

NCG CAM

NCG CAM Solutions Ltd.

NCG CAM - V16.0

Selected Surface Machining - Waterline Passes

Tangential Extension for Raster Passes

5-Axis Flank Machining

Barrel Cutters in 5-Axis

More Modern User Interface

Combined Passes - Waterline & Constant Stepper

Plus Many More New Features & Enhancements

Image courtesy of : Telkom - OT d.o.o., Slovenia

**New Features for NCG CAM
V16.0**

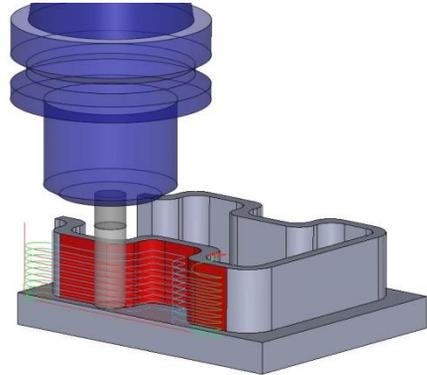
NCG CAM New Features V16.0– Base Module

Selected Surface Machining – Waterline Passes

This new feature in **NCG CAM** v16.0 extends the ability of the 'Machine Selected Surfaces' to include Waterline passes.

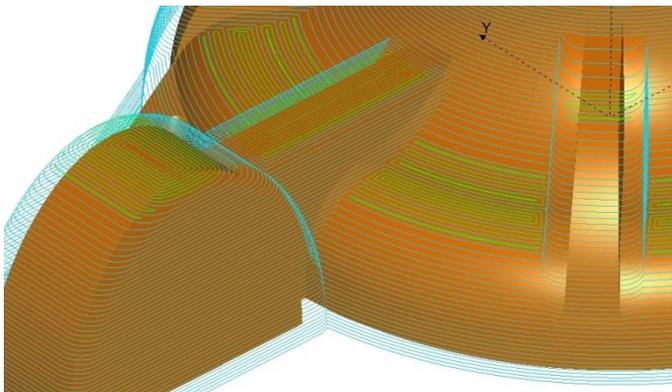
The new functionality allows the user to select individual surfaces to machine using Waterline Passes.

This provides the ability to machine up to the surface edges without the need to create a boundary, in the same way as can be selected for the Shallow strategies, Raster, Radial and Spiral.



Combined Passes – Waterline & Constant Steptover

This new routine allows the creation of Waterline Passes between the upper angle of 90° down to a specified lower angle. Constant Steptover Passes are then created to 'fill in' the shallow areas between the specified lower angle and 0°.



*Above – Constant Steptover Passes
high-lighted in a different colour*

Linking is a single operation from the top down, so that the linking order is a combination of waterline, constant step-over, waterline, etc.

This strategy will give a smoother finish because it allows the machining to be done in a single operation, alternating between the type of passes, so cutting sequentially from the top down, avoiding the problem of cutter wear.

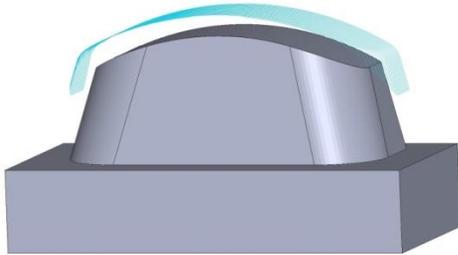
Transforming of Toolpaths – Keep Parameters

Cutting parameters that have been set are now retained when transforming a parametrised toolpath.

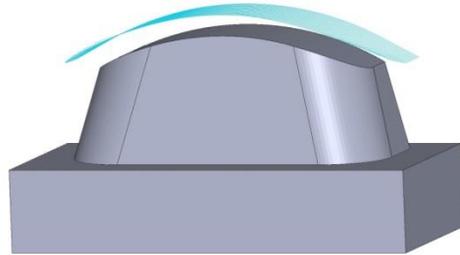
This new action saves the user time spent doing this manually.

Tangential Extension for Raster Passes

The previous implementation to extend raster passes, would allow the cutter to roll over the edge.



Above – Previously in **NCG CAM**



Above – New in **NCG CAM v16**

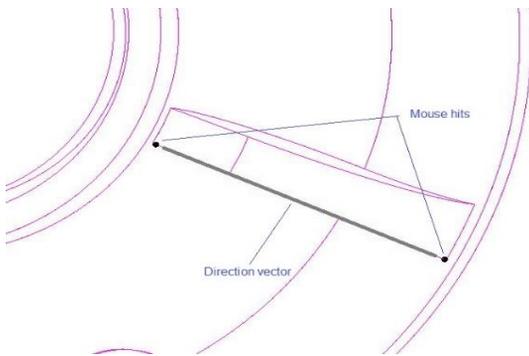
The new extension option creates passes that are extended at a tangent to the ends of the existing passes and therefore extend the path beyond and away from the material being cut.

