

# TopSolid

Cam



THE INTEGRATED  
CAD/CAM/ERP SOLUTION

# A GLOBAL CAD/CAM SOLUTION

Missler Software offers a comprehensive, high-performance software application for all types of machining technologies. You no longer need to switch from one application to another for your workshop, milling, turning and electro-erosion jobs.

This means greater flexibility, versatility, performance and productivity for both workshops and production engineering offices, both of which need to be more reactive in order to meet their customers' demands.

## One solution for all machines and command controllers

Computers and information processing technology is always changing and more powerful controls are being used. (mill/turn machines, robots, combined machines, transfer machines, etc.).

CAD/CAM technology, and notably TopSolid'Cam, is advancing rapidly to keep up with these developments by using increasingly precise simulation of movements and material removal, recognition of shapes and features, GPS tolerancing, comparison and control of differences between geometric models, management of multi-core processors, etc.

TopSolid'Cam is a simple, intuitive and global CAD/CAM solution that can be adapted to the progressive needs of every company. Thanks to its modular structure, it is the ideal solution to meet the CAD/CAM requirements of small and large companies alike, who will always find the right configuration for their needs and budget in TopSolid'Cam. Its post-processors are certified by machine tool manufacturers and guarantee optimized manufacturing costs and run-times.

#### Tolerance management

TopSolid'Cam can change a design model into a machinable manufacturing model by applying tolerances directly to the 3D model, without having to make any drawings of the part.

#### Change management

TopSolid'Cam manages part life cycles. When changes are made to a part, whether it was designed in TopSolid or imported via an interface, the programmer does not have to start again from scratch.

Since the machining operations are associated with the geometry, they will follow any changes made to the geometry. Furthermore, if the manufacturing procedure is identical or similar, simply applying the preceding procedure, plus or minus certain operations, is enough to make the part in record time.

#### A user-friendly interface

TopSolid'Cam has a very modern and easy-to-use interface. The context-sensitive menus, dynamic changes to settings, subject/verb mode, copy and paste, path preview before validation, and advanced simulation all mean that TopSolid'Cam is easy to learn and use even for new users.

#### Making your know-how last

Capitalizing on experience and making durable use of know-how are both essential challenges for every company.

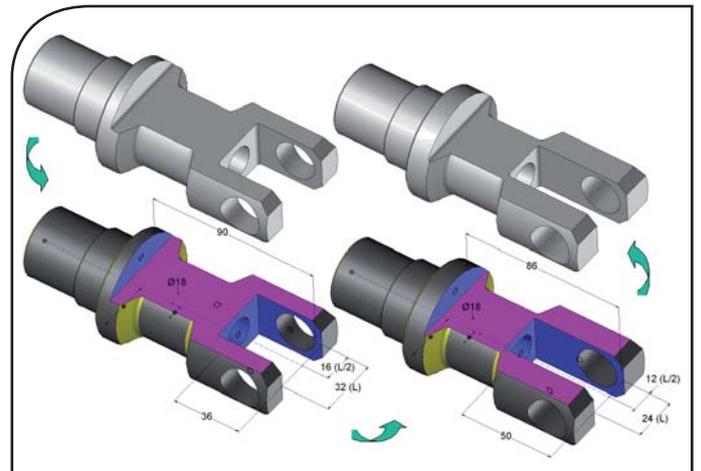
TopSolid'Cam personalizes the production of repetitive parts and automates parts that belong to a family by using processes (which automate sequences of operations that can be adjusted

and memorized) in accordance with the rules set up in a given company. Hours of programming time can be saved!

