CUTTING EDGE CASE STUDIES

DRILLING
WORK HOLDING
STEEL

A BRAND ADO (8D)

SNAPSHOT

BACKGROUND
An OSG customer was having issues with drill breakage and unstable tool life while drilling interrupted holes.

GOALS
The main goal was to eliminate drill breakage and provide the customer with a stable and repeatable drilling process with improved cycle times.

DETAILS

INDUSTRY
Workholding

PART
Index Spacer

MATERIAL
Steel 30HRC

MACHINE
Vertical / Coolant-Through

SPINDLE
CT40

ORIGINAL TOOLING
Competitor HSS Drill
0.344" | 2 Flutes | Steam Oxide

NEW TOOLING
A Brand ADO 8D
0.344" | 2 Flute | EgiAs

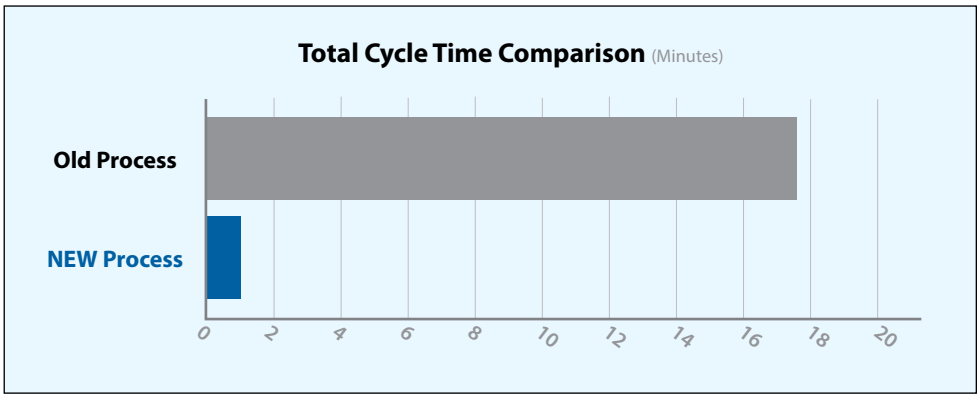
OVER $47,000 IN ANNUAL SAVINGS!

THE STRATEGY

OSG recommended the ADO-8D carbide drill. The ADO-8D's tool design is the perfect drill for interrupted hole drill. The base design has a large core diameter providing the drill with extra stablity for these machining circumstances. Addtionally the tool comes standard with middle margin design which helps to improve stability during interrupted cutting. This allowed the drill margins to engage more quickly and reduce the amount of deflection compared to the competitor's drill.

The ADO's sharp wavy cutting edge also helps reduce cutting force, resulting in low thrust and stable torque that allowed for an increase in cutting parameters which equated to a significant reduction in cycle time.

	Original Process	NEW Process
Tool Diameter (Inch)	.344"	.344"
Cutting Speed (RPM • SFM)	665 • 60	4,164 • 375
Feed (IPM)	2.66	42
Hole Depth (In)	2.625"	0.5"
Metal Removal Rate	0.25 in^3 min	3.87 in^3 min
Cycle Time (Minutes)	17.7632	0.2161
Tool Life (# of Holes)	648	1,944



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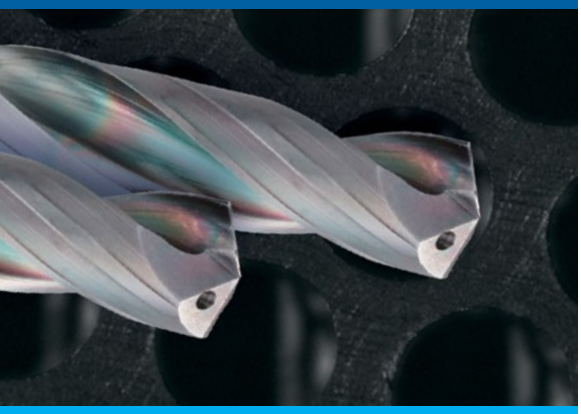

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THE RESULTS

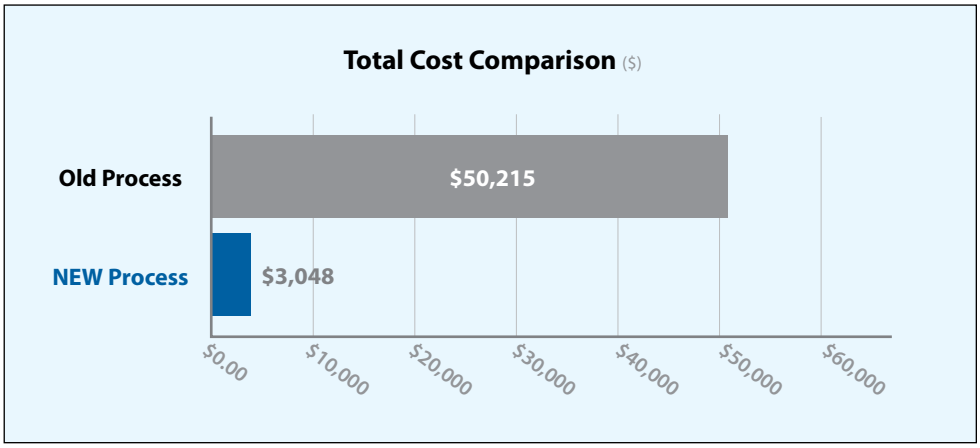
- Increased SFM from ***60 SFM to 375 SFM.***
- Increased feed rate from ***2.7 in/min to 41.62 in/min.***
- Increased tool life from ***36 parts to 108 parts.***

Cycle time improvement of 8,114.5%. Saving a total of 379 hours of machine time per year! ***A total savings of $47,166.27.***

Results Overview	
Cycle Time Saved Per Part (Minutes)	**17.55**
Number of Parts Per Year	**1,296**
Annual Cycle Time Saved (Minutes)	**22,741**
Annual Machine Cost Savings	**$47,377**
Tool Life Productivity Improvement (%)	**200%**
Annual Tool Change Cost Savings	**$500.00**
Total Machining Cost Saved Annually	**$47,167**

THE CONCLUSION

By reducing the amount of deflection the original HSS drills were experiencing, the ADO-8D eliminated the issue the customer was experiencing with breakage and unstable tool life. OSG also eliminated the need to add a peck cycle to the process. This greatly reduced cycle times and allowed for more stable drilling performance and better repeatability in the drilling process.



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