



Innovate

## H-Carb End Mills Case Studies & Videos

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In two different case studies, KYOCERA SGS Precision Tools (KSPT) employed its new **7 flute Series 77 H-Carb end mill** to reduce job cost by increasing tool life, reducing machining time, and improving manufacturing efficiency.

### Case Study #1—Industry: General Engineering

#### GOALS

The goals of this study were to significantly reduce job cost through increasing tool life, reducing machining time and improving manufacturing efficiency when machining 718 Inconel.

#### STRATEGY

KSPT approached this job with the new 7 flute Series 77 H-Carb high-efficiency end mill. Due to the specialized core and flute design which improves rigidity and chip flow while also reducing deflection, the H-Carb was able to capacitate higher speed and feed rates, while still producing optimal part finish.

#### RESULTS

Nickel-based alloys are known to be difficult to machine, due to low thermal conductivity and chemical

reactivity with tool material at high temperatures. They are also known to have a high hardness and low elastic modulus. The new series 77 H-Carb high-efficiency end mill with its Ti-Namite®-A coating was the perfect tool to apply to this job. The speed and feed that the H-Carb was able to capacitate was 49% higher and the feed rate was increased by 276% over the competitor's end mill.

These efficiencies lead to a 575% improvement in material removal rate. The cycle time was reduced from 30 minutes to just over six minutes. The H-Carb produced four times as many parts per new tool. All these performance capabilities combined to produce a machining cost reduction of over \$10,000. When that amount is combined with the amount saved via the smaller number of new tools needed, you get a total savings of \$22,495.75.

Read the complete **Case Study** to see how the 77 H-Carb stacked up against the competition.

*See the H-Carb end mill in action in this short video:*

## Case Study #2–Industry: Aerospace

### GOALS

The goals of this study were to reduce job cost when machining stainless steel through a complete revision of the manufacturer's strategy. In doing so, KSPT looked to increase tool life, reduce machining time, and provide an improvement in manufacturing efficiency.

### STRATEGY

For this job KSPT picked the Series 77 H-Carb, 7 flute high-efficiency end mill, and attempted a single-axial stepdown. A specialized core and flute design improves rigidity and chip flow, while also reducing deflection, making the H-Carb well suited for deep axial cuts.

### RESULTS

The improved cycle time that the H-Carb was able to facilitate was more than 3 times faster, and the feed rate was almost 5.5 times higher than the competitor's indexable cutter. These efficiencies lead to a 1,460% improvement in material removal rate. The H-Carb produced almost 4 times as many parts per new tool.

Read the complete **Case Study** to see how the 77 H-Carb helped this aerospace manufacturer realize a machining cost reduction of over \$113,000.

*Watch this video to see how the Series 77 H-Carb performs in a trochoidal slotting application.*

*Previously Featured on Kyocera SGS Precision Tools' YouTube channel.*

*Go to [MSCDirect.com](https://www.mscdirect.com) to find the H-Carb high-efficiency end mill that's right for your application.*