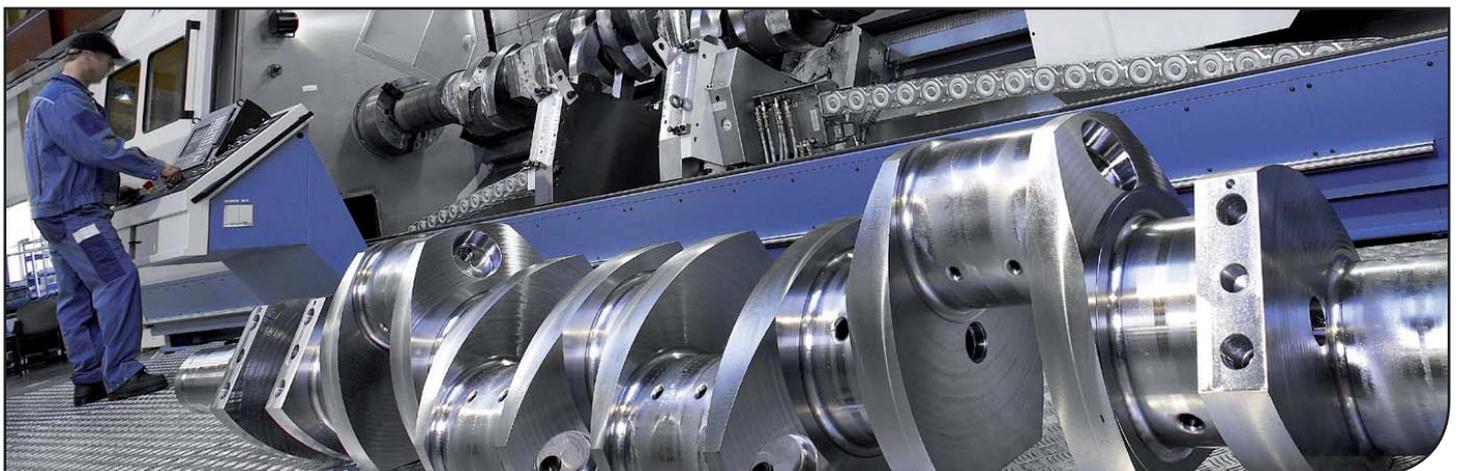
#### Recovery and adaptation of data

Since parts to be machined can come from a multitude of CAD/CAM systems, TopSolid'Cam uses a range of native and standard interfaces to retrieve both geometry and manufacturing-specific data (PMI).

The powerful modeling features can be used to clean up, extract, simplify and adapt the geometry received, in order to facilitate the creation of the model that will actually be machined.



With TopSolid, you can easily modify imported parts as if they had been designed in TopSolid in the first place.



Multifunction machining of complex parts with TopSolid'Cam.

# AN EXPERT ON THE HIGH VALUE-ADDED PARTS MARKET

Mill/turn or 4 & 5 continuous axis machining are applications that help companies progress toward high-end machining. With TopSolid'Cam, programming, operating and simulating a mill/turn machine or a 5 axis continuous machining center all become much easier.

Thanks to its outstanding ease-of-use, many specialty functions, and high-performance post-processors, these operations are now as simple as the 2D programming of a machining operation.

## From the simplest to the most complex with TopSolid'Cam

The programming of 2D operations must be as simple as possible. CAD/CAM software requires a multitude of machining functions in order to program mill/turn machines.

These machines are capable of making parts in a single operation, without removing the part. As a consequence, repositioning errors are reduced to a minimum and manufacturing cycles are shortened.

Operators that program mill/turn machines must be capable of programming both turning and simple milling operations, as well as more advanced milling operations, such as 4 or 5 continuous axis.

The automatic detection of basic shapes, holes, pockets, grooves, etc., both on imported models or parts modeled in TopSolid makes machining much easier and faster. The topological analysis of the models, which is based on a perfect knowledge of machining processes according to the geometry of the part, helps to guide the operator towards the right machining strategy.

#### TopSolid'Cam in the workshop

Many small companies are faced with the need to fix broken parts, make quick repairs or meet special local needs every day of the week.

These companies need a powerful and quick programming tool that can be used rapidly. TopSolid'Cam can be used to program parts in record time.

