Passion | Vision | Commitment | Power | Performance | Value

The most powerful CAM software ever.

ESPRIT

The Right Choice

DP Technology is a leading developer and supplier of computer-aided manufacturing (CAM) software. DP Technology's Commitment to provide CNC programmers with the most powerful CAM software ever is driven by a founding Vision of technology's potential, and an enduring Passion for excellence. These core values are embodied in DP Technology's flagship product, ESPRIT— the world's leading CAM system.

Discover the Advantages

DP Technology reinforces its commitment to technical excellence by dedicating nearly 20% of its annual revenues to ongoing research and product development. This long-term focus has produced powerful technology innovations, putting ESPRIT in an industry-leading position since its market launch in 1985.

DP Technology maintains its worldwide headquarters in Camarillo, California and product development teams in California and Florence, Italy. Sales and support operations are located in Europe, Asia, and North and South America. For additional information about DP Technology and ESPRIT, call +1-805-388-6000, send an email to esprit@dptechnology.com, or visit the company website at www.dptechnology.com.

Experience the Freedom

ESPRIT IS A HIGH-PERFORMANCE, FULL-SPECTRUM COMPUTER-AIDED MANUFACTURING (CAM) SYSTEM FOR A FULL RANGE OF MACHINE TOOL APPLICATIONS. OEM-endorsed ESPRIT drives machine tools in over 15,000 shops across the globe, and is available in more than 15 languages from over 200 resellers. Comprehensive in its ability to handle today's most advanced machines, ESPRIT satisfies even the most demanding programmers and machining applications. ESPRIT is preferred by CNC programmers worldwide, in every advanced manufacturing sector—from medical to aerospace. ESPRIT is the right choice for programmers, manufacturers, and machinists looking to fully exploit their machine tool investment and enjoy the unparalleled freedom of advanced productivity.

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Program any Machine Tool

The high-performance ESPRIT system offers powerful programming for any CNC machine tool. ESPRIT's full-spectrum functionality includes programming for 2–5 axis milling, 2–22 axis turning, 2–5 axis wire EDM, multitasking mill-turn machining, and B-axis machine tools. Streamline your operations with the powerful and flexible ESPRIT system, valued by CNC programmers for its extensive suite of machining cycles, comprehensive tool control, and capacity to fully support an entire shop.

Machine any Part Geometry

ESPRIT's seamless CAD to CAM interface directly imports any native part model from any source, fully intact, with no need for programmers to edit or rebuild geometry. ESPRIT directly machines from any combination of geometries—solids, surfaces, wireframe, or STL—providing you with complete manufacturing flexibility. Starting with 100%

Universal Post Processing

ESPRIT's universal post processor effortlessly creates the high-quality G-code you need to fully exploit your machine tool investment. With ESPRIT you get proven out-of-the-box operation with a complete library of pre-defined post processors. Additional factory-certified posts are available for many of the leading machine tool brands, and ESPRIT's open architecture allows you to easily adjust any post processor to suit your personal preferences and shopfloor requirements. ESPRIT's flawless G-code means you will spend more time cutting parts, giving you maximum machine utilization and optimal part quality at the lowest possible cost.

Dynamic Solid Simulation and Verification

ESPRIT's fast, accurate, and reliable dynamic solid verification eliminates the need for expensive dry runs on the NC machine. Gain complete confidence in your machining process as you compare accurately rendered "as designed" versus "as machined" parts. High-performance, real-time simulation and comprehensive collision detection ensure that even the most complex of parts will be machined correctly the first time. ESPRIT gives you exhaustive verification of the part program simulated within a complete machining environment: machine tool, fixtures, clamps, stock, and workpiece. Minimize downtime, maximize manufacturing efficiency, and cut machining costs while gaining complete confidence in your machining processes with ESPRIT.

Machine With Confidence

complete and accurate part geometry eliminates nearly all of the difficulty in programming complicated parts and dramatically reduces programming time.

The ESPRIT KnowledgeBase

Automate your CNC programming with ESPRIT's patent-pending KnowledgeBase™ and achieve the optimal part quality, flawless consistency, and exceptional efficiency made possible by this

Exploit the Power

revolutionary technology. Capture your best practices, preferred methods, and proven techniques, and automatically apply them to any given workpiece. KnowledgeBase™ puts process-driven adaptive technology to work for you, dramatically reducing your programming time and raising your machining capabilities to a whole new level.

Advanced Adaptive Machining

Quickly adjust to engineering changes with the advanced adaptive technology built into ESPRIT. ESPRIT extends the concept of associativity beyond updating toolpaths to automatically adapt the entire machining process—cutting tools,

machining cycles, toolpaths, and all related machining parameters—to accommodate differing geometries. ESPRIT's technology even works across part families, adapting machining to accommodate similar features on completely unrelated parts. Gain unprecedented accuracy and productivity with the comprehensive automated tool control provided by ESPRIT's adaptive technology.

100% Pure Windows® Application

Built from the ground up to run on the Windows® platform, ESPRIT is designed to get you working faster, better, and more productively than ever before. ESPRIT has the look and feel you would expect in a genuine Windows®-based application, and the functionality you need for optimal performance. ESPRIT gives you an icon- and menu-oriented interface, consistent screen design and button operation, and drag-and-drop, point-and-click, and cut-and-paste capabilities.

Microsoft Visual Basic for Applications

ESPRIT features Microsoft Visual Basic® for Applications (VBA), an embedded technology that gives you the power to write macros to automate a variety of programming tasks, freeing you to complete in minutes what once took hours. An award-winning application development environment, industry-standard VBA is state-of-the-art technology for easily building and quickly integrating solutions for business-specific needs.

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Leverage Strategic Assets

KnowledgeBase™ gives you the power to leverage your shop's most important strategic assets—its best machining practices developed over the years—for maximized productivity and a sharpened competitive edge. ESPRIT's KnowledgeBase™ provides a push-button approach for any programmer or operator to determine the best method to machine a given part or feature by automatically selecting the most appropriate machining cycles, cutting tools, and machining parameters. Free your lead CNC programmers from repetitive parts programming, let them focus on strategic process planning to further improve your best practices—and take your enterprise to a whole new level of production machining.

Close the Productivity Loop

The multi-user SQL database built into ESPRIT's KnowledgeBase™ closes the loop between CNC programmers and the shop floor by providing a central repository for accumulating shop-wide machining experiences. Refine your best practices using real-world input and apply them automatically for flawless consistency throughout your enterprise.

