



## ESPRIT ProfitMilling

When it comes to making high-quality, accurate parts that don't break the time bank, consider embracing better CAM programming with ProfitMilling, a smart and efficient toolpath that puts greater profit in your pocket.

ESPRIT's new patent-pending ProfitMilling strategy for roughing cycles allows you to remove more material in a shorter period of time — without sacrificing quality.

Using advanced technology, the ProfitMilling strategy combines engagement angle, chip load, lateral cutter force and machine acceleration to achieve optimal results.

## Advantages

- 75% cycle-time reduction\*
- 500% increase in tool life\*
- Decreased programming time
- Reduced energy consumption
- Significant productivity improvements, even with light and medium-duty machine tools
- Available for 2 1/2, 3, 4, and 5-axis roughing cycles

**75%**  
CYCLE TIME  
Reduction

## How ProfitMilling Works

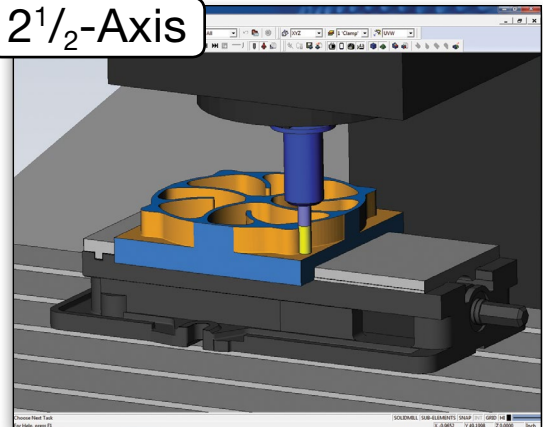
ProfitMilling is a high-speed roughing cycle that allows you to take a significantly deeper cut of the tool and increase the cutting feed. Rather than controlling just one parameter, ProfitMilling monitors several vital cutting and machine characteristics.

The ProfitMilling toolpath manages chip load and side-cutter force in the calculation of toolpath while keeping the engagement angle and material removal rate within a specific range.

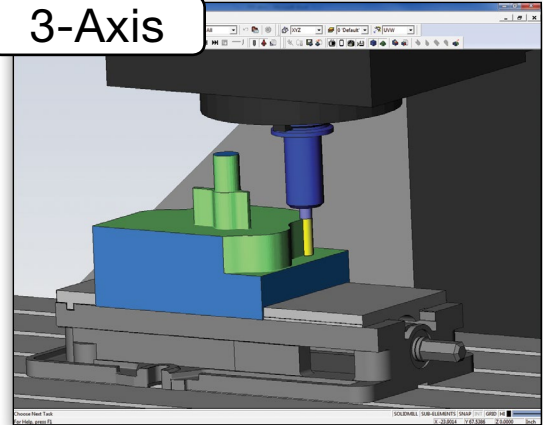
It also incorporates dynamic feedrate changes throughout the toolpath and takes advantage of toolpath optimization for specific machine capabilities.

\*Compared to traditional concentric pocketing

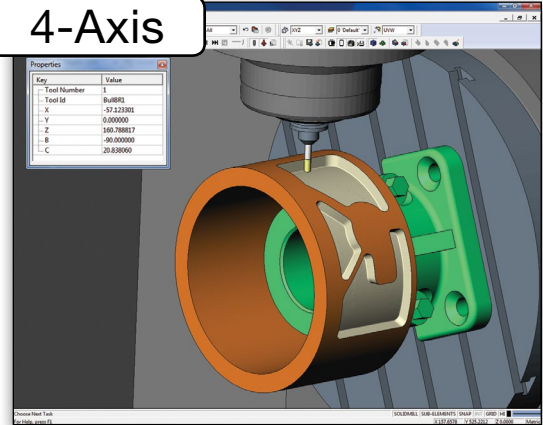
2 1/2-Axis



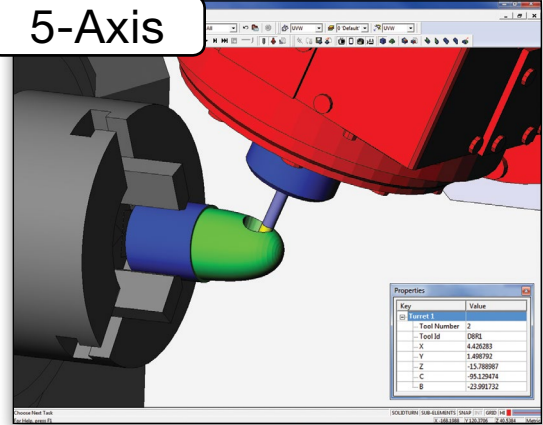
3-Axis



4-Axis



5-Axis



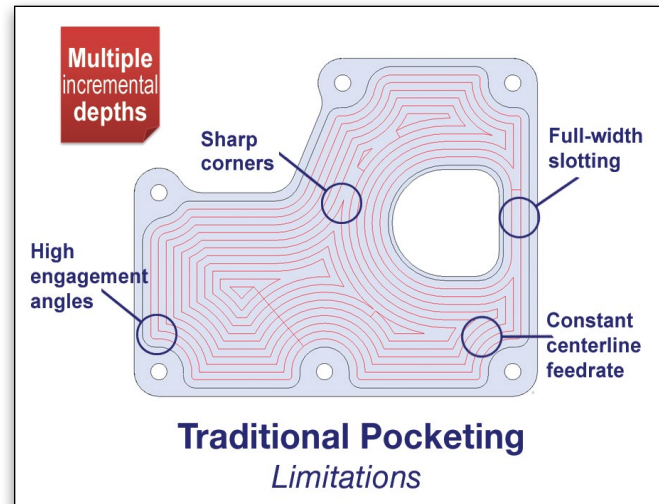
The most powerful *CAM software* ever.

