

S P R U T T E C H N O L O G Y

SprutCAM





SprutCAM

SprutCAM is a CAM system for NC program generation for machining using multi-axis milling, turning, turn/mill, Wire EDM numerically controlled machines and machining centers. The system enables the creation of NC programs for machines with a wide variety of kinematics and can be adjusted to NC equipment of virtually any kind .

SprutCAM functionality and wide range of features enables the efficient machining of dies, press tools, casting molds, preproduction models, master models, machine parts, original and mass production parts, basic parts, spare parts, wooden parts, templates, engraving of inscriptions and images.

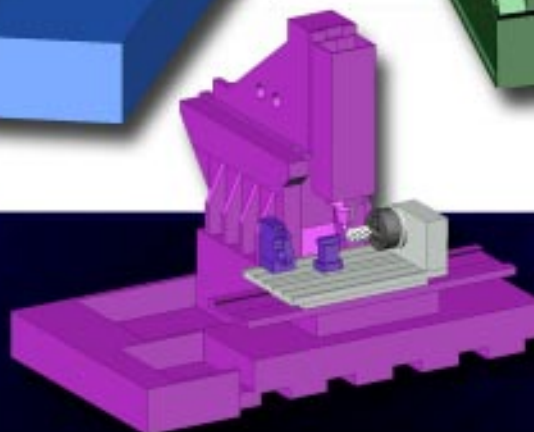
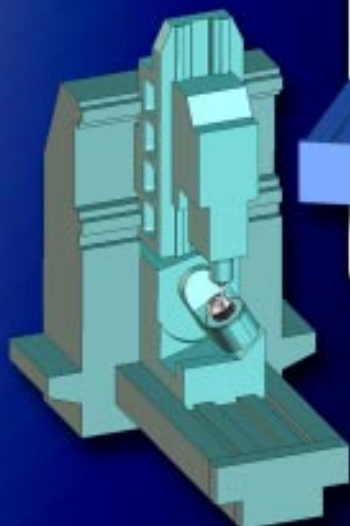
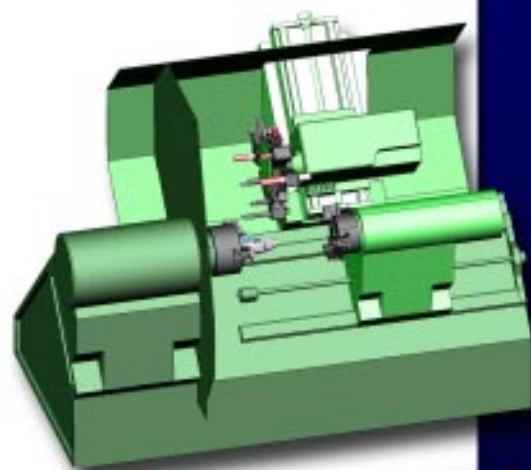
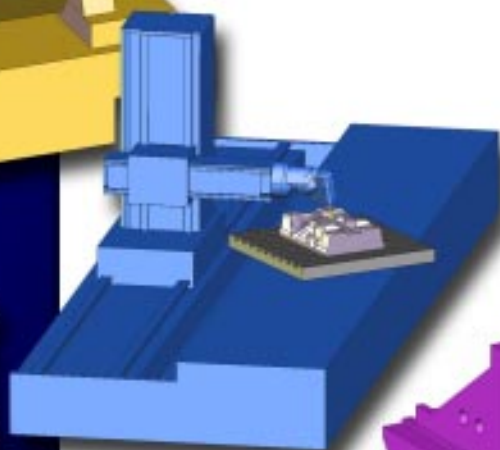
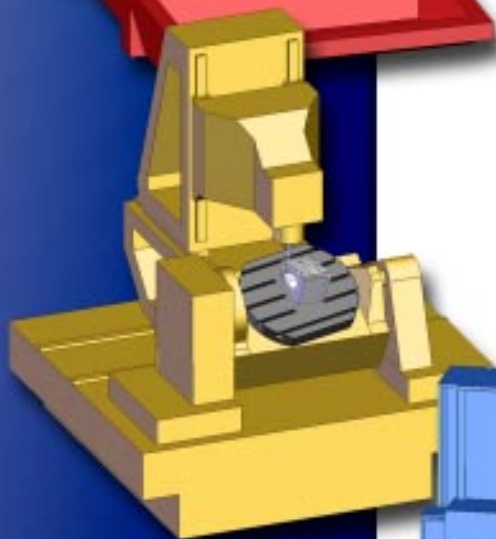
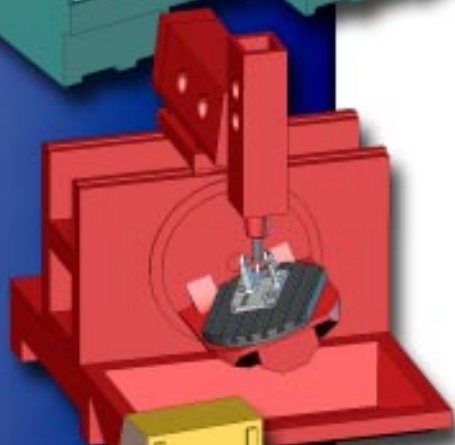
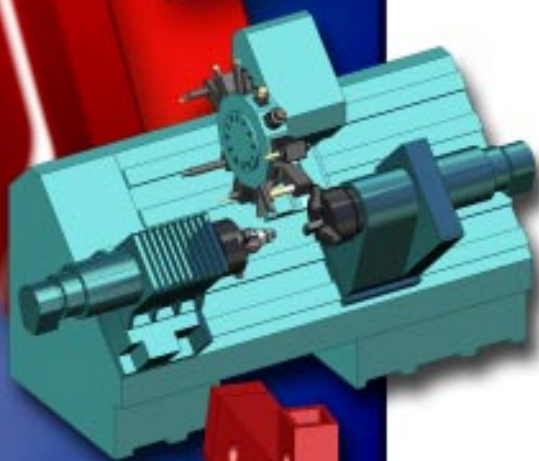
EQUIPMENT