Sharpen Your Competitive Edge

Your processes are always up to date with KnowledgeBase™—each time a process in KnowledgeBase™ is used to program a part, the process is automatically retrieved and updated to reflect improved methods, refining your machining in a cycle of continuous evolution.

ESPRIT KnowledgeBase™

KnowledgeBase™ gives you the power to leverage your shop's most important strategic assets for maximized productivity and a sharpened competitive edge.

Streamline Programming

With ESPRIT's KnowledgeBase™ the days of relying on your memory to recall what worked before are gone. In KnowledgeBase™, process-specific information is stored securely and is readily available to any operator or programmer. ESPRIT uses the accumulated "knowledge" of your shop's best practices and preferred methods to automate CNC programming. Streamline your parts programming with ESPRIT's KnowledgeBase™ and achieve an unprecedented degree of automation, quality, and consistency.

KnowledgeBase™ eliminates guesswork, and shop-wide consistency means unprecedented manufacturing productivity and profitability.

Part-Feature KnowledgeBase

ESPRIT's Automated Feature Recognition is a powerful KnowledgeBase™ component providing CNC programmers with a new level of productivity-enhancing speed and accuracy. Automated Feature Recognition subdivides a given part into features like pockets, slots, shoulders, and holes. Each feature has a set of known physical characteristics including height, thickness, draft, volume, and area. This KnowledgeBase™ component automatically categorizes these features into feature cases based on a shop's standards, terminology, and

each feature's characteristics. Examples of feature cases described in KnowledgeBase™ include: Large Open Pocket, M10 x 1.5 Tapped Hole, Thin Wall Part Face, and O-Ring Groove. With KnowledgeBase™ your programming automatically starts with a clear definition of what you are about to machine.

Process KnowledgeBase

The Process KnowledgeBase provides detailed tool control and extensive process automation, automatically choosing the most suitable process to machine a given feature—including machining cycles, cutting tools, speeds and feeds, and all associated machining parameters. When a process is applied, process steps are automatically adjusted to accommodate the feature geometry and other feature characteristics. Programmers can also easily create new processes and update details of existing processes with the Process Manager. All machining parameters are presented in a color-coded display for a clear visual representation of each parameter's source and condition.
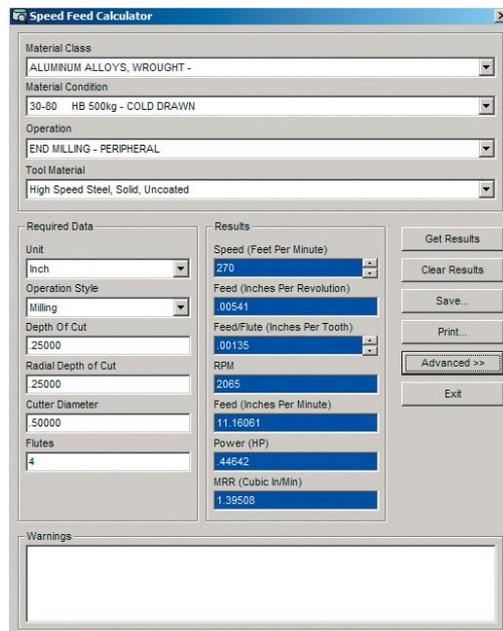
Speeds and Feeds KnowledgeBase

A Speeds and Feeds calculator presents the best cutting speeds and feeds for each machining situation based upon the part material class and condition, cutting tool style and material, machining operation, and axial and radial depths of cut. The Speeds and Feeds KnowledgeBase Manager allows programmers to add and update cutting speeds for any given situation, and the optional CUTDATA™ database simplifies programming with over 100,000 speed and feed recommendations.

Cutting Tool KnowledgeBase

The Cutting Tool Manager provides an effective method for managing cutting tool information for consistent and accurate tool selection. The powerful Cutting Tool KnowledgeBase, a multi-user database, works integrally with the Process KnowledgeBase to provide automated tool selection and can be accessed quickly and easily, whenever needed.
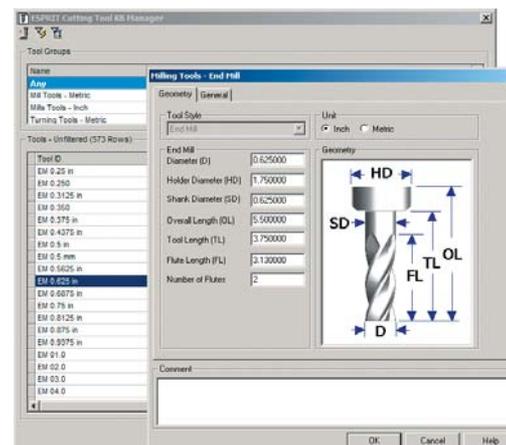
ESPRIT KnowledgeBase™ Specifications

- Project Manager—manages and organizes part features, machining operations and cutting tools
- Property Browser—provides extensive control over all cutting conditions
- Rule and Expression Builder—defines how ESPRIT adapts machining processes to differing part geometries
- Process KnowledgeBase
  - Database of proven processes and best practices
  - Process Manager—creation, editing, and automatic selection of cutting processes for part features
  - Manager*—user interface for advanced process editing
- Speeds and Feeds KnowledgeBase
  - Database of preferred materials and cutting speeds
  - Calculator—automatically selects preferred cutting speeds for given situation
  - Manager—user interface to manage cutting speeds and feeds
  - CUTDATA™*—optional database of over 100,000 speed and feed recommendations
- Cutting Tool KnowledgeBase
  - Database of preferred cutting tools
  - Cutting Tool Manager—user interface to select and manage cutting tools
- Default KnowledgeBase
  - Database of groups of default settings for each machining cycle
  - Manager*—user interface to manage default settings
- Part-Feature KnowledgeBase
  - Database of shop terminology for feature categorization
  - Manager*—user interface to manage part and feature categorization

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Powerful Programming for All Milling Machines
ESPRIT is easy to use for quick jobs, yet packed with power to handle the most complex production milling work. Whether you are programming 2½-axis parts or 5-axis machining, ESPRIT will give you the programming power you need and the ease-of-use you are looking for.

Production Milling with 5-axis Machines
ESPRIT SolidMill Production adds 5-axis machining capability to ESPRIT's milling cycles. Programmers can use multiple fixture offset with local or global work coordinates to machine any part face, using any ESPRIT machining cycle. ESPRIT's 5-axis indexing supports any combination of rotary tables and tilting heads to

and extensive automation for roughing and finishing pockets. ESPRIT can dramatically simplify your programming whether you are machining straight-forward squares or complex pockets with irregular boundaries, multi-level islands, and multiple bosses and sub-pockets. The broad variety of pocket machining and finishing patterns provided by ESPRIT yields virtually unlimited options for your pocket milling needs.

