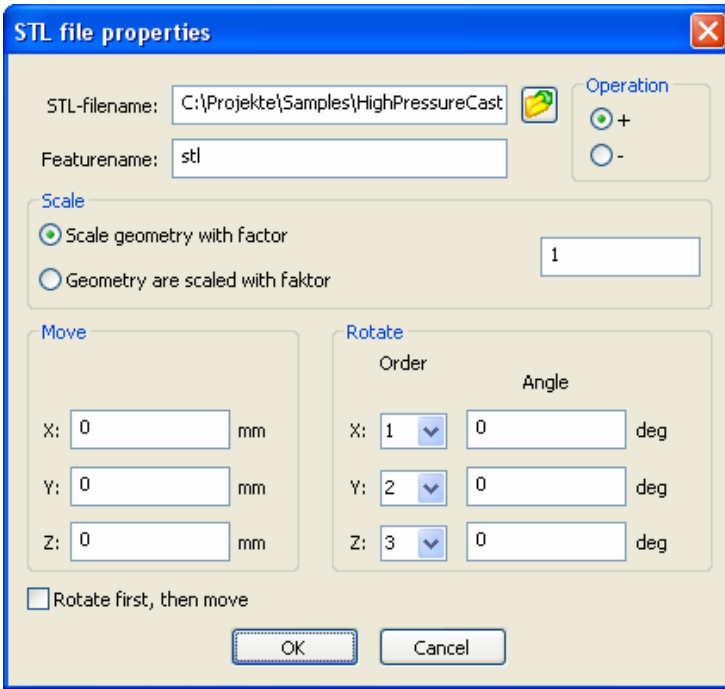


- **Automatic tool change improved**

When using the automatic tool change, you can define a piece of nc-code which is inserted at the tool change position. For defining this nc-code, you can use templates for defining the position where to re-enter the toolpath. These templates are extended for using not only the X-, Y- and Z-position, but also the angles A, B and C.

- **STL import improved, support for IGES import (Extra module)**

It is now possible to rotate, scale and move the STL description of the initial raw part geometry.



You can add STL files as well as IGES files for the description of the initial raw part.

Another enhancement is that the raw part dimensions of the base cube are automatically initialized. In previous versions, the users had to use the function Action\STL coordinates for the calculation of the x-, y- and z-dimensions of the STL file. This is now automatically performed when the raw part base is **not** initialized.

- **Support for new 3D stock in WorkNC**

WorkNC is using a new stock description allowing undercuts in the geometry. NCspeed can read and convert this new format for getting the initial stock geometry from WorkNC

- **Support for WorkNC Version 18**

The actual version of NCspeed supports WorkNC Version 18. All new 3 axis strategies in V18 can be used in combination with NCspeed.

- **Usage of different project wizard configurations in WorkNC and in the tool library**

Using the project wizard configuration (Menu Settings\Projectwizard), the user can configure the setting of standard values. This helps the user by avoiding manually changes of parameters. For example, you can configure whether NCspeed set the default value for the usage of a “special feedrate for ramping” on or off. You can save different configurations for different parts, machines etc. There is a special configuration called “WorkNC”. This configuration is used when WorkNC calculates the default settings for an optimization. The user can modify this configuration to adapt the default settings.

When using the tool library in WorkNC, you can specify which project wizard configuration will be used for the calculation of the default values for the optimization.

- **Inch support when using NCspeed with WorkNC**

It is now possible to use NCspeed in combination with WorkNC while you are working with inches inside WorkNC.

- **Direct interface to CAM-systems extended**

NCspeed now supports direct interfaces to SUM3D, Tebis, Pro/E, Unigraphics, GIBCAM and Euklid.

- **Copy and paste parameters**

Suppose you are having several toolpath files in a project which are very similar and you want to set the same parameters for these files. Now, the user can set the parameters for the first file and then using the function Edit\Copy (Ctrl-C), selecting another file and then Edit\Paste (Ctrl-V) for copying the parameters to the other files.

- **Text replacement in the toolpath file**

Many users ask us about a possibility to make easy text replacements in the toolpath files. For example, user wants to add a special comment line in the optimized file indicating the operator, that this file is optimized by NCspeed. This text replacement can now be configured in the machine configuration. There are functions for replace, deletion, insertion and for setting a distinct line end.

- **3+2 axis improved (Extra module)**

We have developed a new algorithm for optimization of machining utilizing 3+2 (indexed) axes. NCspeed needs significant less memory and calculation time for the optimization of 3+2 axis toolpath files.

- **Project handling improved**

When displaying an original toolpath file, it is now easier to display also the optimized file or the work piece geometry, because the buttons are still active. Now, it is not necessary to activate the project window before displaying other things. This makes the handling in NCspeed much easier.

- **Avoiding the combination of toolpath files which are not proper optimized.**

When the user cancels an optimization, the toolpath file is stored partially, depending on the position where the user presses cancel. If the user combines/concat the toolpath files in a project to one big file, a message appears indicating, that some of the files are not complete.

- **Support for Windows XP with ServicePack 2**

There are some changes in Windows XP with ServicePack 2, especially regarding the security settings. NCspeed support these new security settings.