## Comparing ProfitMilling to Traditional Pocketing

### Limiting characteristics of traditional pocketing toolpath:

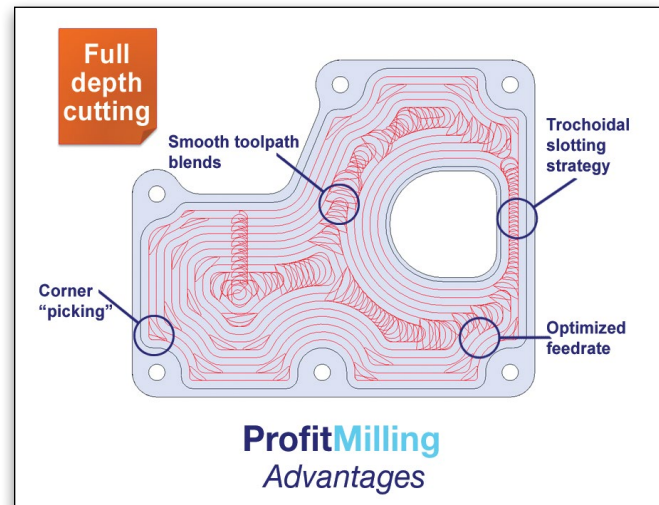
- Sharp corners mean high cutting forces, high accelerations and “zero stops.”
- Full-width slotting creates undesirable cutting conditions.
- Constant centerline feedrates
- High engagement angles

Parts must be programmed conservatively to account for these limitations.



### ProfitMilling Advantages

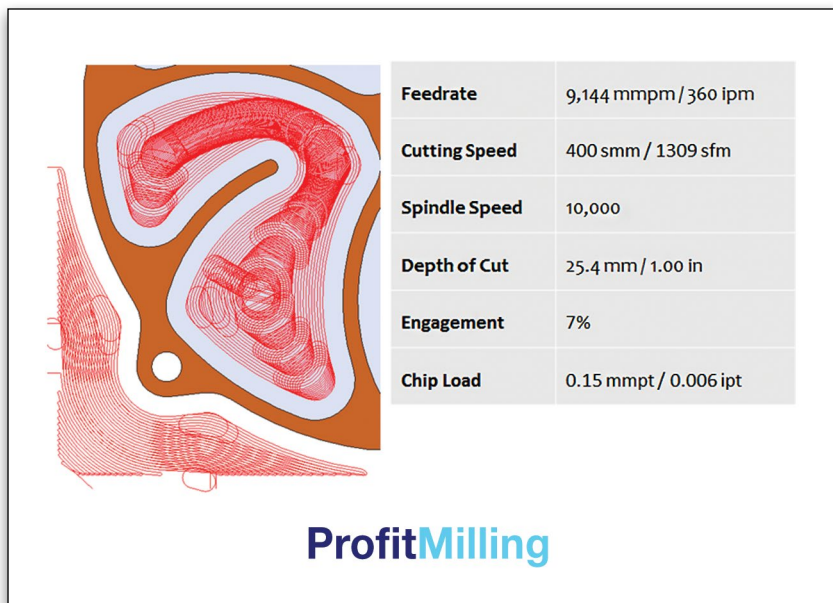
- Smooth toolpath blending & transitions
- Trochoidal slotting strategy
- Optimal feedrate based on toolpath geometry
- Uses corner “picking,” or the removal of less material in corners, to eliminate chatter and keep a constant tool-engagement angle
- Optimizes transitional moves with small Z lifts to reduce drag



The most powerful *CAM software* ever.

## How to Program Using ProfitMilling

- Double or triple tool-manufacture recommended feed, speed and surface speed in MMPT or IPT. Adjust to specific tool wear / performance needs.
- For steel, titanium and other hard metals, use a radial engagement between 27 – 37%. For softer materials, use a radial engagement just under 90%. Most parts can be cut a depth of two times the tool diameter.
- Whenever possible, use tools with a high flute count. Coolant is generally discouraged, as its use can increase thermal shock on the cutting edge. The ProfitMilling toolpath puts most of the generated heat into the chip and away from the part and tool. High pressure air may be helpful, as it aids in chip evacuation.
- Check your machine's control settings. The geometry "look-ahead" or corner-control setting may adversely affect cycle times. Ensure that the requested feedrates are being obtained.



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