Contouring
CNC programmers find ESPRIT's contour machining cycle a flexible and powerful tool for a variety of machining applications, ideal for profile cutting, roughing, slotting, semi-finishing and finishing straight or tapered walls with

ESPRIT for 2–5 Axis Milling

ESPRIT is easy to use for quick jobs, yet packed with power to handle the most complex production milling work.

orient the part, then machines with 2½- and 3-axis operations using one or more ESPRIT cycles.

Rotary Wrap Milling
ESPRIT rotary milling is performed directly from the 3D features of solid models or from flat 2D features. ESPRIT readily programs rotary contouring, pocketing and drilling utilizing a simultaneous 4th axis. ESPRIT converts one of the standard 3-axis movements (X, Y, or Z) into a rotary C-axis movement, wrapping the profile around a rotary axis and employing an optional Y-axis offset to ensure straight walls.

Roughing and Pocketing
ESPRIT's pocketing cycle provides full tool control

constant or variable cutting depths. Simply set your machining parameters and ESPRIT will read the feature properties required to create the toolpath for cutting any geometry. For more comprehensive tool control, ESPRIT will manage individual tool movements while providing you control over individual machining parameters at any point during the cut.

Rest Machining
ESPRIT's intelligent rest machining cutting cycle automatically recognizes the machining operations and cutting tools associated with a given part feature, compares the workpiece "as machined" to the original part "as designed", and automatically performs pocketing and contouring

of the uncut areas of remaining material. ESPRIT programmers use the rest machining cycle to easily perform roughing and pre-finishing work with optimal cutting tool choices.

Drilling and Hole Making

For drilling and hole making, choose between ESPRIT's machining cycles and your machine tool's canned cycles, or use a combination of both. Cut complex holes that require multiple cycles and tools in a single step with ESPRIT. Using the Process manager, in one step you can spot drill with chamfer, through drill, counter bore, and ream a set of holes. ESPRIT's thread milling machining cycle gives you the ability to machine internal or external right- or left-hand
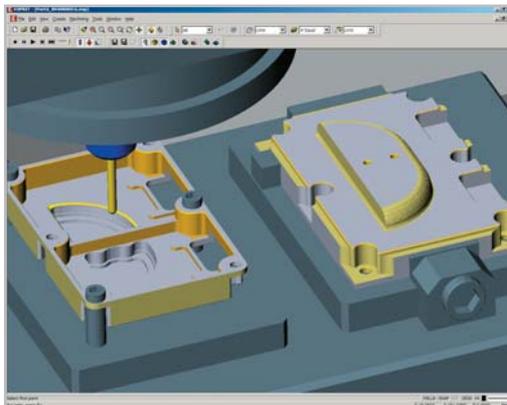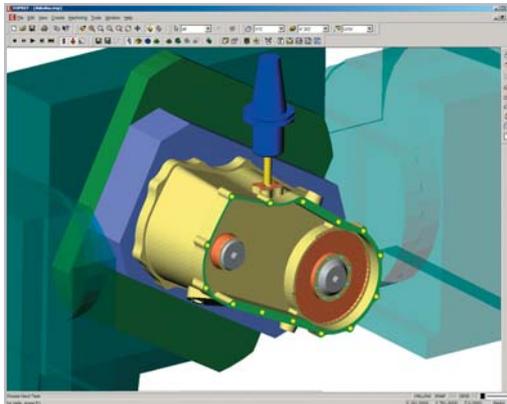
threads, and ESPRIT's spiraling cycle is ideal for milling holes. ESPRIT automatically generates optimized toolpaths, minimizing cycle time.

Custom Machining Cycles

ESPRIT's custom machining cycles give you complete control over individual cutting tool movements. With ESPRIT's insert technology function you can adjust machining parameters

within a machining cycle at any point during the cut, and the custom cycle gives you the option of inserting commands, in-line G-code, and special cutting tool movements at any point in the CNC program. ESPRIT gives you the power to pause the cutting process and retract the cutting tool for part or tool inspection with the park function and graphically edit the toolpath with the toolpath editor.

SolidMill Traditional
CAM for 2½-axis milling
- Facing—regular or irregular profiles, with or without islands and pockets, using conventional, climbing, and alternating zigzag machining patterns
- Pocketing—regular or irregular profiles with an unlimited number of sub-pockets and islands using spiraling, morphing, concentric-in, or concentric-out patterns, with uni-directional or bi-directional machining to perform climbing or conventional cutting with roughing, wall-finishing, and floor-finishing options
- Contouring—profile cutting for roughing, slotting, semi-finishing, and finishing straight or tapered walls with constant or variable cutting depths
- Rest machining—automatic pocketing and contouring of areas of uncut stock material
- Hole making—drilling, boring, tapping, and up to 13 other point-to-point machining cycles
- Spiraling—machining circular pockets and bores with concentric-in and concentric-out cutting as true spiral or tangent arcs
- Threading—thread milling cycle for internal/external right/left hand threads
- Wireframe milling—3D machining using surface and face edges as drive and base curves

- Manual milling—operates from user-defined locations and manually selected geometry
- Custom cycle— machine specific instructions, comments, and in-line G-code
- Park—pause the cutting process and retract the cutting tool for part and tool inspection
- Insert—change machining parameters at any point during a machining cycle
- Library of standard tools—flat, ball nose, tapered, corner round, chamfered, and dovetail end mills; face mill, thread mill, drill, center drill, reamer, tap, and boring bar
- Unlimited custom tools and holders with any geometry

SolidMill Production
CAM for 4th and 5th axis index and rotary milling
- Index milling with any SolidMill Traditional machining cycle
  - Using a 4th and/or 5th axis
- 4th-axis rotary milling
  - Wrap pocketing
  - Wrap contouring
  - Wrap drilling
- Any style HMC and VMC rotary axes
  - Using any combination rotary axes
  - Tilting head
  - Rotary tables

**Machine Complex
Free-Form Shapes with Ease**
ESPRIT's NURBS-based machining engine handles fabricating difficult free-form shapes with ease. Specifically designed to address the 3D challenges in the mold, die, and toolmaking markets, ESPRIT provides you with a powerful set of tools and machining cycles for free-form roughing, Z-level machining, finishing, and re-machining in 3-axis or 5-axis.