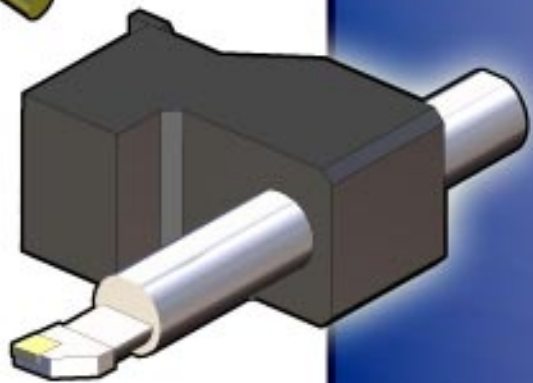
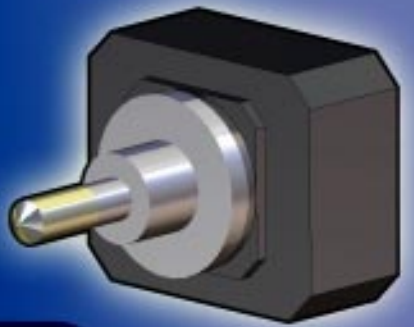
When creating a machining procedure, **SprutCAM** takes into account the actual CNC machine-tool in use. It allows the creation of NC programs for machines with a diverse range of configurations, and the calculated tool paths do not require any subsequent modifications to comply with a specific machine-tool.

Where a standard type CNC machine-tool is being used which doesn't require any special checking of machine movements, the tool path calculation is made using one of the included generic machine types without detailed description of the elements and their reciprocal position.

When developing programs the commands are generated not only for the main axes but also for any auxiliary axes too such as lathe steady, tail-stock, rotary axis brake etc.

A machine model can include a variety of equipment with either manual or program control.



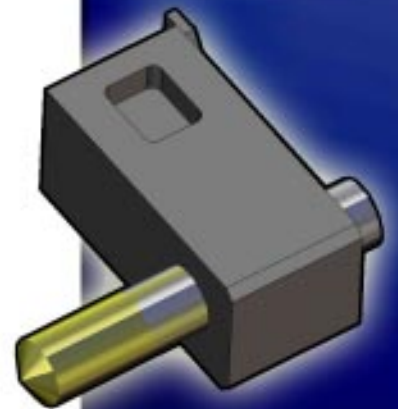


TOOLING

A variety of different tools can be combined into a tool library or user defined libraries which can be associated with corresponding machines. It is possible to use tool libraries provided tooling by suppliers. The user can modify these to suit the particular requirements of a machine or particular task.

The system displays only those machining types which can be run with the selected tools.

