

V-Carb

Kyocera SGS Precision Tools Case Study



INDUSTRY



POWER GENERATION

MATERIAL

Ti-6Al-4V (Titanium Alloy)

PRODUCT

KSPT Series 55 V-CARB TA Coated

APPLICATION

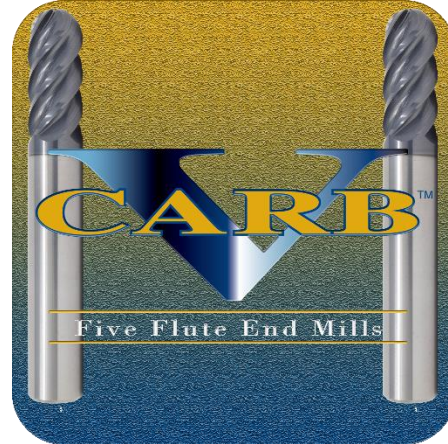
High Speed Machining

COMPETITOR

5 Flute variable endmill

COOLANT

Flood



GOALS

The goals of this study were to significantly reduce tooling cost through a decreased cycle time, improved manufacturing efficiencies and the use of a high-quality tool.

STRATEGY

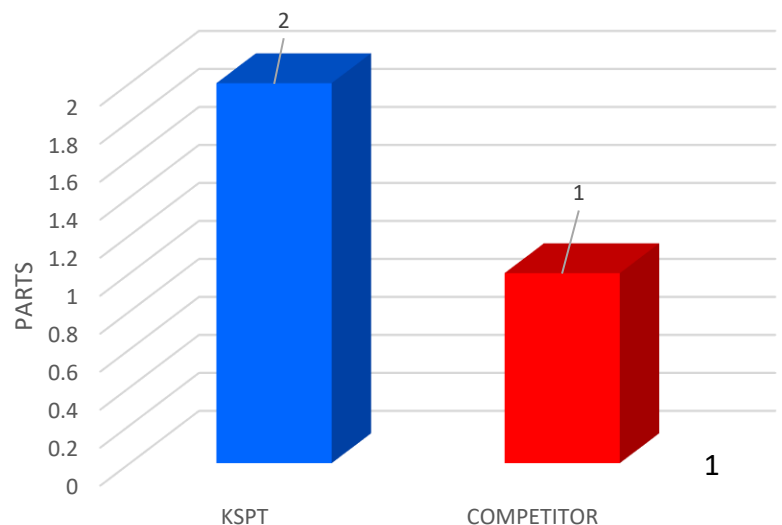
KSPT approached this job with a 5 flute V-Carb. These five-flute, unequal helix tools feature unequal indexing and an ideal rake and relief combination for unmatched finishing capability.

TOOL INFORMATION

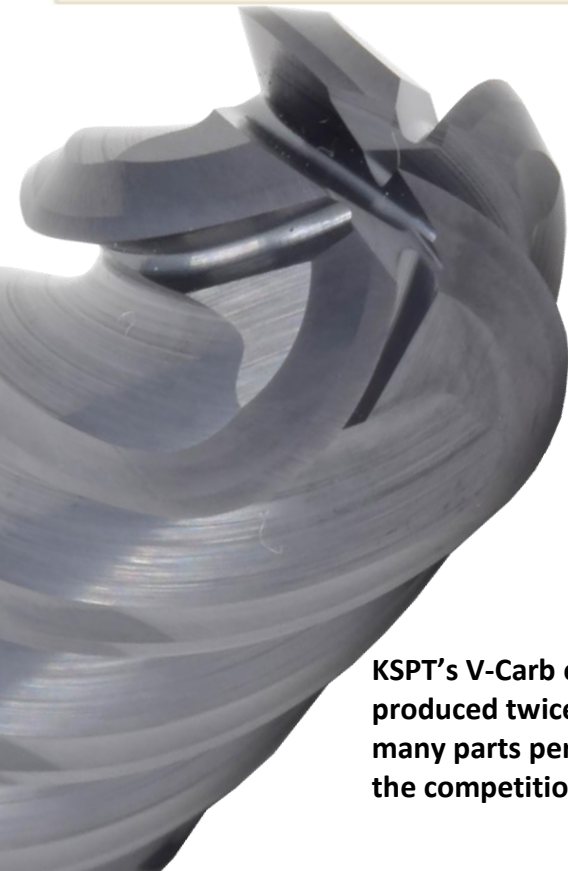
1 DIA / 1.5" LOC / 4.0" OAL

	KSPT	COMPETITOR
TOOL DIAMETER	1"	1"
SPEED	1375 RPM	950 RPM
FEED	26.1 IPM	19.0 IPM
RADIAL CUT (AE)	.025"	.025"
AXIAL CUT (AP)	4.0"	4.0"
CYCLE TIME	13.78 minutes	18.925 minutes

