ESPRIT
Multitasking

ESPRIT provides a natural workflow with an extensive capacity for programming, optimization and simulation of multifunction, multitasking, and multichannel millturn machines. Supporting any machine configuration and size, ESPRIT is the right choice for companies in a wide range of industries from aerospace and power generation to micro machining in the electronics and medical sectors. With a powerful suite of machining cycles combined with advanced process synchronization, esogram optimization, accurate on-screen machine simulation, and edit-free G-code, ESPRIT will utilize the full capacity of the machine tool.

Multitasking

## Milling on a Lathe, Turning on a Mill

With ESPRIT's Modeless Programming™, combine traditional milling and turning cycles, freeform 3-axis and 5-axis machining, on-machine probing, and part handling cycles in any order, utilizing any table, head, turret or spindle available on the machine. The process plan for a part is maintained separately from the program as run on the machine, so ESPRIT will automatically adapt the process plan to the new situation reflecting any changes to the setup or machine. With Machine Swap there is no reprogramming when moving from prototype to production or from machine A to machine B due to shop scheduling.

Adaptive Machining

Adaptive machining cycles provide great flexibility to utilize the full capability of the CNC machine. With a single user interface, program any cutting cycle using any combination of channel, turret and spindle. Use ESPRIT's high-speed machining cycles, ProfitMilling and ProfitTurning, for shorter cycle times, improved surface quality and longer tool life. Take advantage of rotary machining cycles to overcome limited X-axis stroke, advanced turning cycles with multi-function tools, and extensive drilling options with part and/or tool spinning on and off-center. ESPRIT automatically updates your programs in real time as you make changes to tooling, turret and/or channels.

Synchronized Multichannel

ESPRIT automatically synchronizes machining cycles as you create them, with manual synchronization available for advanced program optimization. As a result, cycle times on the machine are minimized and the full capacity of the machine is utilized. Use sequential mode to optimize cycle times and synchronize the machining cycles for short runs of a single workpiece. Accomplish maximum throughput in parallel mode, where two parts are cut concurrently using the main and sub spindles. When cutting with two or more tools simultaneously on the same workpiece a master channel is chosen for control of the shared spindle or rotary axes. The result is a complete, optimized program that synchronizes the machining cycles with workpiece handling and setup changes including bar feed, reposition, cut off, eject, transfer, and rechucking.
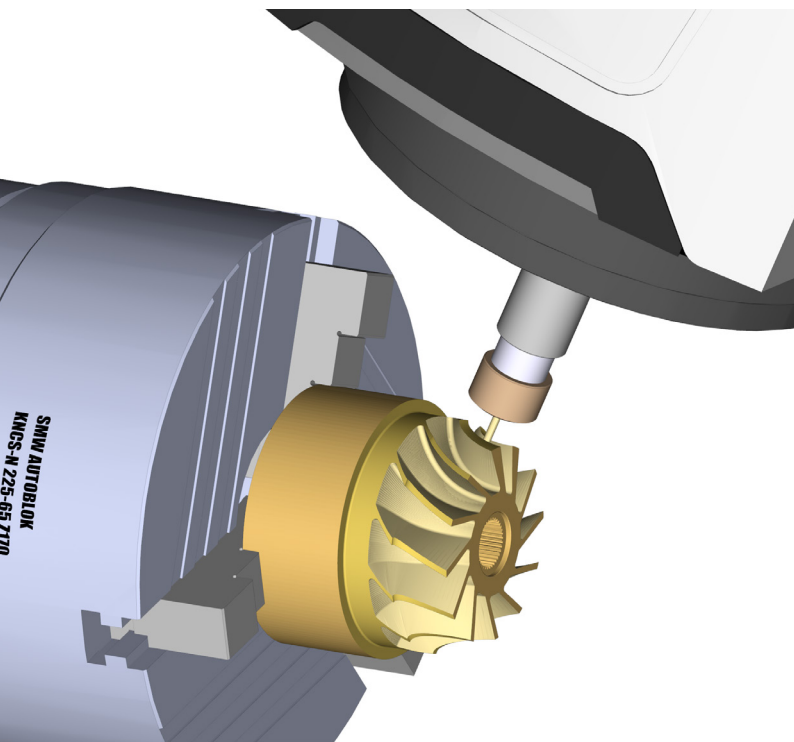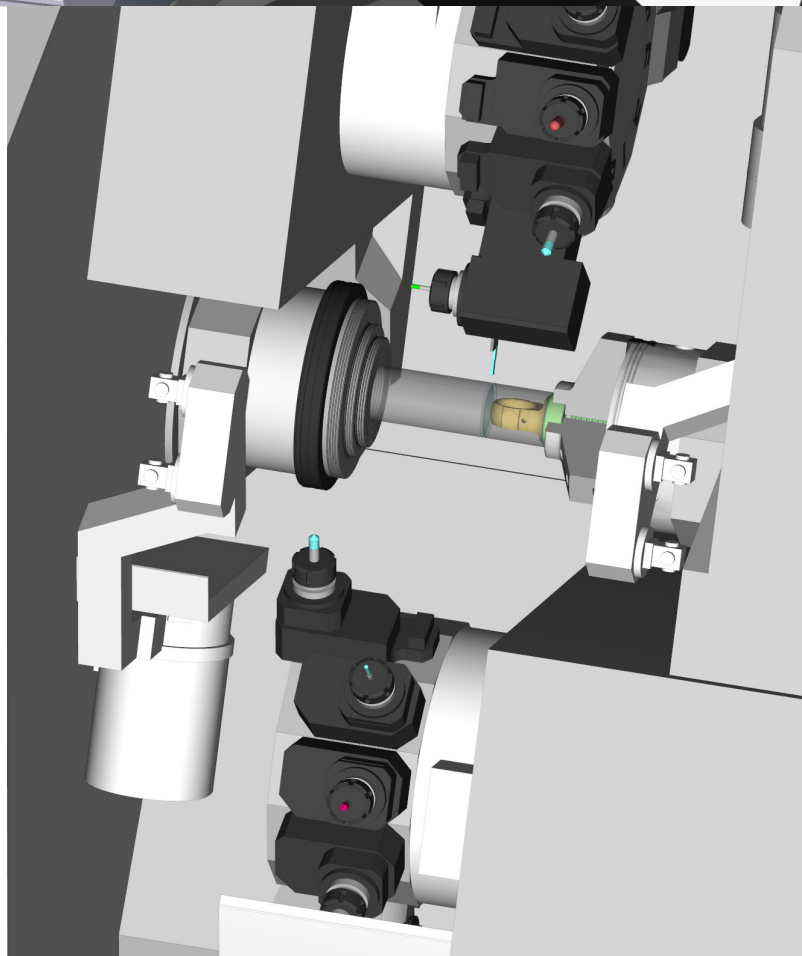
Machine-Aware Multitasking