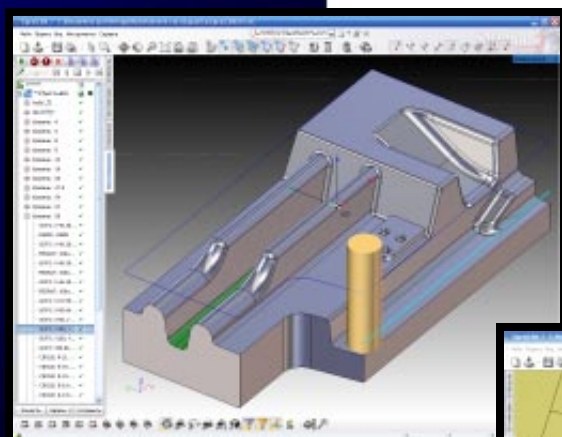
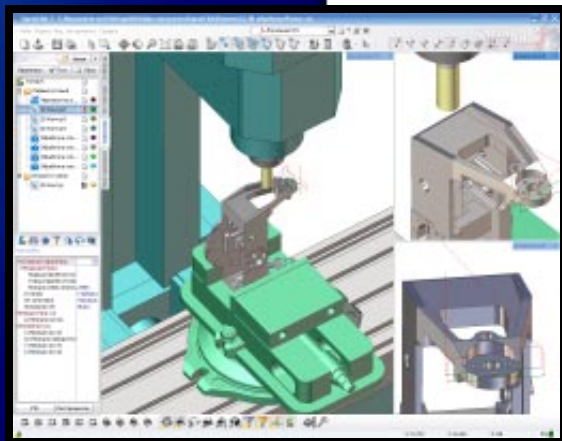
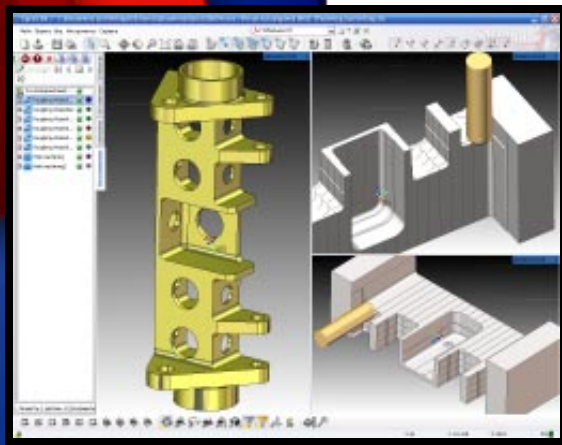
An operations default parameters are also related with the selected tools.



MACHINING TYPES

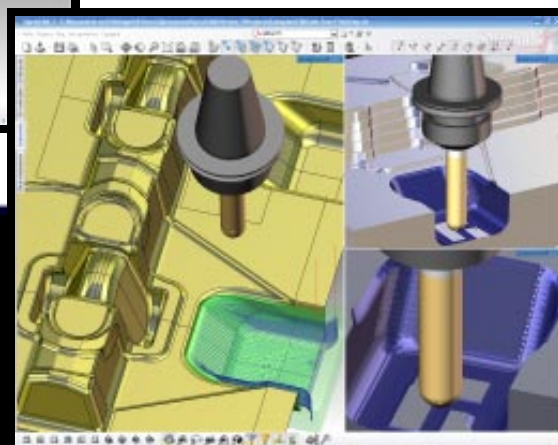
2.5D machining

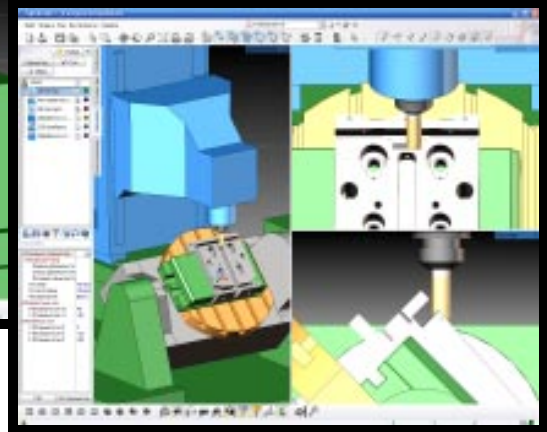
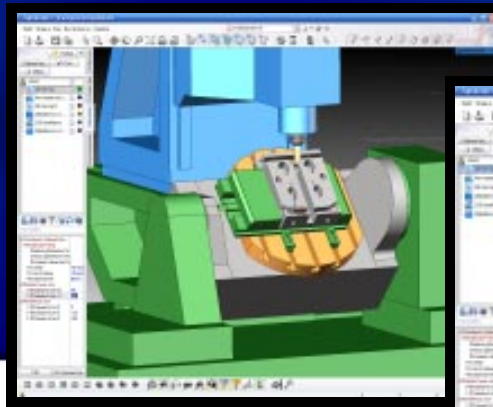
SprutCAM features several 2.5D machining strategies for the machining of multi-level 2D parts. Available strategies include calculation of both roughing and finishing tool paths. Machining parts of any level of complexity is achieved with strategies for machining: along a contour, island machining, vertical walls, slots & pocket with islands. The system has the ability to automatically recognise horizontal surfaces and holes. The system supports all types of hole machining including tapping and thread milling. Automatic recognition of rest material. Full control of machining accuracy is included