PARTS PRODUCED BY A NEW TOOL



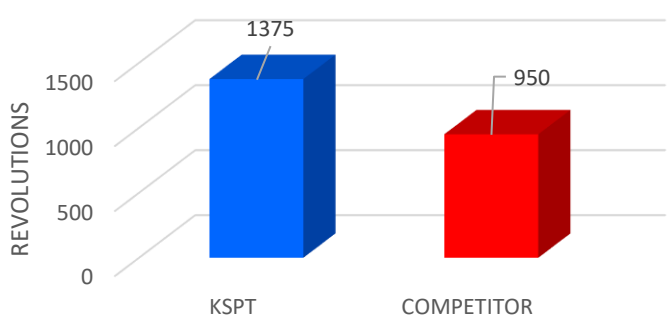
KSPT's V-Carb end mill produced twice as many parts per tool as the competition!



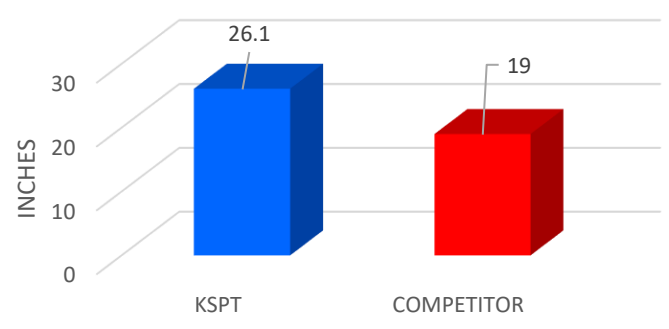
RESULTS

6AL4V titanium is not the easiest material to machine, unless you have the right tool for the job. In this case, the customer ran the KSPT series 55 V-Carb end mill up against a comparable competitor tool. The results we're statistically heavily in favor of the V-Carb. The customer was able to run the V-Carb at a 30% increased speed as well as a 27% increased feed rate. Thus, the material removal rate was heavily in favor of the V-Carb. With these increased efficiencies, the customer saw a major increase in tool life with the V-Carb. So much so that the new tools required to complete the customers desired 550 parts were half of the amount needed by the competitor. The total machining cost was lessened by over \$3,000. The total new tool cost was lessened by over \$100,000. This all led to a total cost per part reduction of almost \$200. When all was said and done, the total cost savings equaled \$109,765.56!!

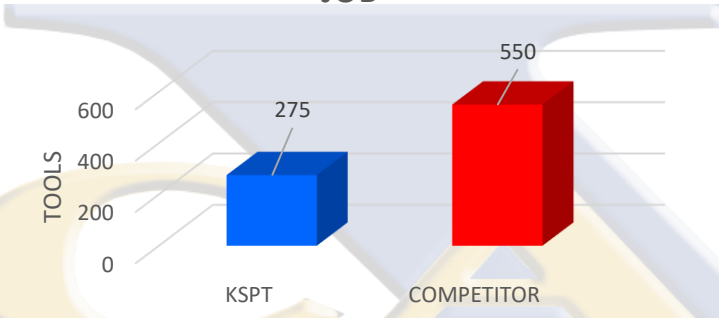
SPEED (RPM)



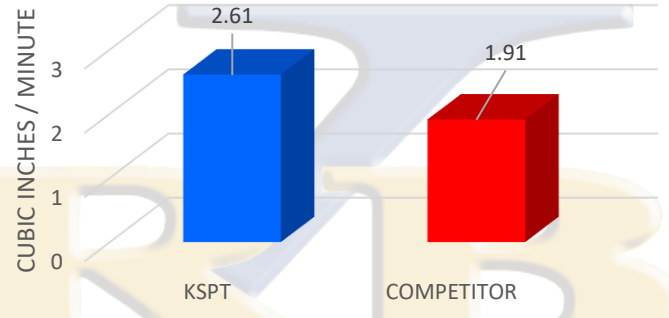
FEED (IPM)



