

# Series 77 H-Carb

KYOCERA SGS Precision Tools Case Study

**TOTAL SAVINGS**  
**\$4,883**

**SGS**  
Solid Carbide Tools

## INDUSTRY

FIREARMS

## MATERIAL

416 STAINLESS STEEL (HRC 24-32 HARDNESS)

## PRODUCT

KSPT SERIES 77 H-CARB 7 FLUTE END MILL

## APPLICATION

HIGH EFFICIENCY MILLING

## COMPETITOR

COMPARABLY SIZED 4 FLUTE END MILL

## COOLANT

FLOOD

## TOOL INFORMATION

1/2" DIA / 1/2" LOC / 3-1/2" OAL

## GOALS

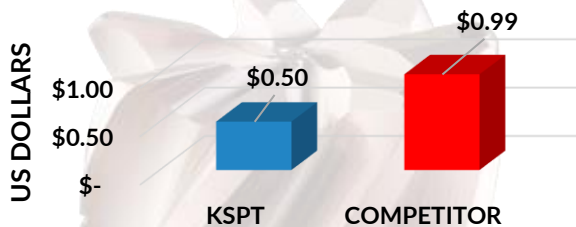
The goals of this study were to significantly reduce job cost through increased tool life, reduced machining time and improved manufacturing efficiency.

## STRATEGY

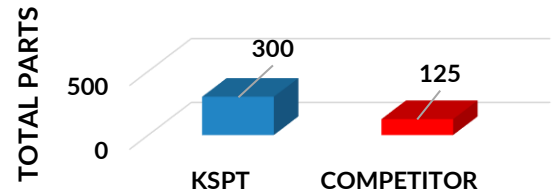
KSPT approached this job with the new 7 flute Series 77 H-Carb high efficiency end mill. Due to the specialized core and flute design which improves rigidity and chip flow while also reducing deflection, the H-Carb was able to capacitate higher speed and feed rates while still producing optimal part

	KSPT	COMPETITOR
TOOL DIAMETER	½ INCH	½ INCH
SPEED	3744 RPM	2400 RPM
FEED	31.45 IPM	18.24 IPM
RADIAL CUT (AE)	.01 INCH	.01 INCH
AXIAL CUT (AP)	1.2 INCH	1.2 INCH
MATERIAL REMOVAL RATE	.38 IN <sub>3</sub> / MINUTE	.22 IN <sub>3</sub> / MINUTE

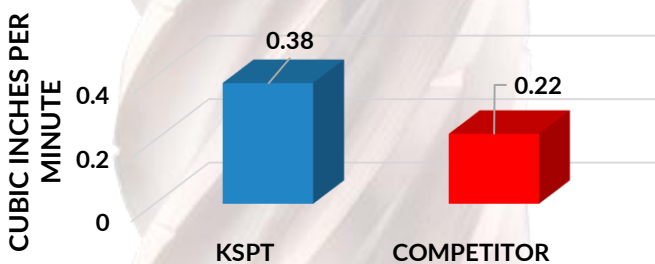
## TOTAL COST PER PART



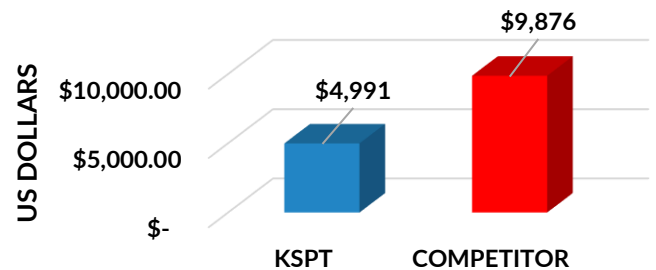
## TOTAL PARTS PRODUCED BY A NEW TOOL



## MATERIAL REMOVAL RATE



## TOTAL COST



## RESULTS

The applications of stainless-steel materials have increased enormously in various fields. The combination of corrosion resistance, a wide range of strength levels, good formability, and an aesthetically pleasing appearance make stainless steel a popular choice for machinists. Ferritic grades (e.g., 416L) are usually supplied in the annealed condition and due to their toughness, their machining characteristics are more like low alloy carbon steels rather than mild steels. A Ti-Namite®-A coated Series 77 H-Carb was the perfect tool to apply to this job. The speed and feed that the H-Carb was able to capacitate was 56% higher and the feed rate was increased by 73% over the competitors end mill! These efficiencies lead to 73% improvement in material removal rate! The H-Carb produced more than twice as many parts per new tool! All these performance capabilities combine to produce a machining cost reduction of over \$1,380. When that amount is combined with the new tool cost savings of more than \$3,120, and the over \$383 saved in tool change cost, you get a total savings of \$4,883!!!