The result of this, is that sharper edges are maintained. There is also a new horizontal pass extension.

Shorten Option for Raster Passes

A new feature has been added to give the ability to trim the passes back by a small amount, which will eliminate any slight marking that could potentially be left on vertical walls immediately in front of or behind the passes.

Set the Raster Passes Cutting Vector Using 2 Mouse Clicks

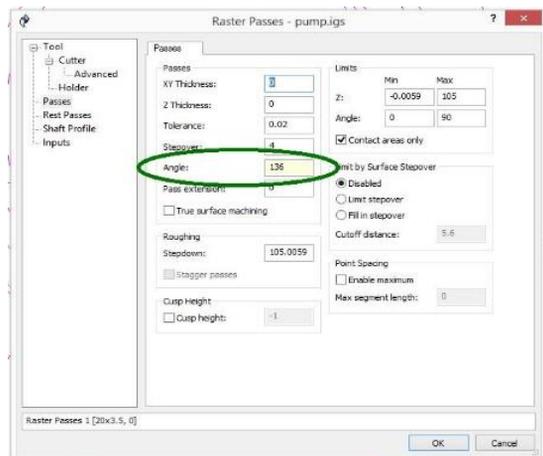


This new feature calculates the cutting direction vector using 2 mouse clicks that snap to the wire frame model to determine the angle.

This will save the user time, as currently, if an accurate angle is required, the model must be interrogated manually.

While the Passes Dialog is open, the coordinates are recovered from the model in the Graphics Window.

The result is then automatically entered into the 'Angle' field in the dialog.