3D machining

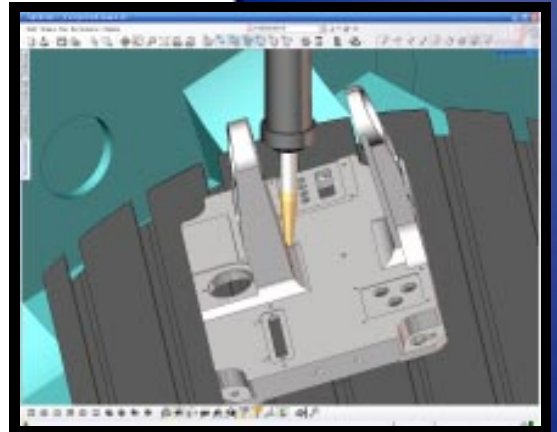
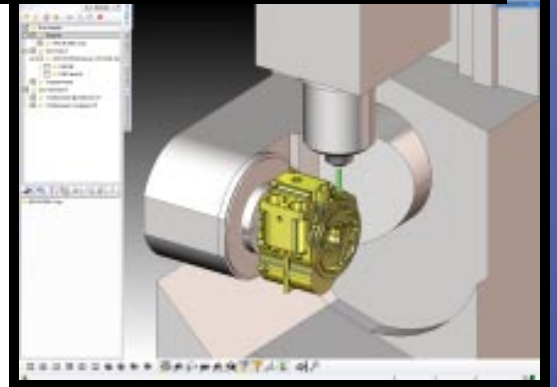
SprutCAM has a wide range of 3D machining strategies that enables the machining of parts with complex freeform surfaces. The user has the capability to create tool paths that are defined by the scallop height, this ensures achievement of the required surface accuracy and quality. A real labour saving feature is the automatic recognition of remaining material for rest milling. The smooth tool paths that are calculated avoids any sudden shocks and will considerably extend machine life.





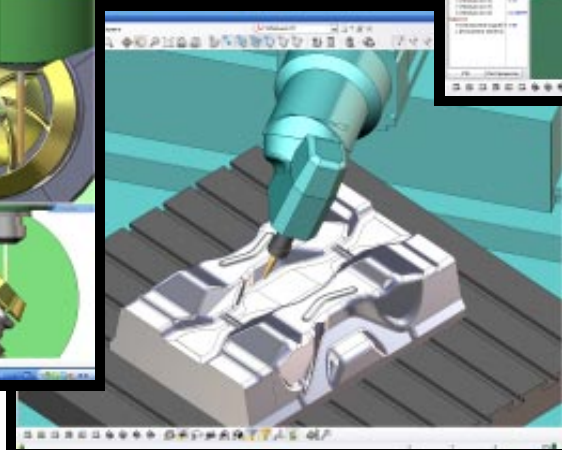
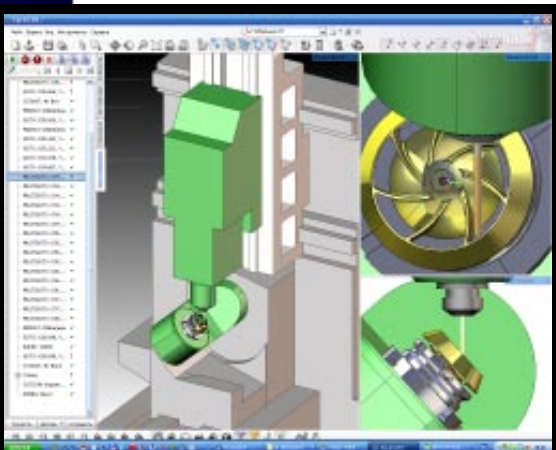
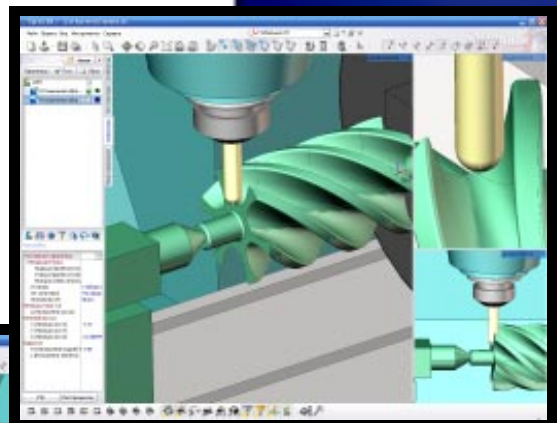
Multi-axis machining