TopSolid'Cam can read the PMI (Product Manufacturing Information) in 3D files. In certain cases, the design office does not use a 2D drawing and all tolerances are included in the 3D model.

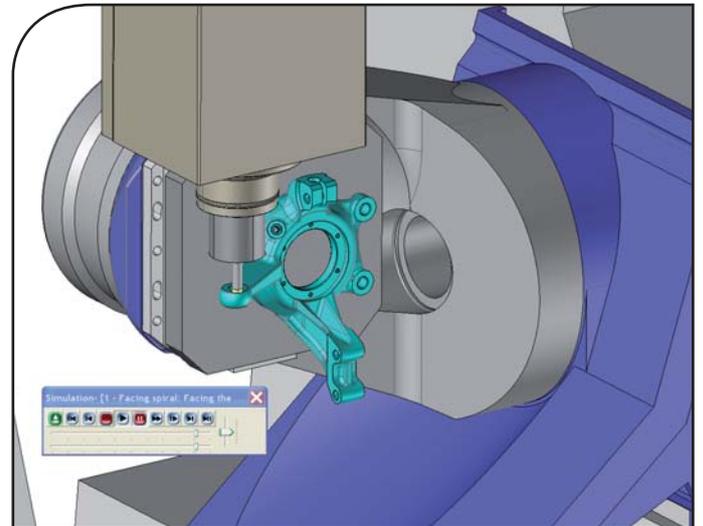
#### Simulation

TopSolid'Cam provides realistic tool path simulation during the development phase where simulation happens at the same time as the programming.

Operators immediately see whether the results meet their needs and can then immediately proceed with corrective or fine-tuning operations.

This simulation prevents the risk of collisions when material is removed. The operator can compare the model to be made with the model that is underway and quickly identify any zones that still have to be programmed.

TopSolid'Cam can be used to model or import the models of the machine tools used in the workshop. The definition of their kinematics allow for ultra-realistic simulations. This process uses the CAD kinematic engine, which is also used by certain machine tool manufacturers.



TopSolid'Cam does not only simulate the tool but also the machine and the part thanks to its integrated simulation.



Manage complex 5 axis machining with TopSolid'Cam.

# THE IDEAL TOOL FOR PRODUCTION ENGINEERING

Whether the part was imported through an interface or created in TopSolid'Design, TopSolid'Cam automatically recalculates tool paths according to the changes to the model, and usually without any user intervention.

In addition, the complete integration of TopSolid'Cam with TopSolid'Design allows the user to design and verify machining fixtures within the same software.

## Tolerances

Models often have to be changed before they can be machined. In most cases, models are drawn using nominal values and the tolerances are added on later, either in the 3D model or in the detailed drawings.

The manufacturer uses the 3D model to make the part, which means that changes must be made to the model so that it complies with the imposed tolerances, or the part must be remodeled. The strict minimum consists in applying average values to the model, although maximum or minimum material values are preferable, so that full advantage can be taken of the tolerance range.

With its very powerful FreeShape functions (to modify the part with no construction history) TopSolid'Cam is capable of completely re-modeling a part, if necessary.

The lifecycle of parts requires them to be permanently modified. Adaptations to customer needs, improvements in performance, additional options and the correction of errors are just a few of the reasons why parts evolve and change from version to version over time. TopSolid'Cam has powerful modification possibilities with FreeShape to respond to industry needs.

#### Stock part management

TopSolid'Cam has real time stock management functions that enable the software to know, at all times, the condition of the stock before each machining operation. The shape and position of the tool paths are closely related to the shape of the common stock part, wherever there is any material left. This material management technique is especially effective when making changes to the machining procedure by removing or reversing operations. If the condition of the stock changes because an operation is withdrawn, the following operation is automatically modified.