5-axis Free-Form Machining
Machining complex 3D parts in a single setup is easy with the powerful ESPRIT CAM system. ESPRIT streamlines programming and provides dynamic onscreen program verification,
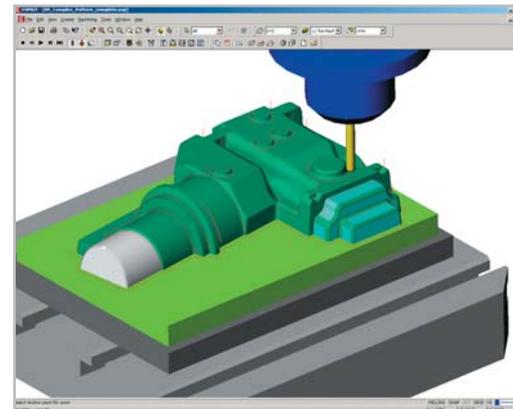
High-Speed Machining
ESPRIT's high-speed machining (HSM) functionality is built into all its machining cycles allowing you to cut hardened materials in minimal

ESPRIT for Free-form Machining

ESPRIT's NURBS-based machining engine handles fabricating difficult free-form shapes with ease.

eliminating the need for expensive machine-tool dry runs. For 5-axis finishing, ESPRIT gives you a full range of options, including planar, normal, transitional, parametric, and offset styles. Program your 3D 5-axis machine cycles with ESPRIT and benefit from the superior surface quality, part accuracy, and material removal rates provided by today's multi-axis machine tools.

time while maintaining constant loads on cutting tools utilizing the smooth, continuous movements so critical in 3D HSM. Your choices include sharp corner smoothing, loop-style bridge movements, ramp and helical entry into material, spiral-style cutting with constant overlaps, tangency entry, and constant Z-level cutting. HSM optimization for NURBS, spline-curve and arc-optimized G-code output is built into ESPRIT's universal post processor.

Z-Level Machining
ESPRIT's Z-level machining cycle automatically maintains constant loads on cutting tools for smooth, continuous high-speed toolpaths. When creating a Z-level finishing operation you have

the option to machine the entire part or selectively machine only vertical or horizontal areas. When machining the entire part you can choose to cut the vertical and horizontal areas with different tools and use both roughing and finishing options.

Roughing and Finishing for Complex Parts
Achieve high-quality surfaces with ease with ESPRIT's roughing and finishing cycles, with one- or two-tool options. ESPRIT's 3D roughing cycle performs zigzag, offset and spiral-style rough machining on even the most complex free-form solids and surfaces. Select from nine different semi-finishing and finishing cycles and machine your 3D workpiece to perfection — use one cycle for finishing the entire part, or define containment boundaries and machine zones differently using the most appropriate cycles and cutting styles for each.

Automated Rest Material Re-Machining
Automate re-machining of the uncut areas of your part for maximized part quality and minimized bench work with ESPRIT's rest-material re-machining cycles. ESPRIT monitors the material left over from previous machining operations and uses the information to automatically perform any number of roughing and finishing cycles. Choose from pencil tracing,

lace cutting, parallel flowline, and spiral tool-motion patterns, then select a cutter to automatically remove all remaining material.

Machine Regular and Irregular Workpieces
All ESPRIT free-form machining cycles are optimized for machining regular and irregular-shaped stock and workpieces including surface, solid and STL models, and previously machined workpieces. All cutting is identified and contained — limited to the material to be machined for the final part — resulting in optimized machining, reduced cutting time, elimination of air cutting and extended tool life.

Simulation and Verification
See exactly what will happen at the machine before you ever cut a chip. View the entire machining environment, including stock materials, fixtures and clamps, in dynamic, solid-shaded graphics. All the kinematic action of your machine is displayed in "real time", giving you an incredibly accurate verification of the entire machining process. Using ESPRIT's built-in part inspection you can easily compare the original "as-designed" part to your "as-machined" workpiece to assure part accuracy. The realistic images let you see the part as if you were holding it in your hand.
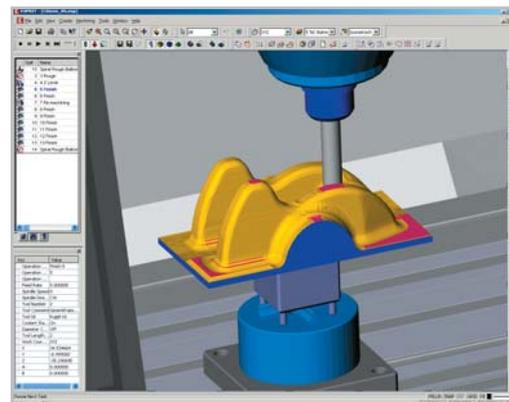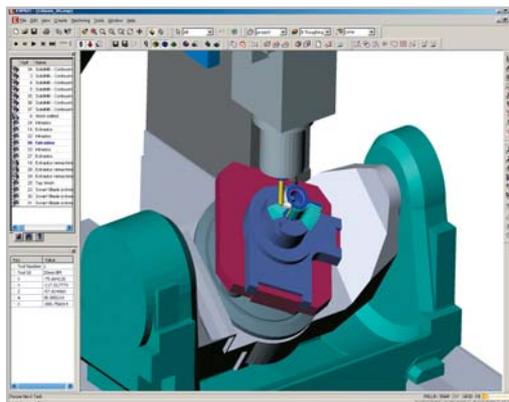
SolidMill FreeForm
CAM for simultaneous 3-axis and 5-axis milling
- NURBS-based free-form machining from any combination of solids, surfaces, and STL* models
- 4th- and 5th-axis index positioning in conjunction with any 3-axis SolidMill FreeForm machining cycle
- FreeForm finishing and project-contour 5-axis cycles
- Roughing—zigzag, offset or spiral from any shape stock using boundaries, part and check surfaces
- Finishing—planar, translation, normal, rotation, offset, parametric and spiral machining across all sections of the workpiece or contained within boundaries, part and check surfaces
- Z-level machining—uni- and bi-directional climb and conventional machining optimized for near-horizontal and near-vertical zones
- Re-machining—automatic re-machining of uncut areas of remaining material with pencil tracing, lace cutting, flowline, and flowline spiral patterns
- Remaining stock machining—cutting cycles optimized for remaining material, based on the original stock and all previous machining operations
- Project-contour—profile cutting projected onto any set of surfaces or solids
- High-speed machining (HSM) and G-code optimization
- High-speed solid simulation and verification with "as designed" versus "as machined" comparison
- Universal post processing for NURBS and 3D NC cutter compensation

Full Programming for
Traditional and Multi-axis Turning
Traditional turning centers are being rapidly supplemented by multi-axis machines with the ability to produce complex parts unattended. Whether you are looking for a CAM system to automate your traditional turning — from roughing and grooving to threading and finishing — for faster, more accurate results, or to maximize your multi-axis machine tool investment, ESPRIT is the right CAM choice.