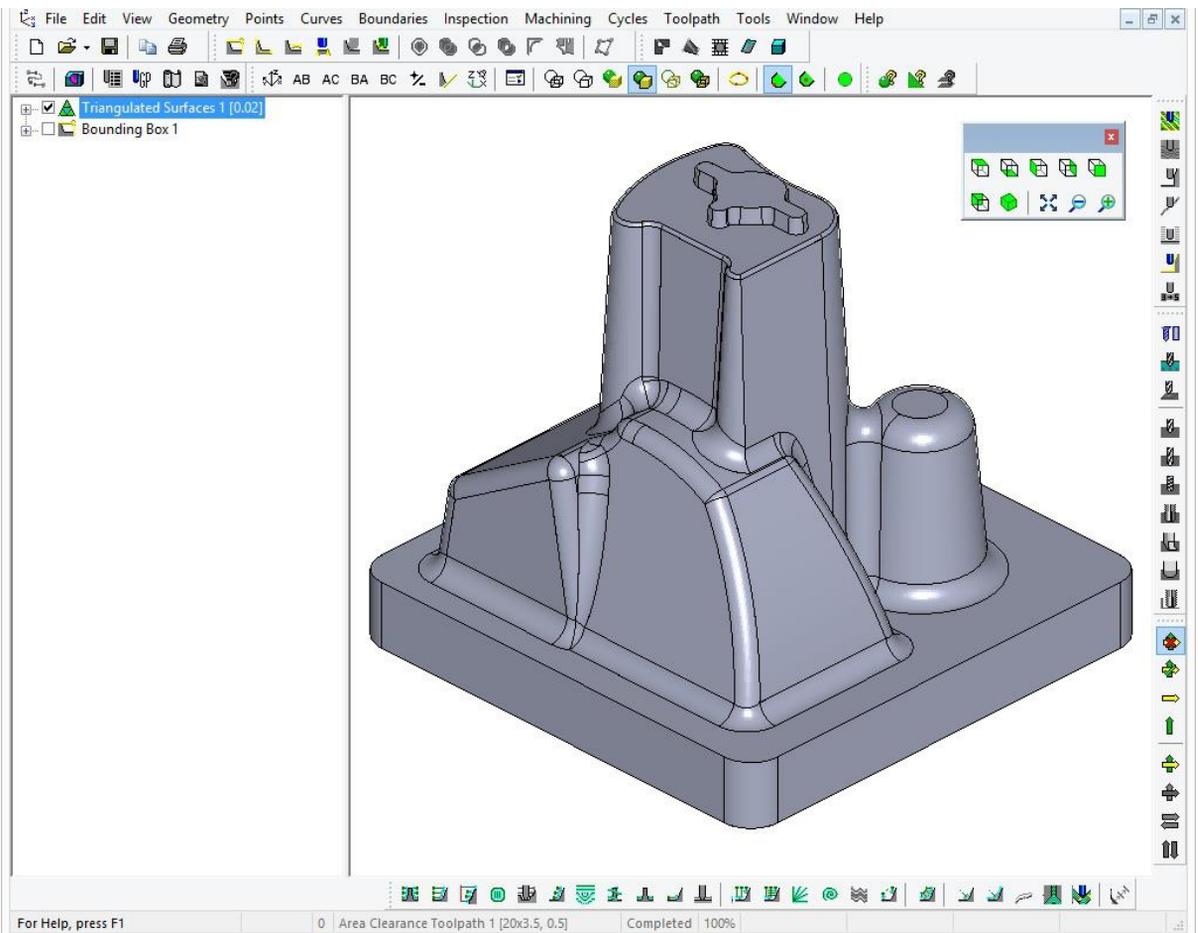
Modernisation of the User Interface

The basic style of the user interface has remained unchanged since this CAM software was first produced.

Modernising various aspects of the interface is being addressed and will be rolled out in **NCG CAM v16** point releases.

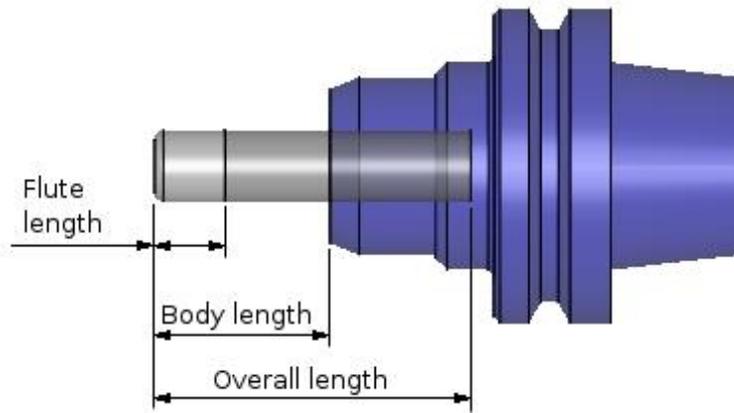
Improvements in **NCG CAM v16** will include:

- Better handling and positioning of the Toolbars when the graphics window is narrow.
- The ability to dock the Process Manager.



The aim is to make the user interface better and easier to use, not just different.

Tool Database – Cutter Overall Length



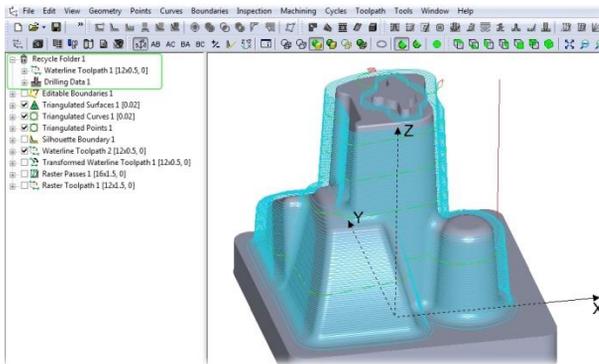
It is now possible to specify the cutters Overall length in the Tool Database:

E.g. The value that is usually referred to as 'L1' in a tooling catalogue.

The 'Body Length' is the 'Usable body length' of the cutter.

E.g. The part that is exposed from the Holder.

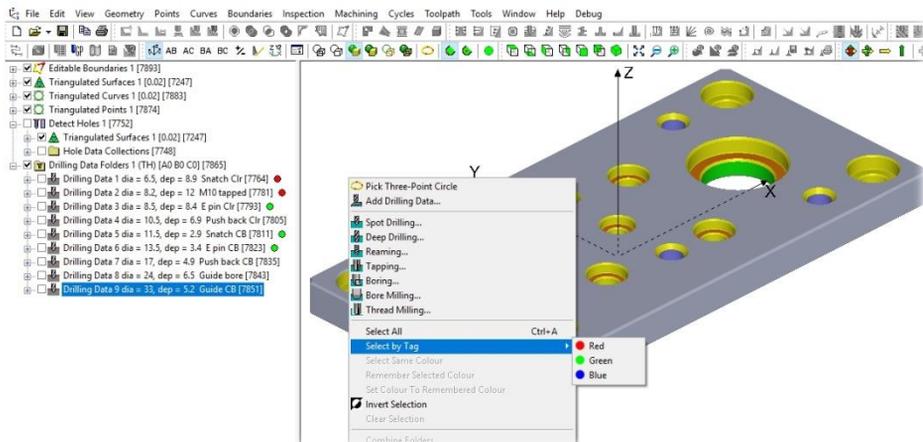
Contents Tree Management



A Recycle folder has been added to the Directory Tree View for deleted items. This allows the user to Choose and Restore specific items, if required.

