



Real-Life Stories

Case Study: Z-Carb-HPR End Mill Helps End User Increase Tool Life by 150%

Brought To You by KYOCERA SGS Precision Tools | Apr 03, 2023

Goals

This firearms end-user needed to produce 135,000 total parts annually. With a total annual job cost exceeding \$250,000, their goal was to reduce overall total job cost to under \$100,000. To achieve this goal, KYOCERA SGS application engineers looked for ways to increase tool life, thus decreasing cost per part.

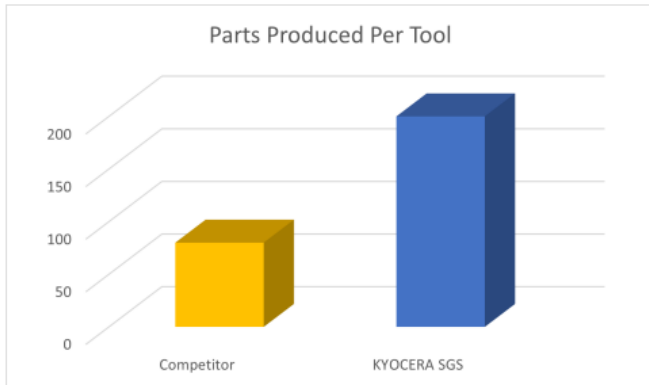
Strategy

The existing application utilized a 6-flute solid, high-feed end mill, taking 6 passes at 0.014" axial DOC. The new strategy utilized a 5-Flute Z-Carb HPR, taking a single pass at 0.06" axial DOC.

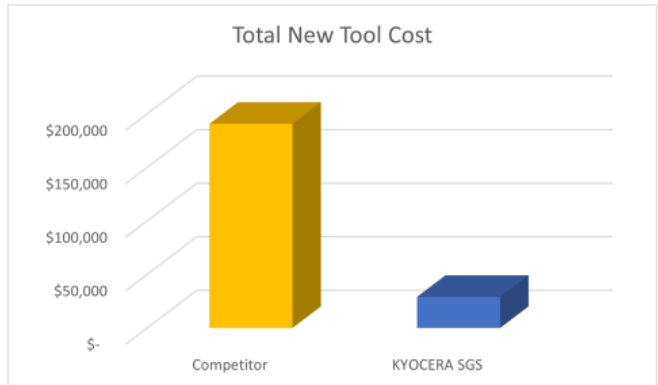
| | KYOCERA SGS End Mill | Competitor End Mill |
|------------------------------|-----------------------------|----------------------------|
| Cutting Diameter (DC) | 0.375" | 0.375" |
| RPM | 6101 | 7517 |
| SFM | 599.42 | 738.55 |
| Feed (IPM) | 79.3 | 338.3 |
| IPR | 0.013 | 0.045 |
| RADIAL DEPTH (AE) | 0.2500" | 0.2500" |
| AXIAL DEPTH (AP) | 0.0600" | 0.0140" |

Conclusion & Results

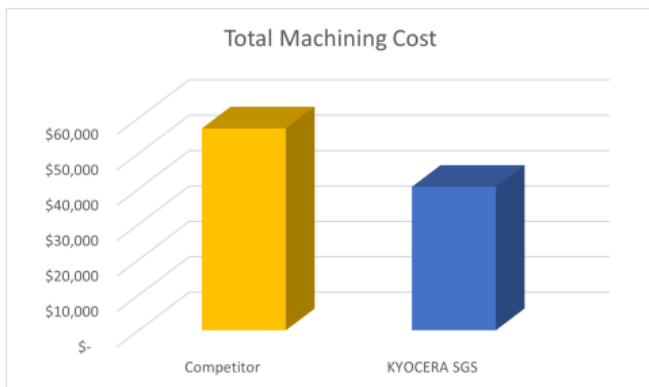
Using the SGS Z-Carb HPR end mill, the customer was able to increase the axial DOC per pass from 0.014" to 0.06", thus reducing the number of passes from 6 to 1. Cost per tool decreased from \$113 to \$43 and tool life increased from 80 to 200 parts. The number of tools required annually to produce the 135,000 parts decreased from 1688 to 675. The combination of these changes resulted in decreases in total machining cost, new tool cost, and tool change cost, resulting in annual savings of over \$184,000.



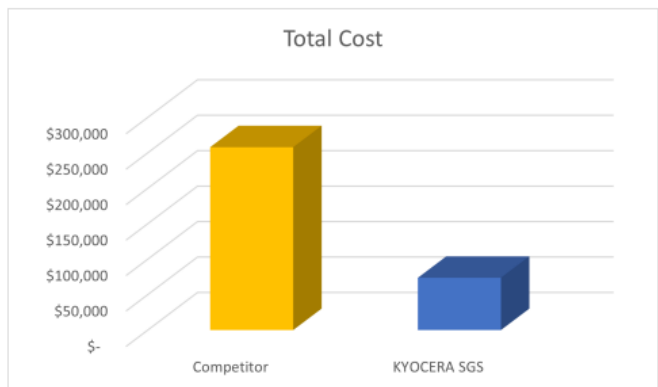
KYOCERA SGS was able to increase the parts per tool from 80 to 200.



KYOCERA SGS was able to reduce the annual tool cost from \$190k to \$29k



KYOCERA SGS was able to reduce the annual total machining cost from \$57k to \$40.5k



KYOCERA SGS was able to reduce the annual total machining cost from \$257.8kk to \$73.7k

Download a PDF of the complete case study here where you can scan a QR code to see the Z Carb-HPR in action.

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