Swiss-style Machine Programming
Program your multi-axis Swiss-style turning centers with ESPRIT and realize their potential for single set-up, versatile, accurate, unattended

Multi-Turret,
Multi-Spindle Production Turning
Gain full control over your production turning with ESPRIT's program synchronization, dynamic simulation, and accurate collision detection. You'll be empowered to work simultaneously on the front and/or back of the work piece with one, two or more cutting tools. When you use ESPRIT to unlock the potential of your production turning center, your cycle times are dramatically reduced and parts are completed in a single set-up. ESPRIT's comprehensive suite of machining cycles includes all part handling cycles — from initial material bar feeds and stock chucking, through steady rests, and part cut-off and pick-up.

ESPRIT for 2-22 Axis Turning

Whether you are looking for a CAM system to automate your traditional turning, or to maximize your multi-axis machine tool investment, ESPRIT is the right CAM choice.

machining. ESPRIT accommodates the special demands of your Swiss machines and makes it easy to create programs that take full advantage of Swiss-style capabilities with comprehensive tool path creation, simulation, collision detection, and accurate G-code generation. ESPRIT provides factory-certified programming solutions for Swiss-style machines from the leading builders including: Citizen, Star, and Tsugami.

Traditional Turning
ESPRIT streamlines and standardizes your lathe machining, with a minimum investment of time and training. ESPRIT offers contour profile cutting for facing and OD or ID turning, a universal machining cycle driving single-point tools for a wide variety of machining tasks. ESPRIT's roughing cycle enables you to work from castings, pre-roughed, irregular-shaped, or bar stock, and has options for controlling every aspect of machine movement — from clearances to differing Z and X stock allowances. For drilling and hole making, choose between ESPRIT's pre-programmed machining cycles and your machine tool's canned cycles, or use a combination of both.

Advanced Machining Cycles

ESPRIT gives you seven grooving cycles with a variety of optional tool movements, including single plunge, multiple plunge, peck grooving, zigzag grooving, and even contouring with grooving tools. For thread machining, ESPRIT offers multiple threading options, including single or multi-point, with straight or tapered threads, and constant or variable leads. ESPRIT automatically calculates the depth and number of cuts, with a manual override option.

Flexible Tooling Options

ESPRIT simplifies the tooling definition process and gives you full tooling support, from standard boring bars to complex custom form tools. Select from a complete ANSI/ISO- tooling library with inserts and holders, or define custom tools in any CAD system, or in ESPRIT, to import into ESPRIT's tooling library. ESPRIT's definition of the complete tool — insert, holder, and turret — ensures highly accurate machining results.

Synchronization and Optimization

Perform time studies and synchronize your CNC program to readily optimize your G-code and minimize overall cycle time with ESPRIT's sync list. ESPRIT clearly presents the machining timeline in an easy-to-read bar chart organized by turret,
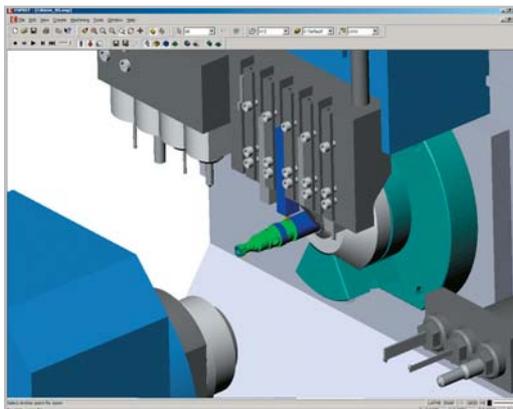
spindle, and head. Synchronize and optimize your program using the Windows "drag and drop" technique with quick editing of machining cycles including turrets, spindles, cutting tools, all the individual machining parameters, and synchronization codes.

Complete Real-time Simulation

Machine your most complex parts with confidence thanks to ESPRIT's comprehensive, realistic, and accurate simulation. View your entire part on-screen, complete with the key moving elements of the machine tool — spindles, turrets, B-axis heads, and tooling. ESPRIT simulation guards against potential crashes even during synchronized simultaneous machining and transfers of the part from the main spindle to the sub-spindle.

SolidTurn Traditional

CAM for 2-axis turning
- Contouring—profile cutting for facing and OD and ID turning
- Drilling and hole making—drilling, boring, tapping and up to 13 other point-to-point machining cycles
- Roughing—for rough turning and facing from regular or irregular shaped stock
- Pocket roughing—for rough turning and facing profiles with undercuts or pockets
- Copy roughing—for rough turning and facing using an offset profile
- Grooving—seven machining cycles with single-plunge, multi-plunge, peck grooving, and zigzag cutting styles
- Threading—single- and multi-point threading of straight, tapered, constant, and variable lead threads
- Cutoff—synchronized with part handling

- Part handling—bar feed, part catcher, and part pickup
- Tailstock—positioning and engagement control
- Steady rest—positioning and engagement control
- Library of standard inserts—ANSI and ISO standard inserts for grooving, top notch and lay down threading, and turning, including square, round, trigon, and diamond
- Library of standard holders—ANSI and ISO standard holders with 25 turning and boring styles
- Unlimited custom tools and holders with any geometry

SolidTurn Production

CAM for multi-spindle and multi-turret turning
- Swiss-style machine support including sliding head stock
- Synchronized, synchronous and independent multi-axis turning
- Unlimited number of spindles and turrets from 2- to 22-axis
- Fixed or moving spindles and turrets
- Gang-, slide-, or turret-based cutting tools
- Balanced rough—for rough turning and facing from regular or irregular shaped stock
- Sync list—view cutting operations by turret, spindle or head; drag and drop editing of sync and wait codes; time study bar chart for program optimization
- Synchronized solid simulation and verification for multiple spindles and multiple turrets, including simulation of tail stock, steady rest, bar feed, and part exchanges between spindles

Multitasking Efficiency

Multitasking machine tools with mill, turn, and drill capabilities are increasingly popular in metalworking today. These sophisticated machines allow manufacturers to perform simultaneous milling and turning operations, on the front and back of a part, in a single setup. Mill-turn machines represent an enormous potential for profitability, but possess inherent programming challenges due to their complexity. The right CAM system is a key factor for success in the mill-turn equation. It's a critical choice that determines the ultimate productivity of your machine investment.

