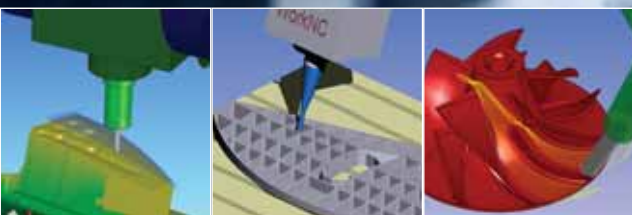


With WorkNC,
productivity
just takes off

WorkNC[®]



**Automatic
CAM/CAD
From 2
to 5-axis**

Sescoi[®]
www.sescoi.com

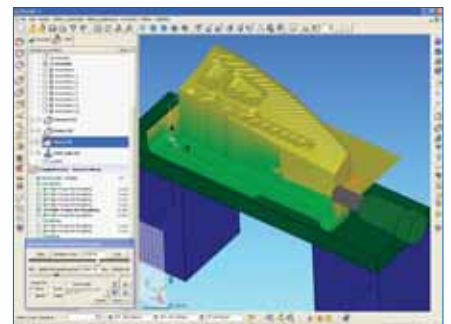
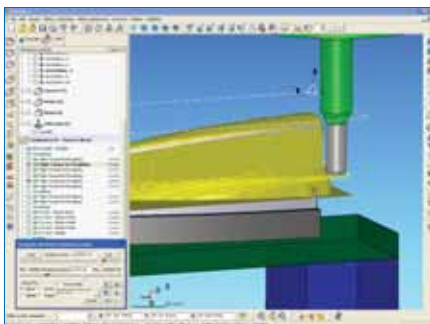
THE VERY BEST OF CAM SYSTEMS FOR THE VERY BEST AEROSPACE MACHINING



Companies serving the aerospace industry, where quality and safety are fundamental requirements, are turning to WorkNC for their aerospace machining requirements.

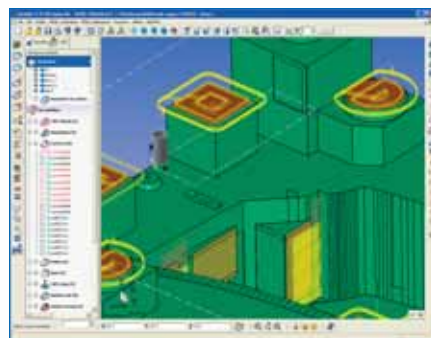
Aerospace parts, especially structural components, often have a large number of cavities and are machined from a solid block on all faces and from many different directions and angles. It is not unusual to find 90% of the original block machined out to produce the final part. It is essential therefore for aerospace manufacturers to be equipped with very best of CAM systems.

WorkNC is an intelligent CAM/CAD solution for aerospace manufacturing which comes with a wealth of important automatic machining features. WorkNC's core functions offer a number of benefits bringing the user optimal flexibility as well as significant productivity gains.



- ▶ Automatic geometry and machining zone detection and management (roughing, re-roughing, semi-finishing, ...).
- ▶ Real time 3+2 stock model management informs the user of the remaining stock to be machined. It also eliminates any risk of collisions between the part, the cutter, the tool holder and the machine head.
- ▶ Dynamic stock management directly associated with roughing strategies enables automatic machining concatenation using different cutter tool lengths to ensure minimum vibration during machining and eliminate the risk of collisions.

- ▶ Specific machining toolpaths for machining flat surfaces and walls. Efficient Z-level machining management in these toolpaths ensures that the user controls exactly the amount of stock left on surfaces.

