

Z-CARB HPR

KYOCERA SGS Precision Tools Case Study

TOTAL SAVINGS \$68,055!



INDUSTRY

GENERAL ENGINEERING

MATERIAL

6AL4V TITANIUM (HRC 33-38)

PRODUCT

KSPT Z-CARB HPR

APPLICATION

80% AXIAL PROFILE

COMPETITOR

HIGH FEED FACEMILL

COOLANT

FLOOD

TOOL INFORMATION

3/4" DIA / 1-1/2" LOC / 4" OAL

GOALS

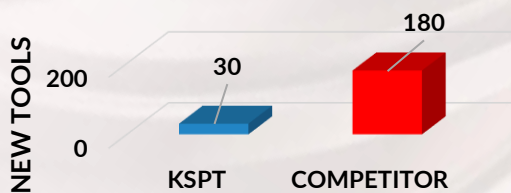
The goals of this study were to significantly reduce job cost through the use of a higher quality end mill and to maximize tool life.

STRATEGY

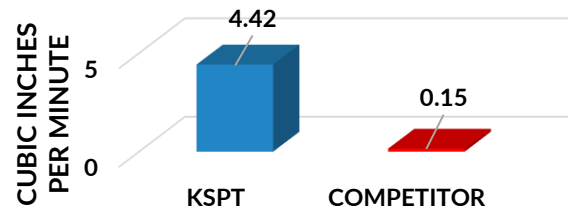
KSPT approached this job with a 5 flute Z-Carb high performance rougher (HPR) end mill. KSPT's Z-Carb HPR is ideal for achieving high metal removal rates, while achieving optimal surface finishes. The specialized five flute design is engineered for increased productivity over three and four flute end mills.

	KSPT	COMPETITOR
TOOL DIAMETER	3/4"	HIG FEED FACEMILL
SPEED	1192 RPM	350 RPM
FEED	14.9 IN/MIN	19.9 IN/MIN
RADIAL CUT (AE)	1-1/4 INCH	.03 INCH
AXIAL CUT (AP)	1/4" INCH	1/4" INCH
MATERIAL REMOVAL RATE	4.42 IN ₃ / MINUTE	.15 IN ₃ / MINUTE

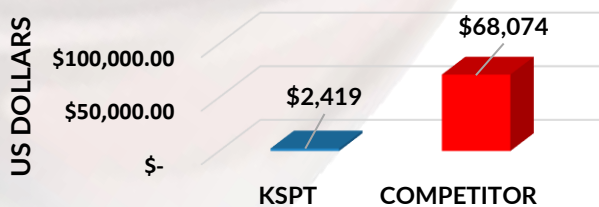
NEW TOOLS NEEDED TO COMPLETE THE JOB



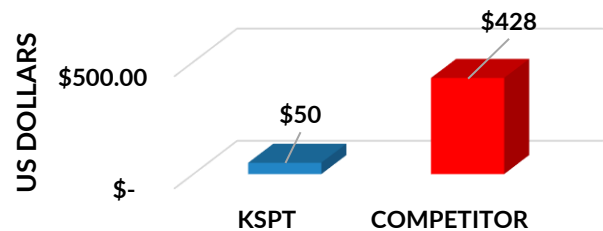
MATERIAL REMOVAL RATE



TOTAL MACHINING COST



TOTAL COST PER PART



RESULTS

6AL4V titanium is a corrosion resistant and had an excellent strength to weight ratio, which makes it an ideal material for the aerospace industry. Unfortunately, it is relatively difficult to machine and tends to cause shorter tool life because tools having to be run at slower speeds. A Ti-Namite[®]-M coated Z-Carb High Performance Rougher (HPR) was the optimal tool for this application. The HPR was able to be run at an RPM more than 3 times faster than the competitor's tool. Even at a lower feed rate, the HPR had a material removal rate almost 30 times higher than the competitor's tool! Due to the overwhelming disparity in material removal rate, the HPR produced 6 parts for every one of the competitors. The manufacturing efficiencies mattered even more dramatically when you consider the SGS total new tool cost was more than twice what it cost for the competitors tool, because the HPR saved the customer over \$65,655 in manufacturing cost. Combined with the over \$2,400 saved in tool change cost, the customer experienced total savings of \$68,000!!!