ESPRIT uses a digital twin of the CNC machine for setup, programming, optimization, and simulation. This awareness and knowledge of the machine's capabilities and limitations powers ESPRIT's most advanced features from high-speed machining to post processing, simplifying the programming process while utilizing the full capability of the machine. With machine awareness, CAM programmers can make better choices and see improved machine performance.

Full Machine Simulation and Verification

All the multitasking action of the machine is displayed in real time, providing an incredibly accurate animated view of the entire machining process including the synchronized motions of all the machine's components; cutting tools, turrets, spindles, heads, steady rest, and tailstock. Start a simulation at any point in the program using ESPRIT's knowledge of the current state of the workpiece and each channel of the machine. Analysis is available to review the details of each cutting cycle while the analytics provide reports for:

- Potential part violation and collisions

- Axes limit monitoring and overtravel detection

- Axes acceleration exceptions

- Channel conflicts in the event of incompatible instructions

Automatic Link Generator

With a great deal of simultaneous action taking place inside a multitasking machine, collisions can be a constant risk. ESPRIT's link generator automatically creates machine optimized, collision-free positioning and rapid moves saving significant time during programming and on-machine prove out. The link generator is indispensable in making sure that all rapid positioning is performed in a safe and efficient manner considering all the tooling, workpiece, and machine components.
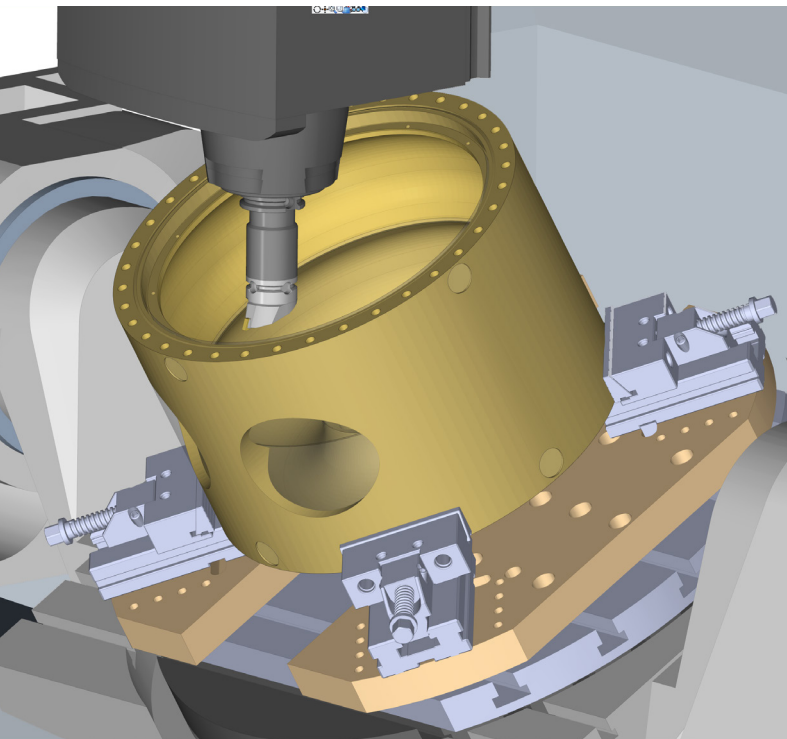
Multitasking

SolidMill

- All traditional 2.5-axis milling, ProfitMilling, plus optionally

- C-axis index and rotary milling

- Y-axis, 3+1, index milling

- B-axis, 3+2, index milling

- 3rd rotary axis, 3+3, index milling

SolidTurn

- All traditional 2-axis turning, ProfitTurning, including

- Barfeeder, part catcher, and part handling cycles

- Collet and jaw chuck, modular and soft jaws

- Modular cutting tool assemblies with turret blocks and adaptive items

- Multiple spindles

Multiturret / Multichannel

- Support for multiple turrets and channels with synchronization

Steady Rest

- Add-on to support steady rests, tailstocks and other support devices

Collinear Axes

- Add-on to support programmable collinear axis

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High-Performance CNC Programming

Using the ESPRIT Digital Machine - Machine skin models, controller emulators, machine parameters, and post processors, ESPRIT delivers powerful programming, accurate simulation, and edit-free, machine-optimized G-code. The ESPRIT CAM system is backed by world-class technical support to get the job started quickly and to keep it running at top efficiency.