Marking of Holes That Have Already Been Machined

This new feature allows Hole Plans in the Tree View to be 'Tagged' and identified with a coloured marker if they have previously been used to generate drilling cycles. This visual difference makes it easier to identify the remaining holes that require machining.



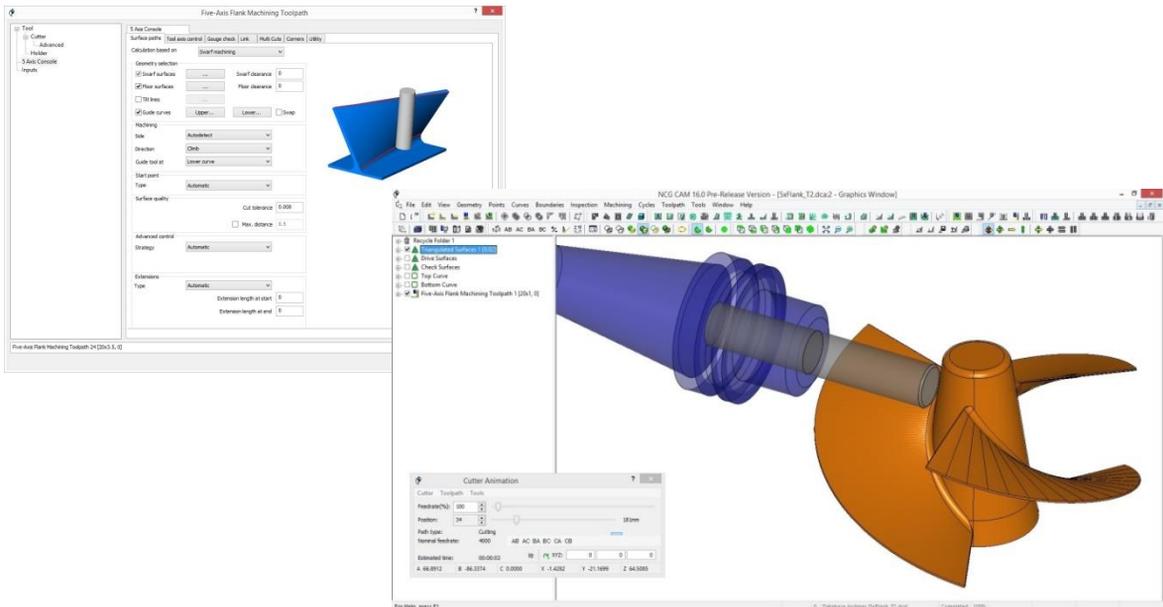
NCG CAM New Features V16– 5-Axis Add-on Module

5-Axis Flank Machining

Flank Machining is a 5-axis simultaneous milling process that can be used typically for fluid parts in turbo-engines, aeronautical applications, turbine and impeller blades.

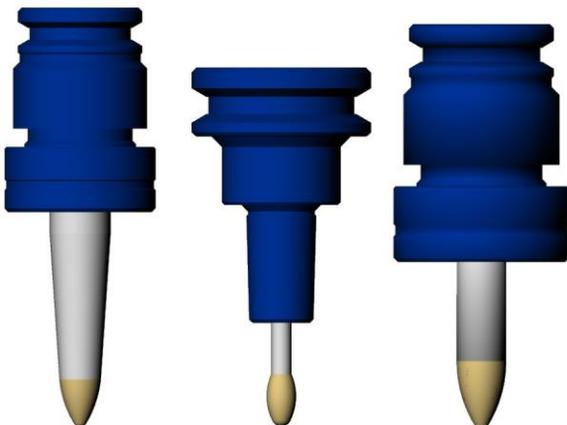
Using the whole flute length of the cutting tool, the aim is to machine the part surface in only one cut.

Roughing and finishing cycles are now available, together with automatic linking and tilting.



Barrel Cutters for 5-Axis

This new feature provides support for Barrel type cutters when using the 5-Axis machining routines.



The defining feature of a barrel cutter is the “circle-segment” radius; this allows a much greater area of engagement between the cutter and work piece when compared to a typical ball-nose tool.

This larger engagement area allows the use of larger step-over values, while still maintaining surface finish.

Metal removal rates are also expected to be improved when using barrel cutters and less cutter wear when compared to a typical ball-nose tool.

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