Z-CARB HTA (High Temp Alloys)

Kyocera SGS Precision Tools Case Study

INDUSTRY

MEDICAL

MATERIAL

4140 Steel (HRC 35-40 HARDNESS)

PRODUCT

Z-Carb HTA (High Temp Alloys)

APPLICATION

PLUNGING

COMPETITOR

COMPARABLE 4 FLUTE END MILL

COOLANT

FLOOD

TOOL INFORMATION

.5” DIA / 1.0” LOC / 3.0” OAL

The Z-Carb HTA produced 4 times as many parts per new tool as the competitor’s tool.

GOALS

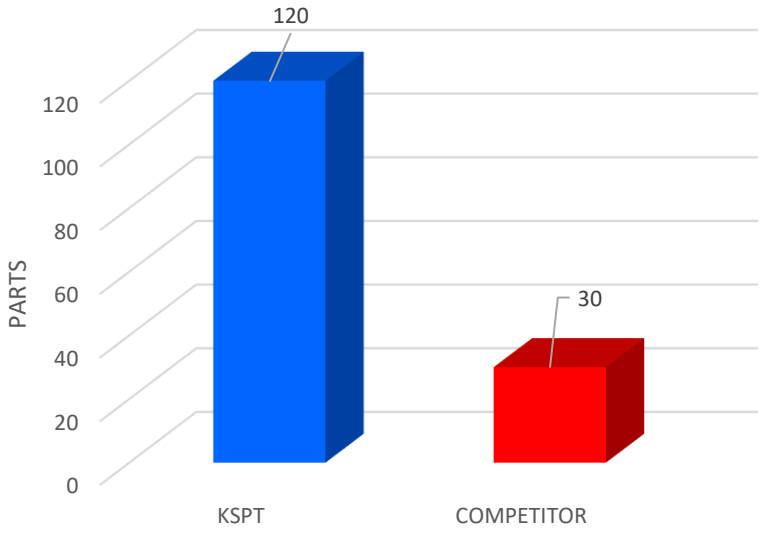
The goals of this study were to significantly reduce job cost through increasing tool life and maximizing operating efficiencies.

STRATEGY

The Z-Carb HTA features an enhanced high helix design and enhanced core to meet the demands of machining high-temperature alloys. The patented unequal helix design changes the angle at which each cutting edge enters the material, and unequal flute spacing helps disrupt the rhythmic pattern created by the cutting edge.

	KSPT	COMPETITOR
TOOL DIAMETER	0.5”	0.5”
SPEED	2277 RPM	2000 RPM
FEED	20 IPM	20 IPM
RADIAL CUT (AE)	N/A	N/A
AXIAL CUT (AP)	1.0	1.0
CUTTING TIME / PART	1:18 MINUTES	4 MINUTES

TOTAL PARTS PRODUCED BY A NEW TOOL



RESULTS

In this case, the **Z-Carb HTA outperformed the competition by every single statistical measure**. The HTA was able to handle a 12% increase in speed, and easily took on a feed rate double what the competitor's tool could handle. With these increased efficiencies, the **material removal rate was doubled!** The quality of tool and the substrate coating played a role in increasing the tool life. The customer needed to produce 5,000 parts and because the **HTA produced 4 times as many parts per new tool as the competition**, it only required 42 total new tools to complete the job. The competitor had to use 167. The customer, because of the smaller amount of HTA's needed **saved over $13,000 in new tool cost**. When you combine that number with the over $**14,000 saved in machining cost** (because of the increased efficiency mentioned earlier) **the customer saved a grand total of $28,153.70**