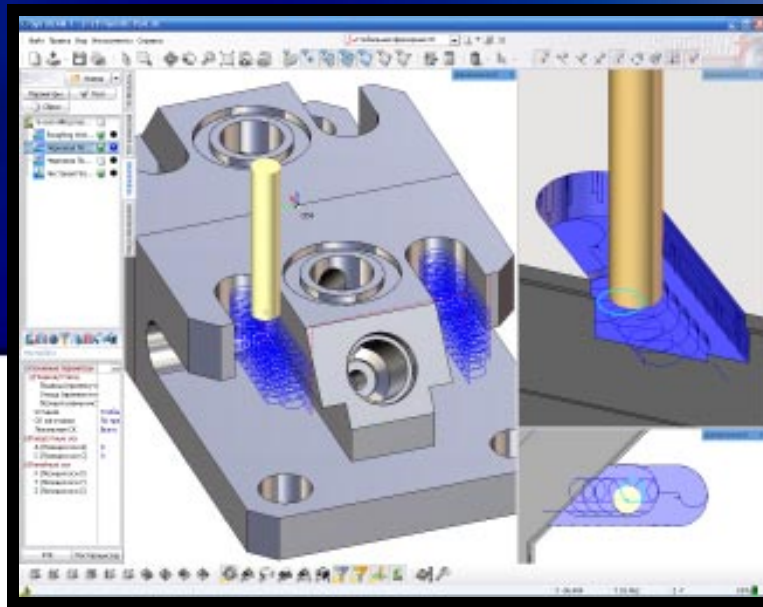
When doing multi-axis machining, the required rotation angle of the part can be achieved interactively by simply clicking on the required part surface which will automatically position (rotate) the part. **SprutCAM** automatically calculates the necessary rotation angles and travel of the associated elements and generates the NC program. The tool path is formed taking into account the predefined machine kinematics for index machining for 4-5 and more axes machines. The multi-axes machining comprises 2.5, 3 and 4 axis milling strategies. To carry out machining of the same part on a machine with another kinematics scheme, it only requires selection of the required machine and recalculation of the operations.



5-axis machining

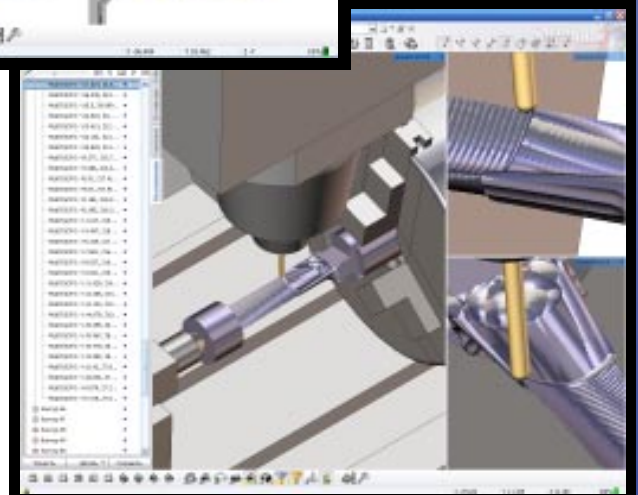
SprutCAM has strategies for 5-axis machining using either the side or end of the cutter, including at a preset angle to the machined surface (normal). The NC program is created taking into consideration the CNC machine model which allows avoidance of collisions of any type during machining.





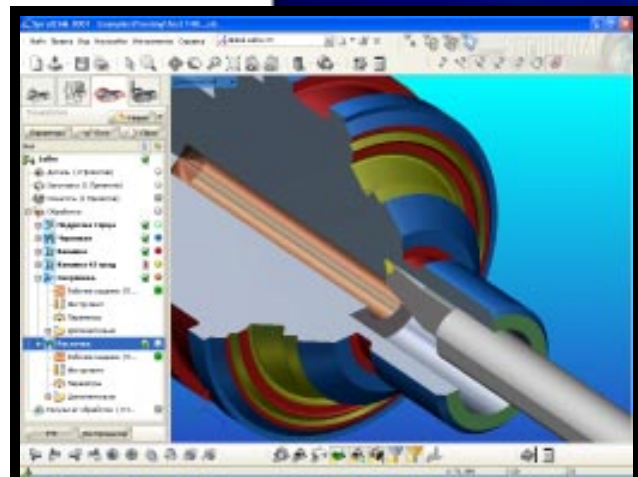
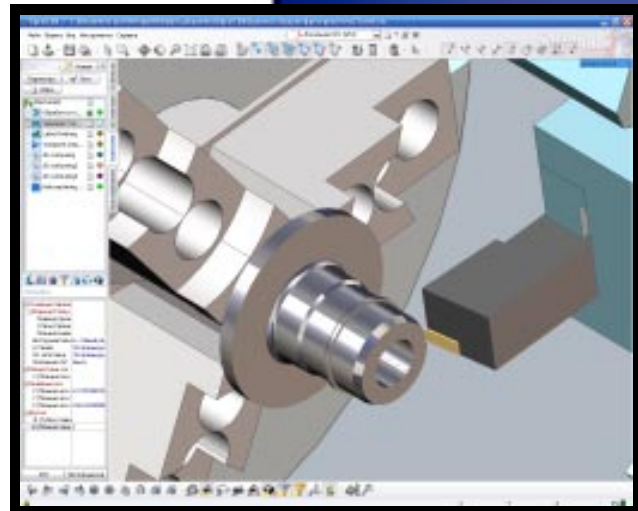
High speed machining