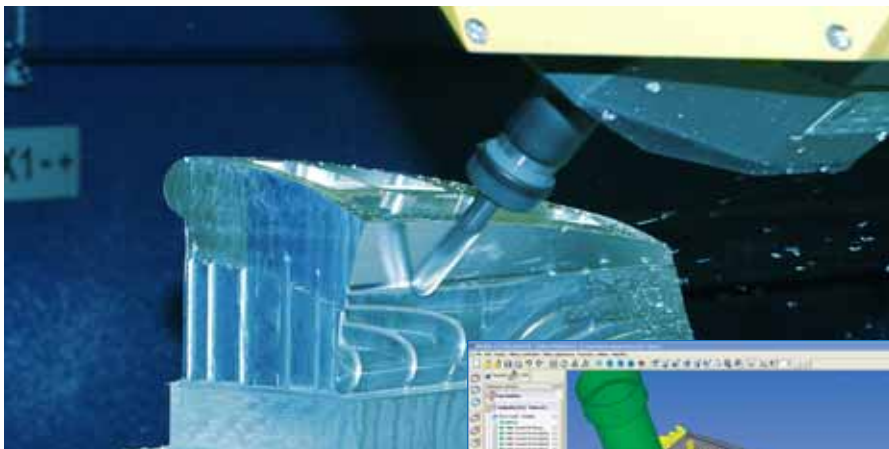


- ▶ 3+2 axis machining can be employed on all WorkNC toolpaths reducing the number of setups on the machine.
- ▶ The finishing phase of structural parts with thin wall features is efficiently handled in WorkNC by its specifically designed HSM toolpaths as well as the wide range of strategies which allow machining by levels, by zone, by restricting the number of retracts or lateral loading which could result in part deformation.
- ▶ 2 ½ Axis toolpaths allow the user maximum interactivity with specific geometries. These strategies enable machining sequences to be adapted to working methods and machines available.

Machining made easy!

Testimonial

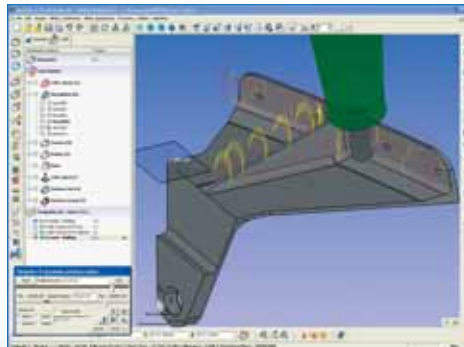
WorkNC also offers a complete range of standard continuous 5-axis machining toolpaths for aerospace machining. Structural components often feature very complex geometries and the only efficient way to finish these parts is by using reliable and adapted 5-axis toolpaths.



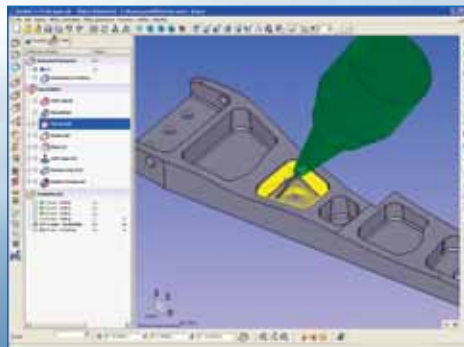
WorkNC includes a large number of 5-axis toolpaths capable of surface based machining or machining according to support curves if the surface definition is not precise enough.



▶ The 5-axis rolling toolpath allows direct finishing of structural component wall sections featuring undercuts. This toolpath has been optimized to automatically manage retracts following the spindle axis to avoid any risk of collisions with the part.



▶ Cambered surfaces are finished with specifically designed 5-axis toolpaths which can use bull-nose cutters which are more efficient and ensure higher productivity.



▶ 5-axis cavity machining is directly accessible and includes undercut management.

▶ Collision management integrates machine axis rotation and movement limits.

"WorkNC allowed us to undertake complex machining for new customers in the aeronautical industry, effectively expanding our activity beyond the automobile industry"

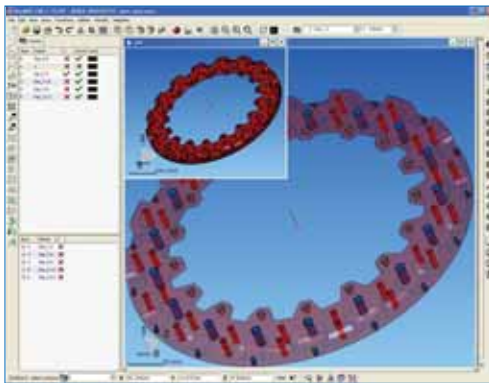
*Oscar Silvestre
CAM Manager,
Matribages, Spain
Design and manufacture
of molds, dies, tools and
special machines for the
automobile and aerospace
industries*



WorkNC[®]

Aerospace parts ma

MACHINING AUTOMATION AND PERFORMANCE : CRITICAL SUCCESS FACTORS IN AEROSPACE



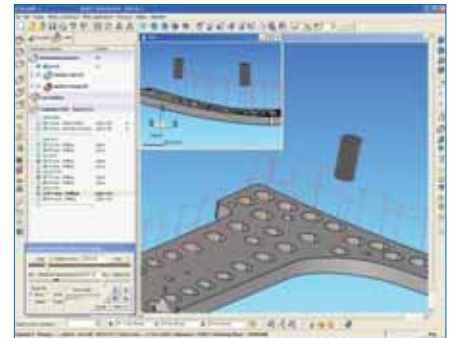
Today's aircraft assembly workshops require a large number of drilling and riveting dies. WorkNC offers application specific functions which automate tasks before and during machining preparation that deliver real productivity gains.