#### From the design department to production engineering

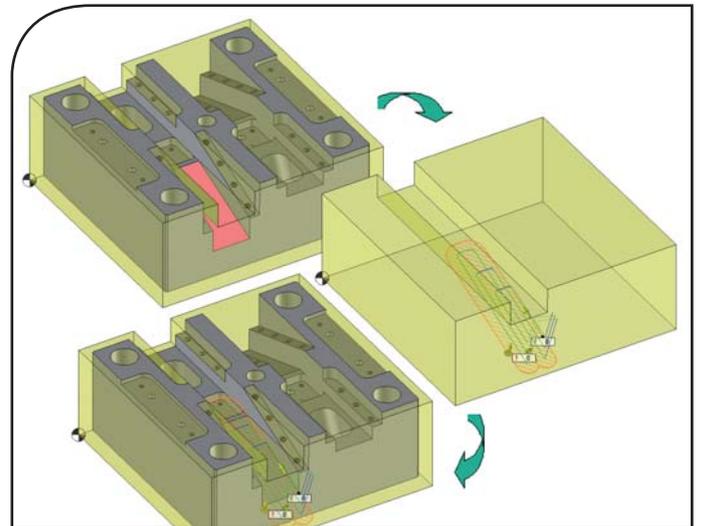
No matter which CAD system the design department uses, TopSolid'Cam provides production engineers with a complete range of functions: machining assembly design and the associated checks, comprehensive manufacturing file production: phase plan, instruction sheets, machining assemblies, test assemblies, etc.

#### Cutting tools

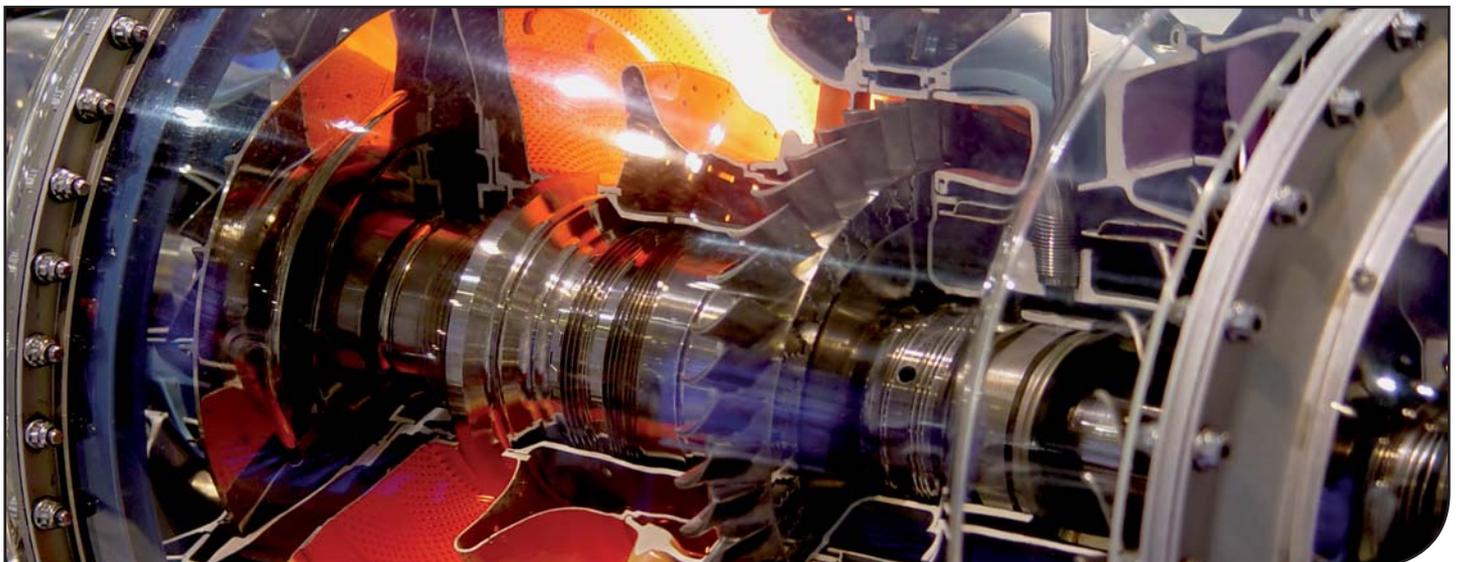
TopSolid'Cam includes its own libraries of cutting tools for both milling and turning. The tools and attachments are supplied as standards. However, operators can also design their own tools, even sophisticated turning tools. Furthermore, close links have been forged with companies like TDM, WinTool or LMBA in order to obtain their native libraries.