Pre-packaged Software Solution

ESPRIT delivers a fresh, out-of-the-box approach

Comprehensive Multitasking Machining

ESPRIT provides an integrated programming environment specifically designed for multitasking, multi-function CNC machine tools. ESPRIT supports any combination of independent, synchronized, and synchronous milling and turning utilizing any configuration of A, B, C, X, Y, and Z axes. ESPRIT's five levels of functionality for 2–5 axis machining fully support your mill-turn needs, including milling with full, simultaneous 3-axis and 5-axis 3D multi-surface solid machining.

Flexible B-axis Programming

Capitalize on the power and flexibility of mill-turn machines with B-axis capability for precise 5-axis simultaneous and 5-axis index milling—on the

ESPRIT for Multitasking

The right CAM system is a key factor for success in the mill-turn equation. It's a critical choice that determines the ultimate productivity of your machine investment.

to solving the issues that arise with programming complex multitasking machines, such as a post processor writing and machine definition. Imagine programming your multitasking machine with a complete, pre-configured solution—developed in cooperation with the machine tool builders and tested extensively at the factory level. ESPRIT's mill-turn prowess is the ultimate result of a collaboration with machine builders and DP's focused software development for this specific class of machine tools. Trust ESPRIT to unlock the potential of your multitasking machine.

front and back of any workpiece. ESPRIT's full 5-axis control lets you easily program the non-perpendicular multi-axis tool movements required to machine the intricate features and compound angles of medical components, complex valves, tool holders, oil drilling tools, and the like. ESPRIT provides advanced 5-axis control for its machining cycles including facing, boring, grooving, threading, contouring, pocketing, hole making, and 3D finishing.

Turning, Milling, and Drilling Functionality

Unleash the multitasking functionality of your machine with ESPRIT's C and Y mill-turn capability, combining turning, milling, and drilling machining operations in one G-code program. ESPRIT features five levels of C and Y-axis machining

functionality providing support for a full range of multitasking machine tools. Choose from milling contour and profile cutting, pocketing, or a variety of drilling machining cycles. Perform 2 1/2-axis milling operations on your lathe using Z, X, and C, or Z, X, and Y axes. Slotting and cross drilling is easy when you can "wrap" pockets, holes and profiles around a rotary C-axis movement. For off-center, Y-axis milling, ESPRIT gives you an extensive set of milling cycles including facing, pocketing, contouring, rest machining, hole making and more. Use these cycles on the C, Y, and B axes to machine features at compound angles on the part face, ID, or OD.

Full Synchronization and Verification
Optimize, synchronize, and verify your multitasking machining with ESPRIT's fully integrated solid simulation. ESPRIT readily simulates any combination of mill-turn (2-5 axis) and turning cutting cycles, multiple spindles, multiple turrets —up to 22-axes—in one display. View a combined listing of all your milling and turning operations and their associated cycle times. You will have a realistic verification of how the part is machined eliminating any potential machine crashes along with the ability to move, copy, edit, and synchronize your operations to minimize your cycle times.
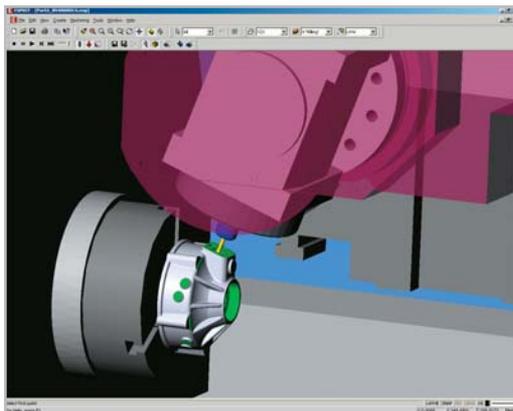
SolidMillTurn Traditional
CAM for C-axis mill-turn machining
• Multitasking milling—independent, synchronized, synchronous
• 4th-axis rotary mill-turn cycles:
   - Wrap pocketing
   - Wrap contouring
   - Wrap drilling

SolidMillTurn Advanced
CAM for Y-axis mill-turn machining
• Multitasking milling—independent, synchronized, synchronous
• 2½-axis off-center mill-turn cycles:
   - Facing
   - Pocketing
   - Contouring
   - Rest machining
   - Hole making
   - Spiraling
   - Threading
   - Wireframe milling
   - Manual milling
   - Custom cycle
   - Park
   - Insert
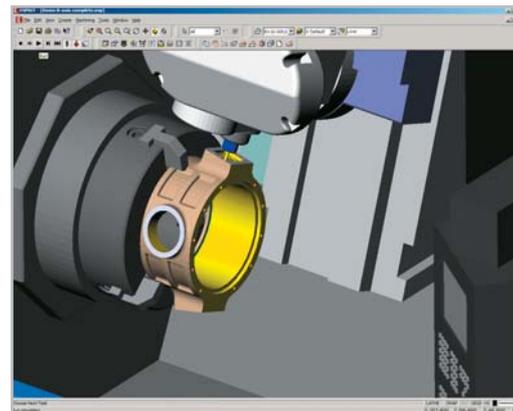
SolidMillTurn Production
CAM for B-axis mill-turn machining
• Multitasking milling—independent, synchronized, synchronous
• 4th- and 5th-axis (C, B) index positioning
• Index milling with any SolidMillTurn Advanced machining cycle

SolidMillTurn FreeForm
CAM for simultaneous 3-axis and 5-axis mill-turn machining
• NURBS-based free-form machining from any combination of solids, surfaces, and STL* models
• Multitasking 3D milling—independent, synchronized, synchronous
• 3-axis machining cycles include: roughing, finishing, Z-level, re-machining, remaining stock machining, project-contouring
• 5-axis machining cycles include: finishing and project-contouring

ESPRIT SolidWire

Dramatically simplify the part-programming process, significantly increase part accuracy, and greatly reduce the length and complexity of your G-code program with ESPRIT.
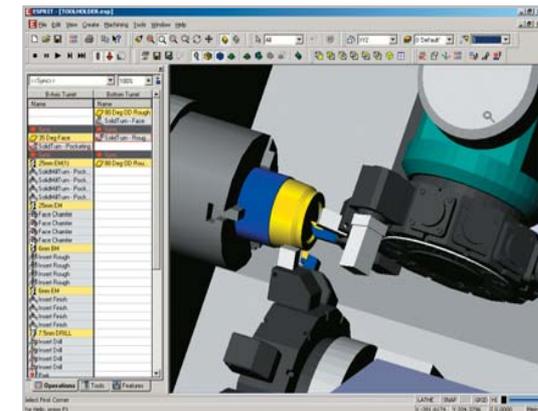
Accuracy and Predictability

Whether you use your wire EDM machine for small lots of sub-micron precision parts or as a workhorse for production machining, get the most out of your machine tool investment. Dramatically simplify the part-programming process, significantly increase part accuracy, and greatly reduce the length and complexity of your G-code program with ESPRIT.