Automatic 2-axis drilling module :

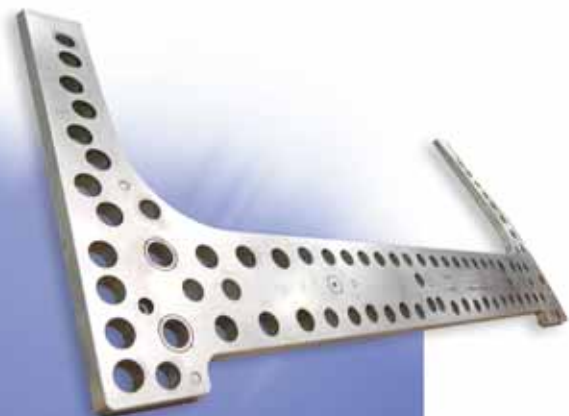
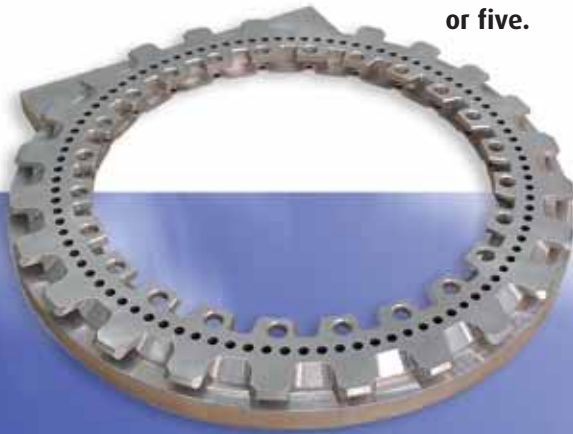
- ▶ Automatic recognition of geometric forms,
- ▶ Customizable drilling sequences (cycle definition),
- ▶ Automatic part drilling.

Automatic 5-axis drilling module :

- ▶ Automatic recognition of geometric forms,
- ▶ 5-axis drilling cycle.



Impressive productivity gains have been achieved by WorkNC customers who have seen their lead times cut by a factor of four or five.



chining made easy!

Testimonial

5-AXIS TOOLPATHS DESIGNED FOR ENGINE PRODUCTION



Specifically designed 5-axis toolpaths for special machining applications are included in WorkNC providing high quality solutions to meet an increasing array of manufacturing needs.

Blade machining :

A series of four specific turbine blade machining toolpaths for use in a 4 or 5-axis continuous machining production environment is available in WorkNC.

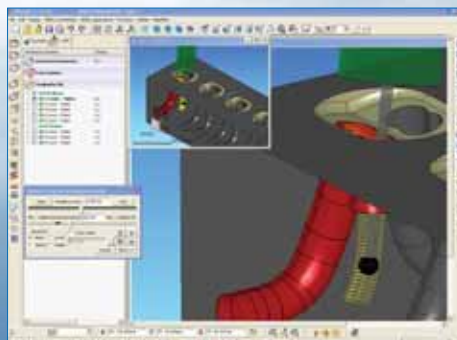
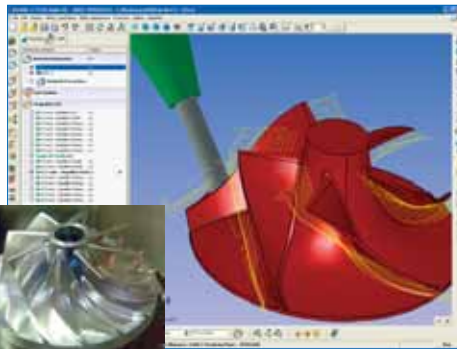
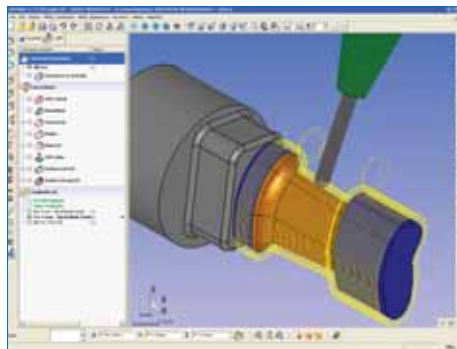
Spiral movements employed for roughing and finishing ensure maximum fluidity of toolpaths and guarantee optimal cutting conditions. A specific toolpath is provided for re-machining the base of blades.

Impeller machining :

Another specific series of three toolpaths has been developed for machining simple or complex impellers. Automatic undercut zone management is included in roughing, finishing and re-machining toolpaths.