#### Post-processors

TopSolid'Cam features high-performance post-processors developed by a specialized team that cooperates closely with machine tool manufacturers. These post-processors can easily be customized by Missler Software, partners or customers themselves.



TopSolid'Cam offers automatic stock management and raw part updating.



Easy modification of parts right throughout the life cycle thanks to TopSolid'Cam.

# THE OPTIMAL SOLUTION FOR TOOLING

Tools are made up of two main parts: the form (stamp, cutting zone) and the mechanism (slides, ejectors, etc.). Thus, tooling specialists have one distinct need: to make both of these parts as efficiently as possible.

To meet this need, Missler Software has developed push-button applications in TopSolid'Cam. The operator enters a range of parameters according to the type of cycle required and executes, either interactively or in batch mode, a series of completely automatic tasks that cover roughing, finishing and the recovery of residual material.

## Effective and modern paths

Finished products must reach the market as quickly as possible. Therefore, tooling must be made available just as quickly. As a result, in recent years many cavities that would have been spark eroded by electrodes are now finish machined directly from pre-hardened material therefore alleviating time consuming and costly processes like polishing.

TopSolid'Cam proposes a broad range of machining strategies designed to cut machining times, while producing almost perfect surfaces. All the tool paths support high-speed machining options. TopSolid'Cam can manage trochoidal machining, roughing by plunge cuts and constant-scallop paths.

Tooling industry parts are generally complex. The level of automation is nearly 100%, calculation times must be as short as possible, the quality of the tool paths and of the surfaces must be close to perfect, the materials used can be difficult to machine, and the operator cannot have a big impact: apart from adjusting the process.

#### 5-axis machining

The advent of machine tools capable of machining in 5 continuous axis was quite a revolution. The simple fact that the tool or the part can be oriented makes it easier to machine the part with shorter tools, thereby reducing vibrations and improving surface finish.

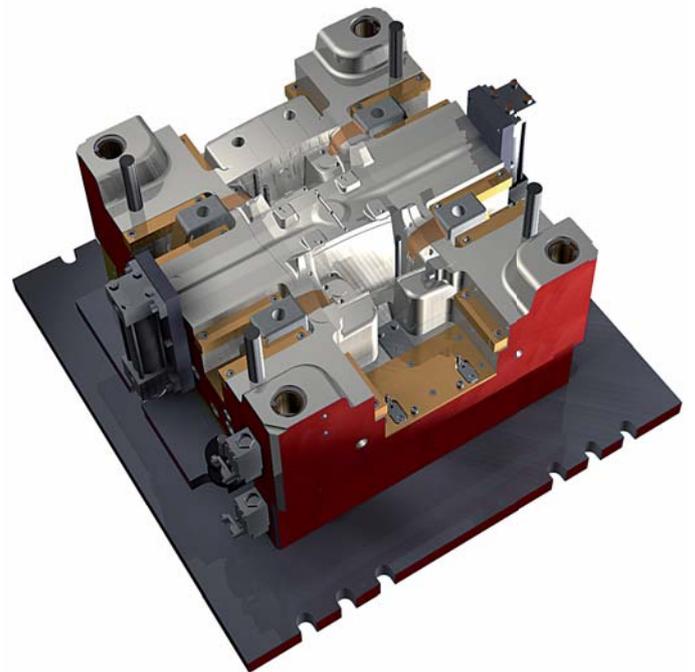
TopSolid'Cam takes account of the tool shape and the holders when calculating tool paths. Its 2D or 5 axis positioned functions can be used to automate the production processes of holes, cavities, slider housings, etc.

