A BRAND AE-TL-N

SNAPSHOT

BACKGROUND
A job shop utilizing a traditional milling method with an indexable milling tool for an aluminum part was interested in decreasing cycle time on a job.

GOALS
Our objective was to optimize solid milling parameters by utilizing a tool capable of high efficiency milling to reduce cycle time over current method.

DETAILS

INDUSTRY
Food Processing

PART
Chamber for Motor

MATERIAL
6061 Aluminum

MACHINE
Doosan | Flood Coolant

SPINDLE
CT50

ORIGINAL TOOLING
Competitor Solid Carbide End Mill
1.5” | 4 Flute | Uncoated

NEW TOOLING
A Brand AE-TL-N
1” | 3 Flute | DLC

OVER $18,000 ANNUAL SAVINGS!

THE STRATEGY
Our recommendation for this application was the AE-N series end mills. The current traditional processing method produced long cycle times. With the AE-TL-N tool coupled with a high efficiency milling method, the customer would be able to reduce cycle time immensely.

<table>
<thead>
<tr>
<th></th>
<th>Original Process</th>
<th>NEW Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool Diameter (Inch)</td>
<td>1.5”</td>
<td>1”</td>
</tr>
<tr>
<td>Cutting Speed (RPM • SFM)</td>
<td>6,000 • 2,358</td>
<td>5,130 • 1,344</td>
</tr>
<tr>
<td>Feed (IPM • IPT)</td>
<td>120 • 0.005</td>
<td>231 • 0.015</td>
</tr>
<tr>
<td>Depth of Cut (Aa • Ar)</td>
<td>0.375” • 0.3”</td>
<td>2.5” • 0.14”</td>
</tr>
<tr>
<td>Metal Removal Rate</td>
<td>13.50 in³ min</td>
<td>80.80 in³ min</td>
</tr>
<tr>
<td>Cycle Time (Minutes)</td>
<td>1,925</td>
<td>667</td>
</tr>
<tr>
<td>Tool Life (# of Parts)</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

SNAPSHOT

OVER $18,000 ANNUAL SAVINGS!

Total Cycle Time Comparison (Minutes)
THE RESULTS

With the AE-TL-N End Mill, they were able to increase their depth of cut from 0.375 inches to 2.50 inches, while reducing the width of cut from 0.300 inches to 0.140 inches. This allowed them to increase their federate and reduce cycle times, giving them an overall productivity increase of 190%. Overall, they saw a 6x increase on their material removal rate.

<table>
<thead>
<tr>
<th>Results Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle Time Saved Per Part (Minutes)</td>
</tr>
<tr>
<td>Number of Parts Per Year</td>
</tr>
<tr>
<td>Annual Cycle Time Saved (Minutes)</td>
</tr>
<tr>
<td>Annual Machine Cost Savings</td>
</tr>
<tr>
<td>Tool Life Improvement (Parts)</td>
</tr>
<tr>
<td>Annual Tool Change Cost Savings</td>
</tr>
<tr>
<td>Total Machining Cost Saved Annually</td>
</tr>
</tbody>
</table>

THE CONCLUSION

With their new increase in productivity and higher material removal rate, this amounted to a total annual cost savings of over $18,000. These savings were able to shed light on other areas more suitable for high efficiency machining.

OVER $18,000 ANNUAL SAVINGS!

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osgtool.com/a-brand-ae-n

Total Cost Comparison ($)

<table>
<thead>
<tr>
<th>Old Process</th>
<th>$31,084</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW Process</td>
<td>$12,473</td>
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</tbody>
</table>

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