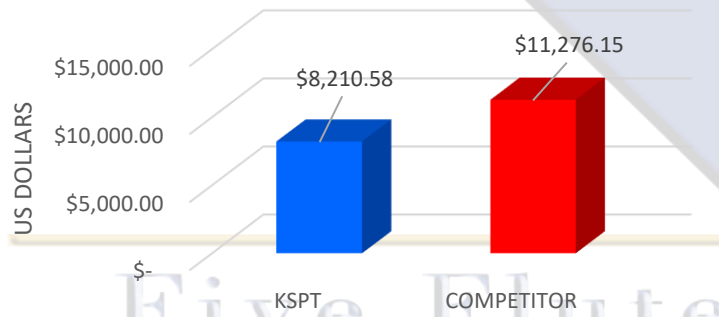
NEW TOOLS REQUIRED TO COMPLETE JOB



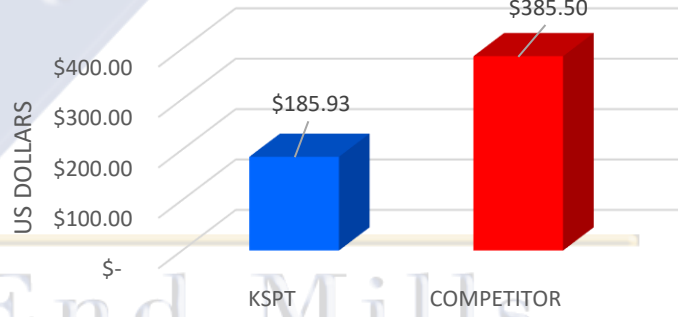
MATERIAL REMOVAL RATE



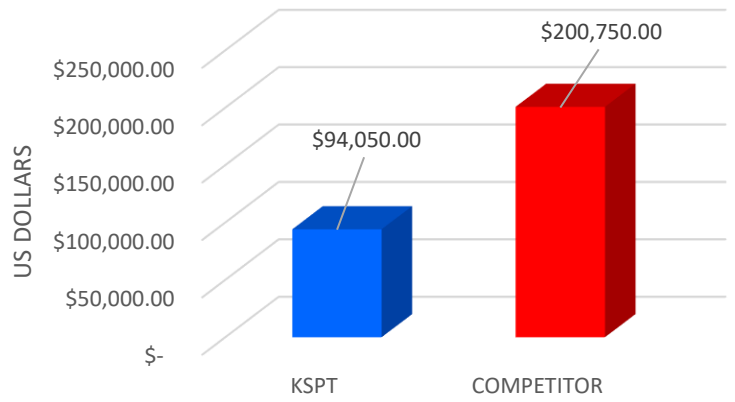
TOTAL MACHINING COST



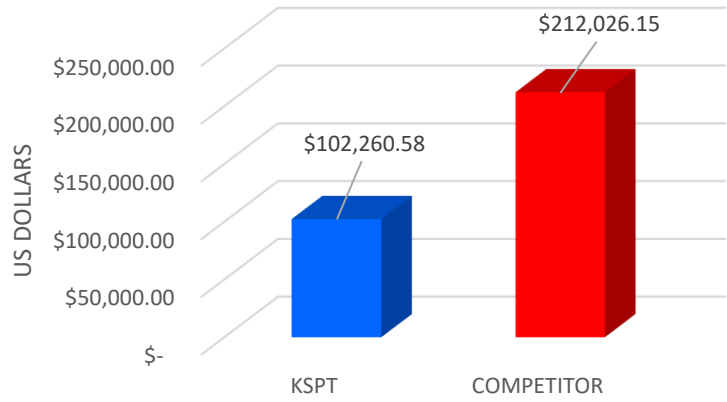
TOTAL COST PER PART



TOTAL NEW TOOL COST



TOTAL COST



Five Flute End Mills