#### Ultra-powerful and reliable algorithms

Programming 4 & 5 axis parts requires complex calculations, powerful automation, high-performance simulation and dedicated features.

Collisions and machining errors must automatically be avoided without the intervention of the operator. TopSolid'Cam uses powerful algorithms that are capable, for example, of roll machining a warped surface, even if it cannot be developed.

These algorithms, which are usually long and require a lot of resources, are parallelized in order to make the most of today's multi-core processors.



TopSolid'Cam offers powerful functions to reduce machining times for mold makers.



Excellent surface finish possibilities produce almost perfect surfaces. (Compagny Aalbers, North America)

# MISSLER SOFTWARE: COMMITTED TO YOUR SUCCESS

Missler Software employs 220 people in France, has 75 international resellers and subsidiaries in China, Italy and Brazil. All of its products are developed in France by engineers who are highly qualified in engineering, IT and mathematics. Missler Software listens closely to its customers and most of the enhancements made to its software are based on their feedback.

Missler Software has a unique business expertise that it offers to its customers, through its software, at every stage of the industrial manufacturing process, from the design office to production engineering and the workshop.

## Missler Software offers the following services:

- > Training – Missler Software provides complete training services, plus system supervision. Missler Software's certified resellers deliver the same service on an international scale.
- > Specific developments – Missler Software Services develops tailor-made applications to meet its customer's specifications. This service allows TopSolid customers to benefit from a solution that meets their specific needs and achieves high levels of automation in their manufacturing processes.

Missler Software and its partners are at your disposal throughout the world. Companies around the world use TopSolid every day to design, simulate, manufacture and manage with a single, fully-integrated software system! The digital revolution is underway with TopSolid.

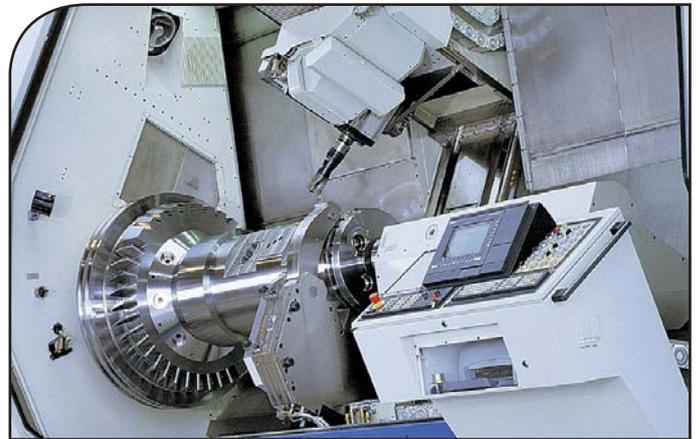
> High-performance post-processors - Thanks to its expert knowledge of machining, Missler Software provides its customers with the most optimized and sophisticated post-processors for all types of machines. It has close partnerships with numerous machine tool manufacturers in order to meet its customer's complex machining needs.

Missler Software releases a new version of its software applications every year in order to deliver the best possible technology to its customers.

**Partnerships:**

For many years, Missler Software has been developing software in partnership with the most advanced software component suppliers on the CAD/CAM market.