Complete Machine Control

ESPRIT provides a universal EDM contouring cycle to machine any contoured mold, die, core, cavity, shape or profile. This versatile machining cycle supports any number of straight or tapered rough and skim cuts while optimizing wire cutting paths. Strategies for all styles of EDM machining such as punch, die, multi-cavity parts, and unattended machining are included. Between cuts ESPRIT automatically handles all the necessary wire-cut and wire-thread instructions, and part-handling functions of the machine: flushing, tank fill, and tank drain.

Advanced Tapering

Easily program the complex tapers common to mold components, forming dies, and cutting tools with the advanced conics capability of ESPRIT's contour cycle. When cutting a radius during tapering, built-in advanced conics allows you to alternate between cylindrical constant radius corners and conical constant taper corners. ESPRIT also provides independent programmable upper and lower radius control. While tapering into sharp corners, ESPRIT offers you the flexibility to maintain sharp corners top and bottom or machine a blended radius on the secondary plane.

4-axis Synchronized Machining

Quickly program parts with extremely complex tapers or completely independent freeform shapes, top and bottom, with ESPRIT's XY (lower), UV (upper) 4-axis contouring cycle. Select any two three-dimensional profiles and the 4-axis cutting process is automatically synchronized; you can add an unlimited number of additional synchronization lines. ESPRIT adds tabs automatically and creates skim cuts for unattended machining. Get 4-axis programming for any geometric shape with any number of elements: 3D, non-planar, UV and XY profiles, and non-planar fixturing.

Efficient No-Core Cutting

Handling slugs efficiently during EDM machining becomes more difficult with decreasing workpiece size. ESPRIT provides a special EDM no-core pocket machining cycle to erode away all the material inside a given cavity without creating a slug. With no-core cutting, a start hole is drilled into the workpiece and ESPRIT recognizes and automatically machines only the slug, preventing wire breakage and minimizing machining time.

Factory-Certified Solutions

ESPRIT's machine-specific EDM KnowledgeBase™ provides you with a full range of cutting features, automation, and factory-certified post processors to maximize performance.

Readily access each EDM manufacturer's unique cutting technology and methodologies through machine-specific technology pages.

Agie
ESPRIT's KnowledgeBase™ supports every make and model of Agie EDM machine, for full exploitation of Agie's unique machine capabilities, including dual tapering, upper and lower tapers, and sophisticated advanced conics. For the AgieVision, ESPRIT accepts the Ra, Tkm, and Te technology settings to create the script file format (SBR, SBL and ISO).

Charmilles
With ESPRIT, users have full use of the advanced and unique functionality built into Charmilles machine tools and their Millennium, Charmilles and Fanuc controls. ESPRIT offers support for Charmilles's CT-Expert, database for cutting technology, and other unique capabilities in advanced tapering and material-handling functions such as slug evacuation.

Mitsubishi
ESPRIT includes a technology database populated with Mitsubishi-specific factory
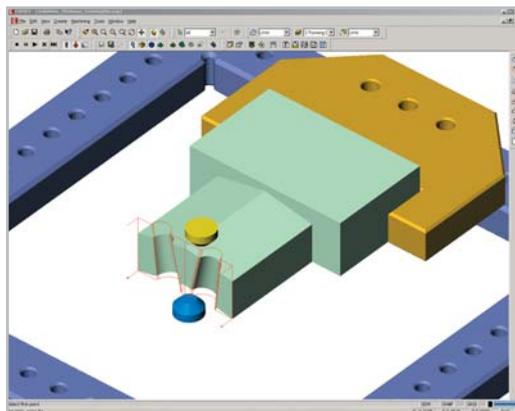
recommendations for the E-pack power setting, feedrates, and offsets for a wide variety of cutting situations. Enter the machine model, workpiece material and thickness, and desired surface finish, and ESPRIT will automatically give you the factory-recommended technology and number of skim cuts required.

ONA
For ONA machines ESPRIT provides individual control over all generator parameters including off-time, voltage, and servo, maximizing efficiency in unique machining situations. Divide the cutting process into three zones—land, taper, and glue tab, and for each zone apply up to six cuts— one rough cut with up to five skim cuts.

Sodick
With ESPRIT, Sodick programmers get a flexible cutting system with up to 10 definable cuts in any combination of forward and reverse cutting strategies. A full suite of conditions and cutting technologies may be specified for each cut, land and relief, rough and skim, including control over the machine's advanced features, powered Z-axis, tank control, and wire control.
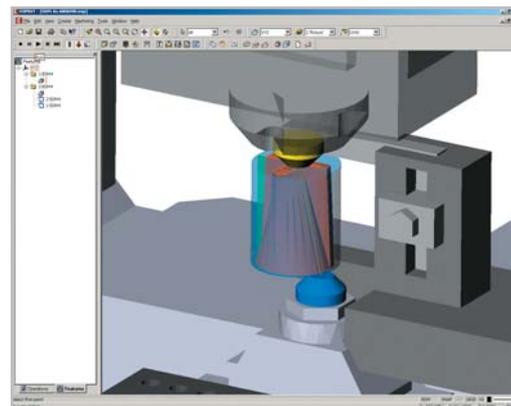
ESPRIT SolidWire
CAM for 2–5 axis wire EDM
- 2-axis contouring
- 3-axis tapering and advanced conics
  - Taper control: gradual and pivot
  - Constant and variable land
  - Radius corner styles: cylindrical, constant radius and conical constant taper
  - Programmed independent upper and lower radii
  - Sharp corner styles: sharp and blended
- 4-axis UV, XY machining
  - Unlimited synchronization between upper (UV) and lower (XY) profiles
  - 3D non-planar UV, XY profiles and non-planar workpiece fixturing
- 5th-axis control
- Automated Feature Recognition for EDM
- Contouring—universal cutting cycle for all styles of EDM profiles and shapes: cores, cavities, punches, dies, etc.
- Pocketing—slugless no-core cutting, optimized for start hole
- Drilling—EDM hole popper
- Part handling—threading, flushing, tank drain and fill

