



Total Cost Savings  
**\$104,729**



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T-CARB in Action!

### Industry

Aerospace

### Material

Inconel 718

### Product

T-Carb Series 51  
6-Flute Corner Radius Endmill  
Ti-NAMITE-X (TX) Coating

### Application

Milling

### Competitor Tools

0.250in 4-Flute Solid End Mill

### Coolant

External

### SGS Tool Information

0.250in Cutting Dia. (DC)  
0.750in Length of Cut  
2.500in Overall Length  
41 degree Helix Angle  
EDP: 35150

### Goals

This jet engine component manufacturer needed to produce nearly 2,000 total parts annually. With the annual job cost exceeding \$200,000, their goal was to reduce the overall cost by at least 25% without compromising quality. To achieve this goal, KYOCERA SGS application engineers looked for ways to increase tool life and decrease cost per part.

### Strategy

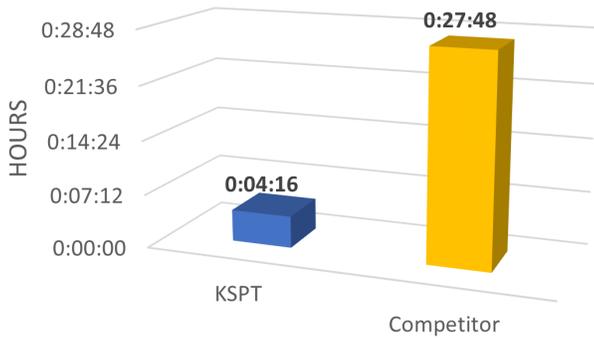
The existing application utilized a 1/4" 4-Flute endmill to finish the pocket of an Inconel aerospace engine component. The new strategy utilized chip thinning and a specialized tool path with an SGS 1/4" 6 flute end mill to drastically reduce cycle time.

	<b>KYOCERA SGS End Mill</b>	<b>Competitor End Mill</b>
<b>Cutting Diameter (DC)</b>	0.250"	0.250"
<b>RPM</b>	3818	3254
<b>SFM</b>	249.87	212.96
<b>Feed (IPM)</b>	25.2	17.4
<b>IPR</b>	0.0066	0.0053
<b>RADIAL DEPTH (AE)</b>	0.0250"	0.0625"
<b>AXIAL DEPTH (AP)</b>	0.5500"	0.5500"

## Conclusion & Results

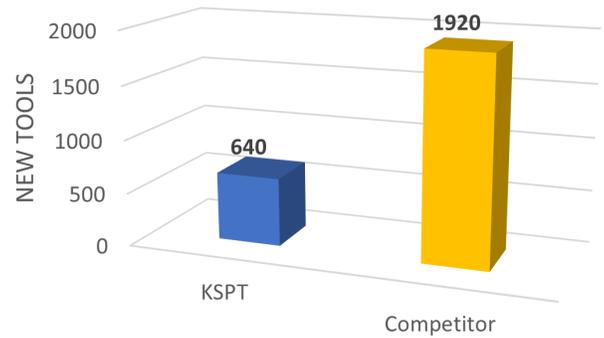
Using the SGS T-Carb Series 51 6-flute end mill with Ti-NAMITE-X (TX) coating, this end-user was able to complete the finishing operation of 3 parts using a single end mill. Before switching to the SGS tool, the customer was only able to get 1 finishing operation completed with a single end mill. Although the cost per tool was substantially higher with the SGS T-Carb end mill, cycle time was reduced by 23m 32s per part and the number of tools used annually decreased from 1920 to 640. These changes resulted in a 73% reduction in total costs and annual savings of over \$104,000.

### Cycle Time (HH:MM:SS)



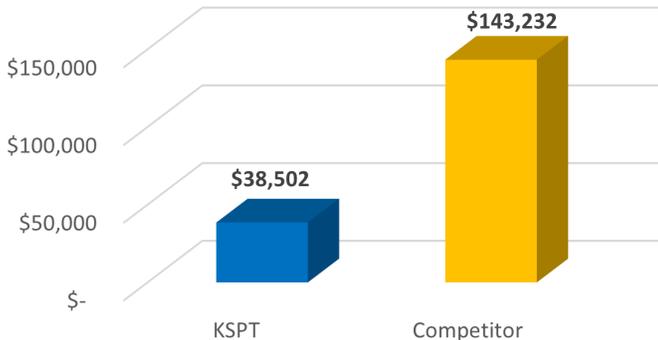
KYOCERA SGS was able to reduce the cycle time from 27m 48s to 4m 16s

### Tools Required



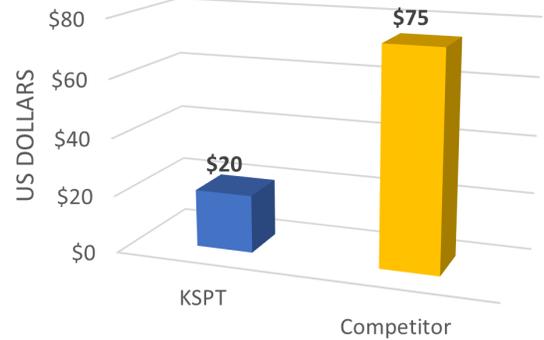
KYOCERA SGS was able to reduce the number of tools needed annually from 1920 to 640

### Total Overall Cost



KYOCERA SGS was able to reduce the total machining cost from \$143k to \$38k

### Total Cost Per Part



KYOCERA SGS was able to reduce the cost per part from \$75 to \$20



**\$104,729 Annual Cost Savings**  
**73% Improvement in Total Cost**  
**85% Decrease in Cycle Time**