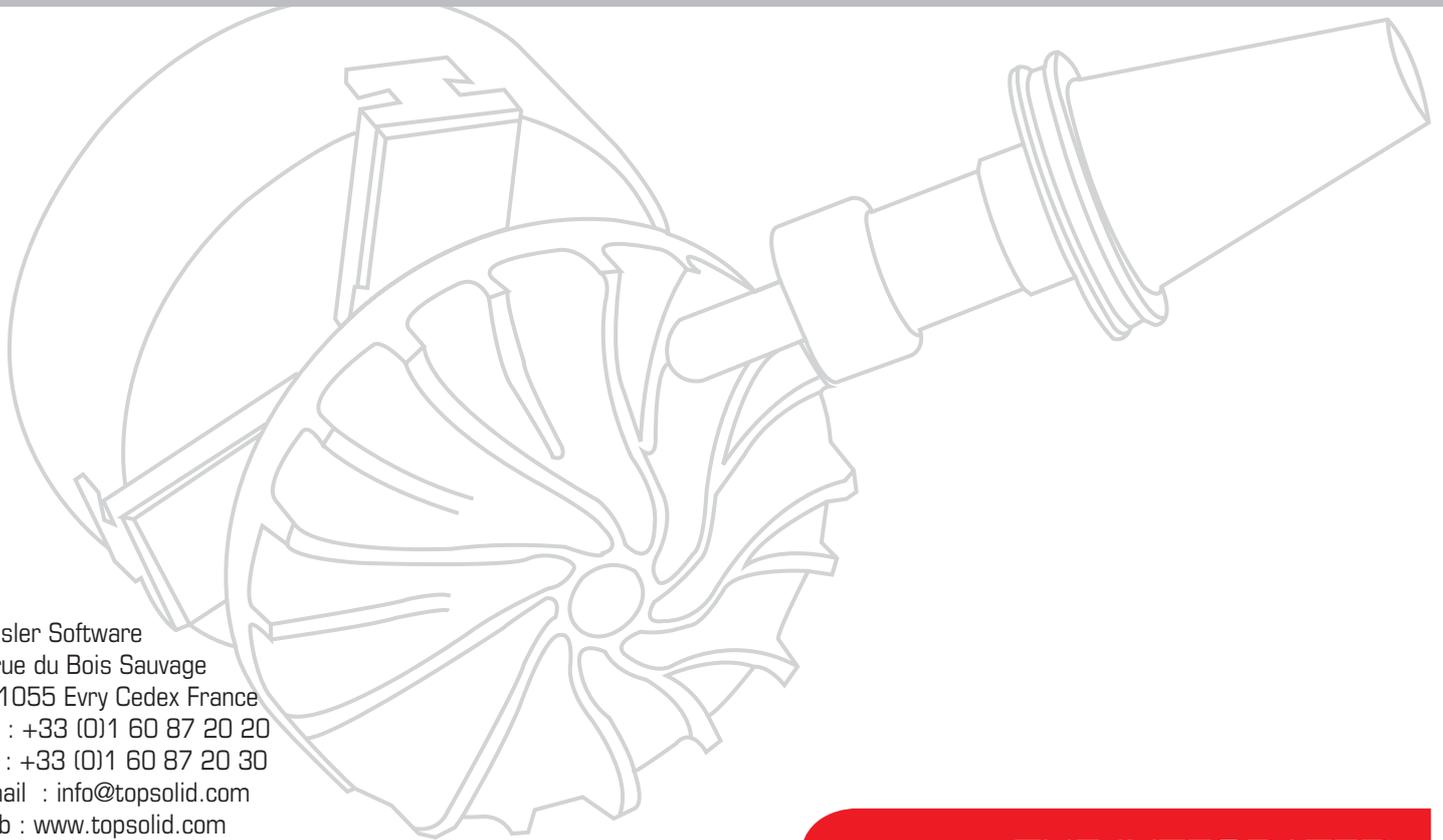
These partnerships have allowed the company to focus on its core activity – the development of specialized, integrated CAD/CAM software – while other specialists provide the key components that enable its software to work. For more information on Missler Software's partners, go to <http://www.topsolid.com/partners>



Machining of high value added parts with TopSolid'Cam..



TopSolid'Cam is recognised as a leader in the machining of aerospace parts.



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