SprutCAM milling strategies include features for creating high speed milling tool paths. Trochoidal 'penetration' tool paths, smoothing of sharp corners, arc approach and retraction ensure smooth tool paths and a consistent area of cut, which together with the calculated lead in / out movement enables the use of high speed milling.



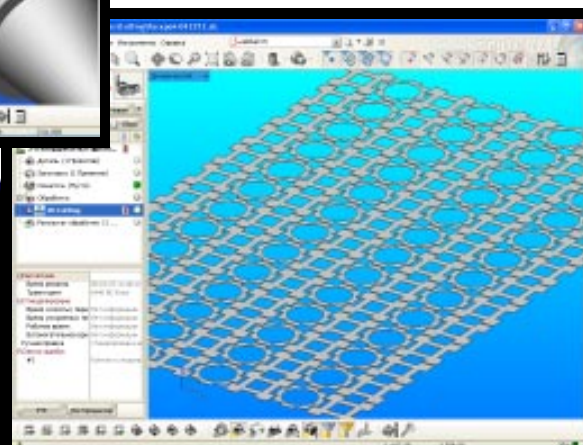
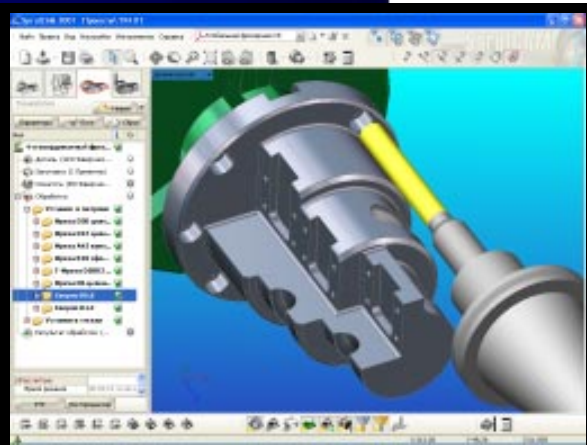
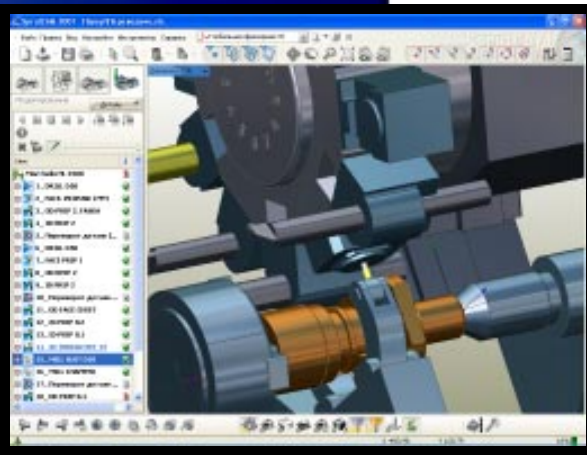
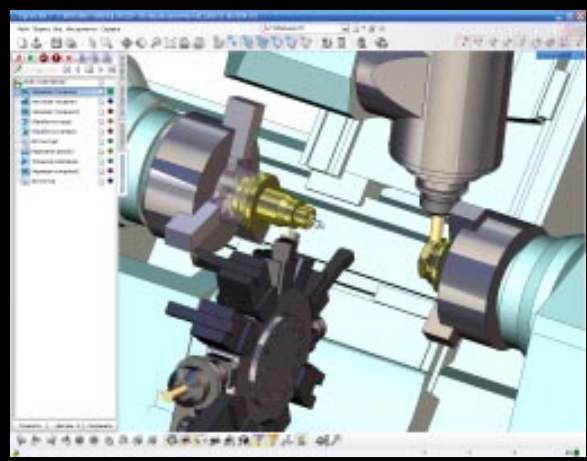
Lathe

SprutCAM includes full range of strategies for turning parts of any complexity. Rough and finish turning and boring (both radial and axial) operations, grooving, axial bore machining and threading of all types are available. **SprutCAM** supports all known turning cycles. All tool paths are calculated taking into account any remaining material. Machining options are set automatically based on the selected tool. The system enables program control of all the working elements of the machine: steadies, tail-stock, chuck, parts catcher etc..