EDM machine-specific KnowledgeBase
- Factory-certified post processors and machine-specific technology pages for:
  - Agie
  - Brother
  - Charmilles
  - Current
  - Fanuc
  - Hansvedt
  - Hitachi
  - Makino
  - Mitsubishi
  - ONA
  - Sodick
    And more…

The ESPRIT Community

When you select ESPRIT as your programming solution, you are joining a worldwide community of manufacturers supported by an international network of resellers, educational institutions, and DP Technology offices. End users (manufacturers) receive sales, service, and technical support through this global system. The strength of this community ensures that every ESPRIT end user gets the most from their software and machine tool investment.

ESPRITWeb

The ESPRITWeb is the central on-line point for the ESPRIT community. It contains up-to-date product information and links to all other ESPRIT

ESPRIT de Corps Magazine

DP Technology also maintains contact with the ESPRIT community through the publication of a company magazine, ESPRIT de Corps. Readers stay informed about recent product developments and CAM industry trends. Real-world case studies feature machining challenges conquered by ESPRIT in the field. And supplemental product documentation, specifically targeting ESPRIT's most innovative or recently released product features, is available exclusively in ESPRIT de Corps.

ESPRIT SMC

DP Technology understands the business environment facing manufacturers today, and the vital role technology has in success. The ESPRIT Software Maintenance Contract (SMC) insures you always have the latest CAM technology available, as well as full access to a variety of resources for product education and support. The SMC program has three key elements to support your on-going programming needs: automatic software updates, access to the ESPRITWeb resources, and a subscription to ESPRIT de Corps.

ESPRIT de Corps

The strength of this community ensures that every ESPRIT end user gets the most from their software and machine tool investment.

on-line resources. The ESPRIT Library contains articles, technical bulletins, downloads, answers to frequently asked questions, patches, macros and more. The ESPRIT Forum is where ESPRIT users can communicate openly with others in the ESPRIT community regarding experiences, solutions, technical questions, and best practices. SupportWeb is DP Technology's web-based system for efficiently handling and effectively resolving customer technical support inquiries.

Software Updates

Users with an active SMC automatically receive software updates one or two times a year, depending upon individual product development cycles. These product releases contain significant leaps in functionality and numerous user requested enhancements. Annual upgrades in technology are easily absorbed — the learning curve is minimal while the productivity curve rises steeply.

The ESPRIT Tool Kit

A Manufacturing Operating System

Manufacturers, machine tool builders, and third party software developers use the ESPRIT Tool Kit to rapidly build feature-rich CAD/CAM solutions to meet their individual needs or the specialized needs of a target market. Third parties can choose to expose any level of ESPRIT functionality to the end user, or seamlessly integrate their add-in components to supplement ESPRIT's existing functionality. The result is a powerful, high-quality, customized software solution.

The ESPRIT Tool Kit is composed of ESPRIT's Application Programming Interface (API) — based on the Microsoft Component Object Model (COM) —and Microsoft Visual Basic for Applications. The ESPRIT API provides third party access to the vast array of CAD/CAM technology built into ESPRIT, as described in this literature.

ESPRIT's flexible, component architecture allows third parties to utilize any level of ESPRIT functionality. ESPRIT components can be deployed to supplement an existing CAD/CAM solution operating within its current Graphical User Interface (GUI). Or, third party components can be added to ESPRIT and accessed through ESPRIT's GUI. The ESPRIT GUI can be easily private labeled or otherwise customized to meet the requirements of an OEM.

As a Manufacturing Operating System, ESPRIT is completely customizable to meet the unique and changing needs of manufacturers, machine tool builders, OEMs, and other third party developers. Whether running stand-alone, on or off the machine control on the shop floor, or in the office, ESPRIT is capable of delivering powerful full-spectrum programming for a full range of machine tool applications.

ESPRIT General Specifications

Full-spectrum CNC programming for:
- 2-5 axis milling*
- 2-22 axis turning*
- 2-5 axis wire EDM*
- multitasking mill-turn machining*
- B-axis machine tools*

Machining and modeling of any part geometry powered by:
- Parasolid® solid modeler
- ACIS® solid modeler
- NURBS surface modeler
- STL modeler*
- 2D/3D wire frame modeler
- Drawing, dimensioning, and annotation

Universal post processing:
- Factory certified
- User definable
- Complete with post processor library
- G-Code text editor and DNC RS232 communication program

Solid simulation and verification:
- Dry runs in dynamic solids
- Rendered within the complete machining environment:
  machine tool, fixtures, stock, and workpiece
- Exhaustive collision detection: tool, stock, fixtures, and workpiece
- "As-machined" versus "as-designed" part inspection

100% pure Windows® application:
- Designed for:
  Microsoft Windows® 2000 Professional and Windows® XP
  Microsoft® SQL Server™
- Integrates with Microsoft® Office for shop-floor documentation
- Dynamic graphics delivered by OpenGL®
- Customizable user interface, toolbars and menus
- HTML-based context-sensitive online help
- Network floating licenses*

Adaptive machining cycles:
- Adapts to varying part geometry
- Automates engineering changes and part families
- Extensive tool control
- Automated Feature Recognition
- High-speed machining and G-code optimization

Tool Kit
- Microsoft® Visual Basic® for Applications (VBA)
- ESPRIT Component Object Model (COM)-based Application Programming Interface (API)

Data Exchange
ESPRIT reads data from the following native formats: ACIS® (SAT), AutoCAD (DWG), CSV, DXF™, Autodesk Inventor®, IGES, Mechanical Desktop®, Parasolid® (X_B, X_T), Solid Edge®, SolidWorks®, TXT, VDA-FS. Optional data readers are available for: CATIA®, Pro/ENGINEER®, Unigraphics®, STEP, STL.

Local Language Support
Chinese (PRC), Chinese (Taiwan), Czech, English, French, German, Italian, Japanese, Korean, Polish, Spanish, Swedish, and Turkish.

Note: *Optional component

U.S. patent number 6,907,313
Other U.S. patents pending.

Passion | Vision | Commitment | Power | Performance | Value

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