

ESPRIT SolidWire

With over 30 years of commitment to the wire EDM community, ESPRIT is widely recognized as the market leader in CAM for wire EDM. Decades of collaboration have led to innovative solutions optimized for individual wire EDM brands and machines—from expert systems that apply proven, machine-specific knowledge of cutting conditions to factory-developed post processors that deliver edit-free G-code.

As a full spectrum CAM system, ESPRIT delivers powerful programming, accurate simulation, and machine-optimized G-code for any class of CNC machine. Backed by world-class technical support, ESPRIT is the right choice for any industrial application, from job shop work to large-scale heavy equipment manufacturing.

SolidWire

Universal Machining

With its universal machining cycles, ESPRIT is the right choice for all wire EDM programming, including dies and punches for the tool and die industry, cavities and inserts for mold making, medical components, and general mechanical parts. These machining cycles offer all-in-one support for the complete EDM process including wire and tank controls, rough cutting, tab and slug handling, and finish skim cutting.

Contouring

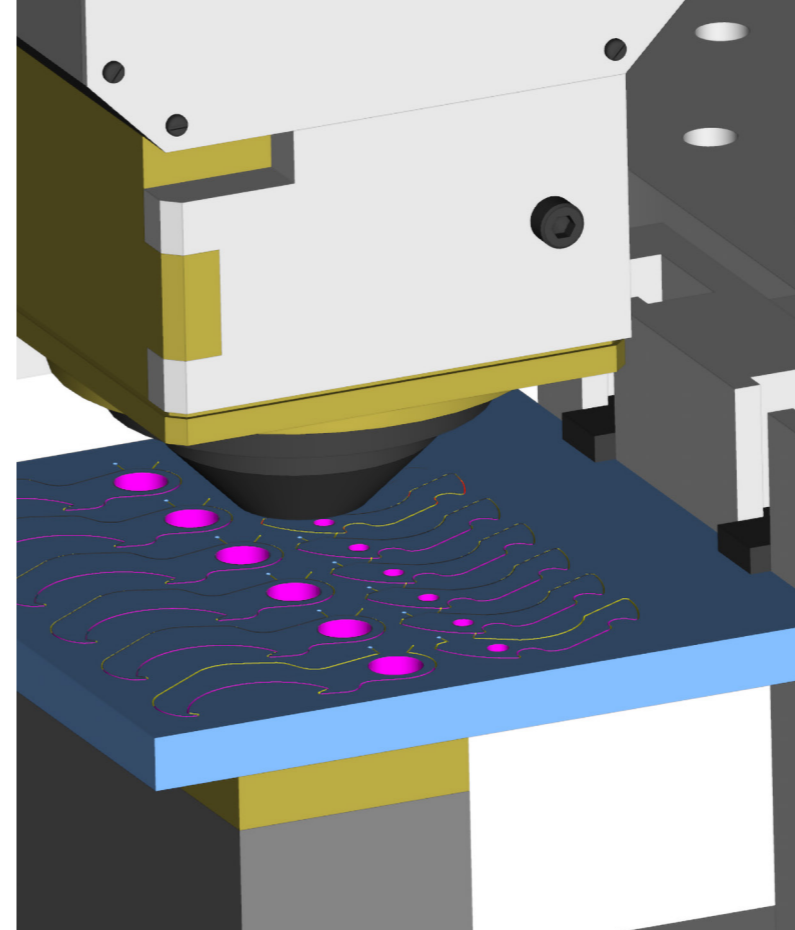
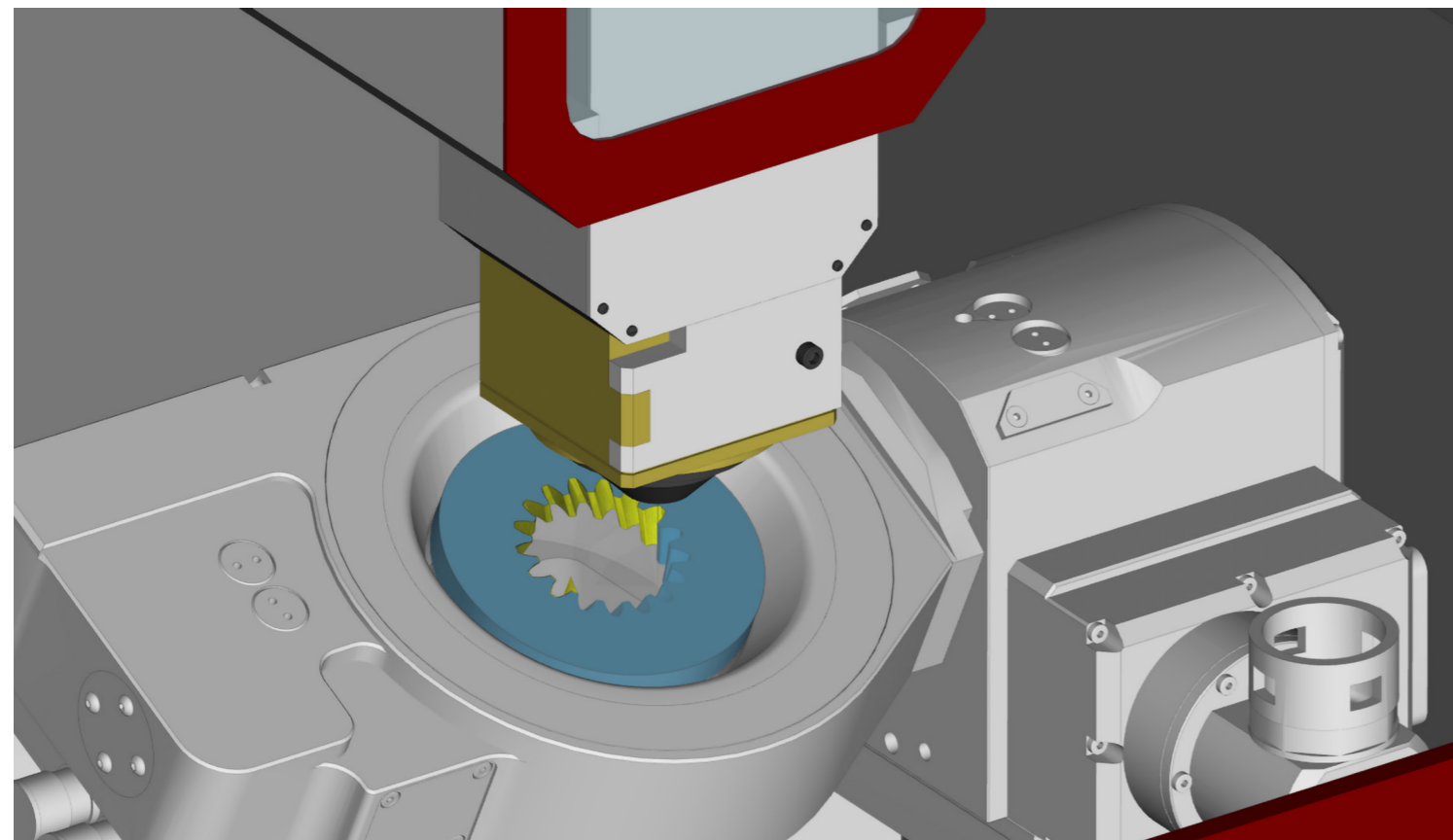
Contouring is the most flexible and commonly used cycle. It offers straight cutting, taper cutting, and parts with land and relief. By supporting advanced conic programming, this cycle automatically machines geometry with advanced taper changes and corner styles (conical, cylindrical, and programmed radii). The 4-axis contouring cycle uses two synchronized profiles: an upper UV profile, a lower XY profile, and synchronization points to provide control over the exact geometry and surfaces produced by the machining process.