Turn/mill machining

SprutCAM ensures creation of NC programs for all types of turn/mill machines including twin spindles. Machine schemes support tooling systems with any position and number are supported, hence, the NC program can include a combination of both lathe and milling abilities. All strategies for the lathe and 2.5-5 axis milling machining are available.



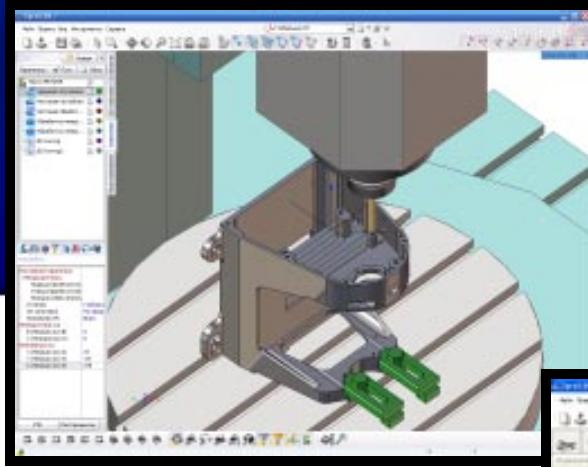
Wire EDM

SprutCAM wire EDM operations enable the creation of 2 axis internal and external vertical contour machining. There are also 4-axis machining strategies with either automatic, interactive or precise synchronization. Cutting parameter databases can be defined for each individual machine and many possibilities for multiple profile machining ensure excellent surface accuracy with minimum user input. Automatic, interactive or precise placement of 'bridges' for connected features prevents parts dropping out of the material. Hole coordinates for wire feed are transferred to the holes machining operation in order to create the NC program for hole drilling.

Cutting

SprutCAM has an NC program module for sheet material cutting. Users have complete control over the sequence of the cutting strategies and operations. Bridges can optionally be placed in order to reduce the risk of the deformation of thin parts. Rapid moves of the cutter can be specified to be only above area's of the work without components for machining. There is full control over corner rounding.

SprutCAM enables development of NC programs for plasma, laser, OXY-FUEL and WaterJet cutters.



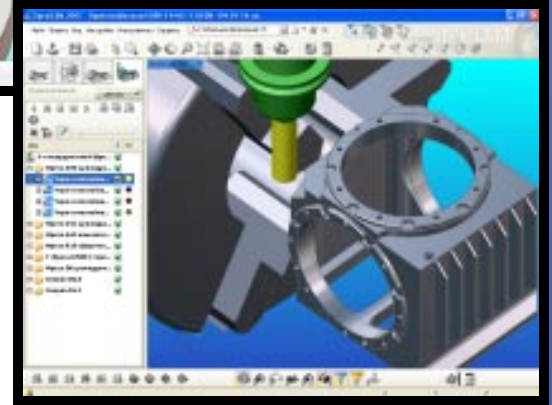
MACHINING SIMULATION

SprutCAM includes a powerful machining simulation module, which allows the user to simulate the machining of the part on any machine already included in **SprutCAM** using full machine kinematics and 3D model. The machining simulation enables the machining technology to be optimized for maximum efficiency, tooling and machine life etc. During the simulation the user controls visually all of the machining process taking into account all the travels of the machine's main and auxiliary axes. The system automatically marks the program area's where it detects collisions or invalid cutting methods.

SprutCAM standard distribution kit includes a set of machines for practically all types of metal-cutting machinery.

The machining simulation module provides the following possibilities:

- Multi-axis machining simulation taking into account the movement of all the axes of the machine according to its kinematics scheme
- Realistic machining simulation
- High authenticity of the machined part model allows visual examination of the machining quality to detect possible problem area's
- Visualization of zones with insufficient machining and penetration (for instance in case of negative stock or low precision machining)
- Comparison of the machined part to the original model
- Visual control of the remaining material
- Examination of the tool radius and length during the simulation

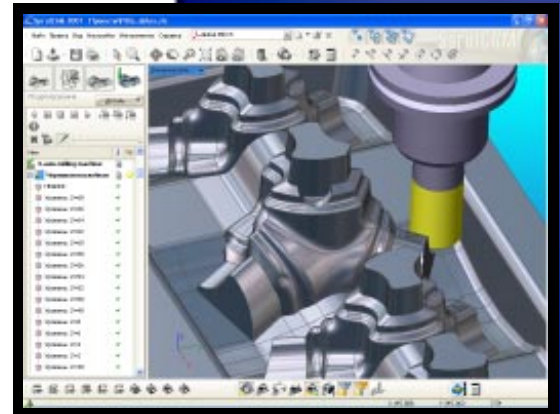


POSTPROCESSOR

When calculating the tool path the commands are generated immediately for the appropriate axes of the machine according to its kinematics model. This avoids additional complex coordinate recalculations in the postprocessor while generating the NC program.