Tube machining :

5-axis tube machining has been developed in response to specific requirements for machining engine ducts or certain types of closed impellers. Collisions and retracts management according to the part to be machined is also included.



"For CAM, we needed software which exactly matched the requirements of the tooling industry supply chain."

*Joël Corbic
CAD/CAM Support Manager
Snecma Moteurs, France
Aerospace supplier*



MACHINING AIRCRAFT MATERIAL WITH WORKNC



Aerospace part production is immediately associated with the use of a small group of raw materials such as titanium, aluminium or superalloys. WorkNC offers the appropriate solution for each specific requirement.

Aluminium machining :

WorkNC HSM toolpaths have been specifically developed to deliver high rates of material removal whilst at the same time ensuring optimal cutting conditions and supreme surface quality.

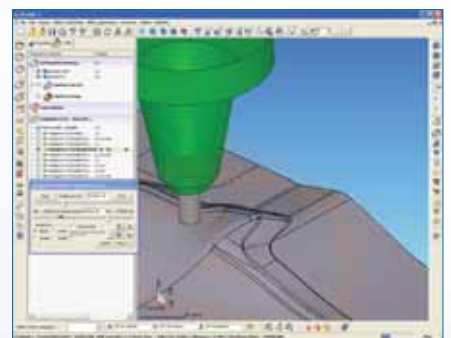
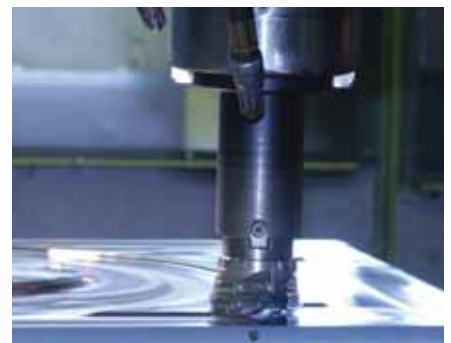
Furthermore, in 3-axis just as in 5-axis machining, bull-nose cutters can be used on this type of material ensuring optimal results via :

- ▶ Better machining quality,
- ▶ Reduced machining times,
- ▶ Better geometry management.

Hard material machining :

Machinability of heat resistant superalloys is usually poor compared to standard steels and also varies according to the heat treatment applied.

WorkNC has the ability to handle this type of material with specifically designed toolpaths. From trochoidal through to plunge movements, WorkNC provides a number of solutions and tool service life can be six to ten times longer than with traditional toolpaths.



Machining made easy!

Testimonial

High Speed Machining for Aerospace

WorkNC is a CAM product developed for High Speed Machining and allows aerospace manufacturers to machine large, complex and delicate aircraft components in a practical way. It enables high material removal rates which help reduce workpiece deflection, reduce weight and increase productivity. In fact WorkNC enables parts to be machined with thinner walls by reducing the depth of cut and using high feed rates so that machining time is reduced.



"We had WorkNC here on trial, and with just half a day of training, we were cutting the next day. We didn't want to give it back"

*Andy Bond
Managing Director
Hewmor Products Ltd
UK Specialist in aerospace
press tools*

A small training requirement for big productivity gains !

WorkNC's renowned ease-of-use, appreciated by thousands of users around the world, can naturally be found in its aerospace applications. Only a few hours training is required before generating toolpaths.

With WorkNC, simplicity and reliability go hand in hand with improved productivity !



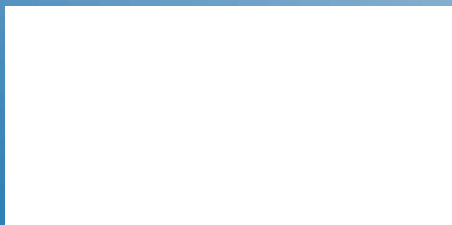
WorkNC®

SESCOI AND WORKNC

Sescoi, internationally present via its network of subsidiaries and distribution partners, develops, markets and provides technical support for WorkNC, WorkNC-CAD as well as WorkPLAN and MyWorkPLAN, its integrated job management solutions for custom manufacturing. SESCOI assists thousands of customers in keeping their business ahead in the worldwide marketplace.

Launched by SESCOI in 1987, WorkNC is today the worldwide reference for automatic 3-axis machining. Working closely with customers from a number of industries, SESCOI has now evolved WorkNC into the leading automatic CAD/CAM solution for 2 through to 5-axis machining.

For full technical information on WorkNC please contact your nearest SESCOI office or distribution partner. Further information can also be found on our website www.sescoi.com.



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