

SERIES 51 T-CARB



Kyocera SGS Precision Tools Case Study

INDUSTRY



ENGINEERING

MATERIAL

L605 Cobalt Alloy

PRODUCT

KSPT SERIES 51 T-CARB

APPLICATION

4% Profile at >80% cutting depth

COMPETITOR

Competitor's 4 flute HP end mill

COOLANT

Soluble Flood

TOOL INFORMATION

.3750 DIA / 1.0" LOC / 2.5" OAL



GOALS

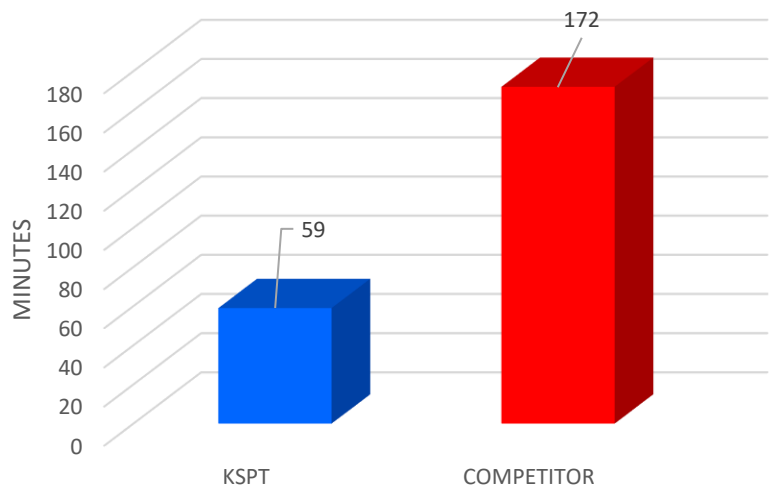
The goals of this study were to significantly reduce job cost through increased manufacturing efficiencies thus increasing tool life.

Features

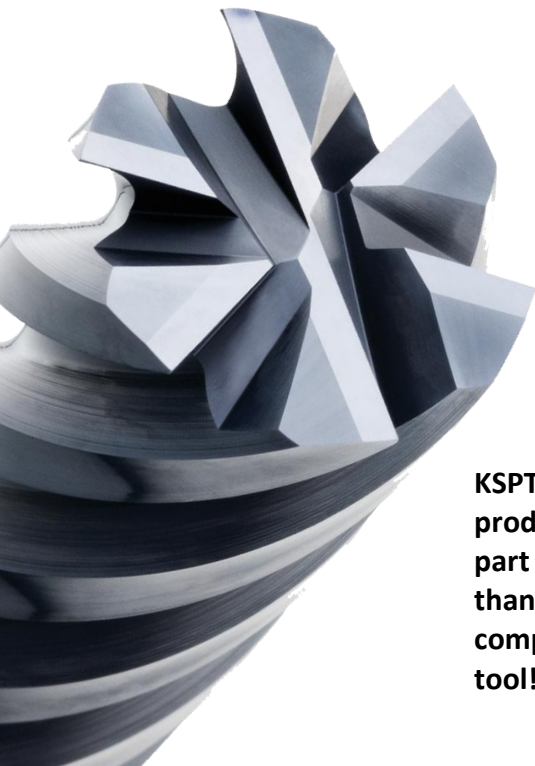
KSPT approached this job with a 6 flute T-Carb end mill. KSPT's T-Carb excels at high-speed machining. Specifically, trochoidal and peel milling, the T-Carb's 6 flute design with eccentric relief provides strength and supreme chip control at high speeds, and with surprising finish results.

	KSPT	COMPETITOR
TOOL DIAMETER	.3750"	.3750"
SPEED	3600 RPM	662 RPM
FEED	28.8 IPM	5.3 IPM
RADIAL CUT (AE)	.0150	.3750
AXIAL CUT (AP)	.3050	.0300
CYCLE TIME	59 MINUTES	172 MINUTES

CYCLE TIME



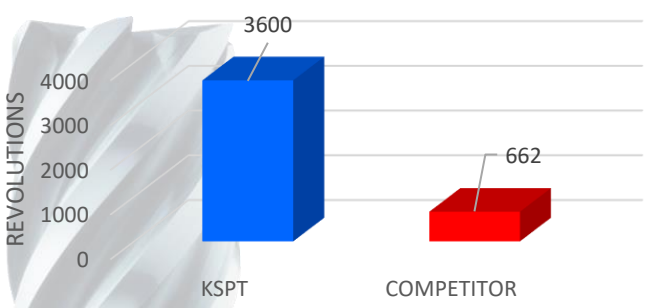
KSPT's T-Carb produced a new part 5x faster than the competitor's tool!