The embedded postprocessor generator enables the user to make adjustments for any NC system. The language method and template mechanism ensures both complete flexibility and efficiency. Thanks to the simple interface and interactive help, the creation or editing of the postprocessor becomes an easy task.

SprutCAM distribution kit contains a comprehensive library of postprocessors for various types of machinery and NC systems.

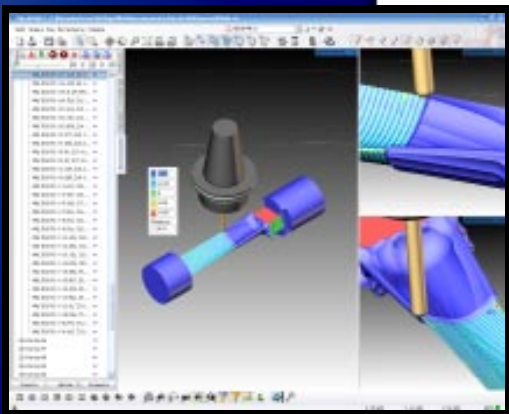


SprutCAM ADVANTAGES

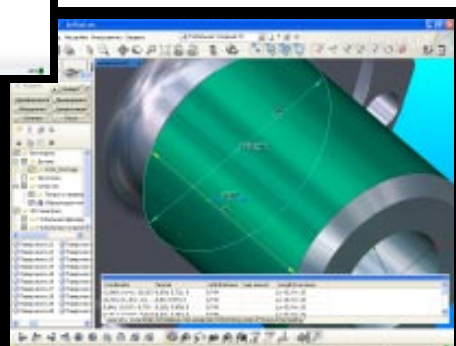
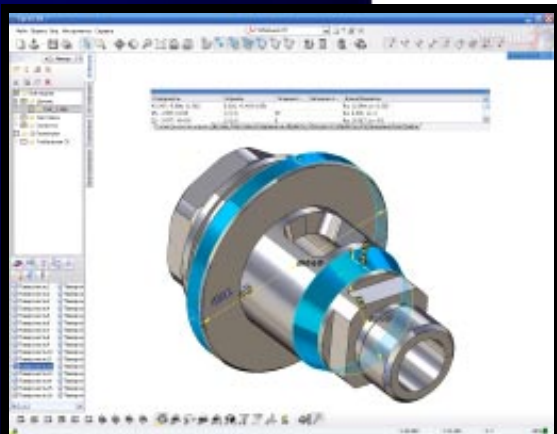
SprutCAM is an up-to-date system with features which even some of the most expensive CAM systems do not include. It is used for production machining, heavy engineering, nuclear power engineering, automotive, aerospace, defense, woodworking and other industries.


We have resellers in Australia, Austria, Bulgaria, UK, Germany, Denmark, India, Ireland, Spain, Italy, Canada, China, Korea, Malaysia, New Zealand, Norway, Poland, Portugal, Romania, Singapore, Slovenia, USA, Thailand, Turkey, Ukraine, Philippines, Finland, France, Czech republic, Switzerland, Sweden, South Africa, Japan and other countries.

SprutCAM features:



- Multi-axis NC program generation for any machines, even ones with very complex configurations
- Wide range of strategies for a variety of machining types
- Common interface for the creation of milling, turning and turn/mill; optional creation of operations of specific types
- The machining result (rest) model is automatically calculated and passed on for use in any subsequent operations
- Easy to make NC programs
- Optimal tool paths
- Compatibility and integration with modern CAD systems
SolidWorks™, KOMPAS™, SolidEdge™, Rhinoceros™, PowerSHAPE™, Autodesk AutoCAD™, Alibre Design™, Cobalt™
- Included postprocessor generator enabling adjustments to be made for any NC system
- Tool path calculation at any required precision level
- Automatic tool with fixture avoidance
- User friendly interface
- Vast library of ready postprocessors
- Realistic machining simulation
- Easy to use
- Results immediately after system installation
- Education, service, documentation, support, hotline
- Free in version updates
- Rapid return on investment





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