Pocketing, No-Core Cutting

When a slug is too small or too intricate to easily remove, use the no-core pocketing cycle to remove the material inside a given cavity without creating a slug. No-core pocketing is available for 2-axis and 4-axis wire EDM with a variety of machining patterns to effectively remove material inside virtually any shape. ESPRIT recognizes and automatically machines only the slug, which prevents wire breakage and minimizes machining time.

Machine-Optimized Programming Solutions

As a machine-optimized CAM system, ESPRIT offers solutions tuned for each wire EDM machine model. With ESPRIT, quickly move from design to finished part with confidence while reducing programming and setup time, cycle times, and operator supervision.



Model-Driven EDM

To dramatically simplify the programming process, model-driven machining automatically extracts information directly from the original part geometry to create a machinable feature. This information includes the initial wire thread location, the start point on the profile, cut direction, taper angles, the height of any land area, corner styles, and, optionally, any 4-axis synchronization. The resulting features contain all the geometric information necessary to drive the contouring and pocketing cycles, with an automatic classification of parts that can be machined in 2-axis versus those that require 4-axis.

Advanced EDM Strategies

ESPRIT's pocketing and contouring cycles provide extensive controls over the cutting paths to provide the required part quality while minimizing cutting time and eliminating wire breakage. This includes application-specific functionality for punches and dies, mold inserts, land and taper cutting, and slug control. Other advanced functionalities include the addition of reliefs and special motions for sharp internal and external corners to eliminate witness lines, as well as automatic corner rounding. To improve cycle time when performing multiple cuts, ESPRIT can alternate the direction of each cut instead of returning the wire to the start point at the beginning of each pass.

Rotary EDM

Adding a rotary axis to a wire EDM allows the machining of multi-sided parts in a single setup. A rotary axis also increases the variety of shapes that can be cut because the machine can combine simultaneous linear and rotary motion. ESPRIT supports indexing, turning, and simultaneous cutting for all EDM machines that support rotary motion. Three types of rotary capabilities are available in ESPRIT: turn-then-burn (rotating the workpiece into position before cutting begins), turn-while-burn (rotating the workpiece during the cut), and EDM turning (spinning the workpiece like a lathe during the cut).

Optimization for Unattended Machining

With G-code programs that minimize operator supervision, ESPRIT allows wire EDM machines to run unattended for extended periods of time. To accomplish this, ESPRIT classifies the operations into roughing, skimming, and cut off. It then uses optimized sequencing of these operations across multiple features and workpieces. Slug management with slugless burning, pocketing, and additional tabs for larger workpieces further reduces the need for operator intervention. With this combination of optimally sequenced cuts and slug management, along with automatic wire cutting and re-threading, the machine runs longer with less supervision.



Contouring, 2-axis with advanced conics

Pocketing, 2-axis no-core

4-axis Contouring

4-axis no-core Pocketing

Rotary EDM

- Turn-then-Burn (Indexing)
- Turn-while-Burn
- Spin and Burn
- Turn Facing
- Turn Contouring

EDM Drilling (hole popper)

Manual EDM

Optional Specialized Modules

- Gear Generator
- CAM Generator

Machine-Optimized Solutions Including

- AgieCharmilles
- Fanuc
- Makino
- Mitsubishi
- ONA
- Sodick

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08/05/2019

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High-Performance CNC Programming

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