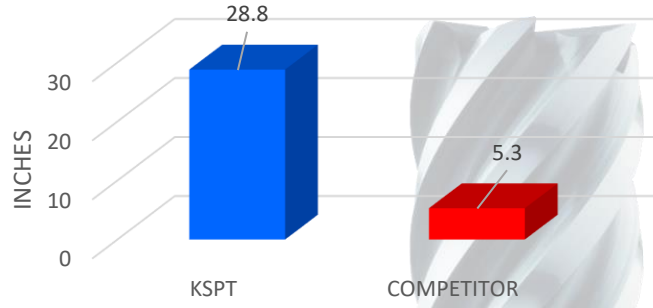
RESULTS

L605 cobalt alloy is very difficult to cut due to a very high work hardening rate. Additional generation of heat during cutting, and high shear strength complicate machining. It has been described as a material that wears out a tool like no other. Unless you have the proper tool that is. KSPT's T-Carb end mill, with its eccentric relief provided this customer with a solution to their challenge. **The T-Carb handled speed and feed rates more than 5 times what the competitor's tool could handle.** With these improved manufacturing efficiencies, the T-Carb produced two parts for every new tool used, the competitor's tool could only produce .25 parts for every one of theirs. With 18 total parts needed by the customer, it only took 9 new T-Carbs to complete the job. The competitor needed 72. **The total machining cost was reduced by 65%. The total new tool cost was reduced by an additional 91%. The total cost per part while using the T-Carb was \$124.15 and with the competitor's tool the cost per part was \$583.16. Ultimately the customer saved a total of \$8262.09 using the T-Carb.**

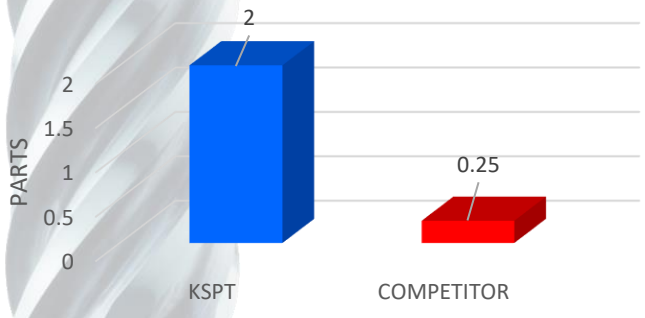
SPEED (RPM)



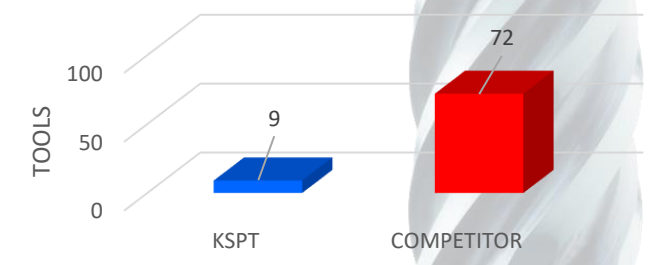
FEED (IPM)



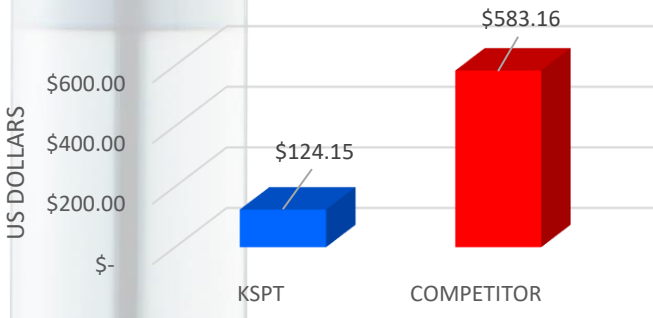
TOTAL PARTS PRODUCED BY NEW TOOL



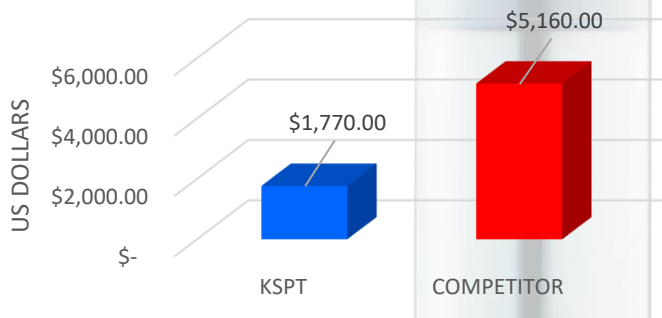
NEW TOOLS REQUIRED TO COMPLETE JOB



TOTAL COST PER PART



TOTAL MACHINING COST



TOTAL NEW TOOL COST



TOTAL COST

