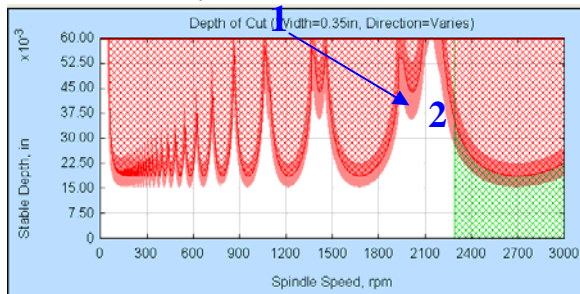


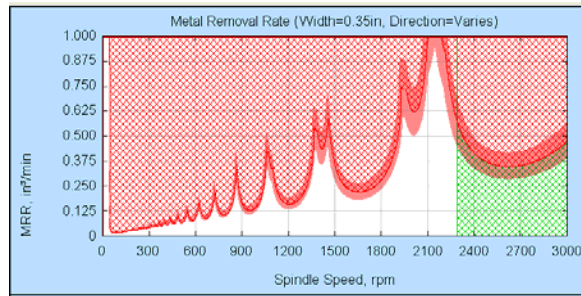
## Case Study: Small die shop, cast iron

ROI ~ 42 days

### Depth of Cut vs. RPM



### Metal Removal Rate vs. RPM



Spindle: Cat 50  
Max RPM: 10000 rpm  
Material: Cast iron  
Max SFM: 900 (~2290 rpm)

Tool Diameter: 1.5"  
Tooth count: 4  
Tool Material: Carbide Inserts

Initial Problem: Roughing pass had excessive chatter - operator couldn't stand near machine, frequent chipped inserts

Initial Process (1): 1146 rpm, 23"/min, 0.35" RDOC, 0.125" ADOC, 0.005"/tooth, **EXCESSIVE CHATTER**

New Process (2): 2120 rpm, 84"/min, 0.35" RDOC, 0.040" ADOC, 0.010"/tooth, no chatter

Throughput Improvement = 17%

Quality Improvement = No chatter with new consistent setup, rpm, and ADOC

Time Savings = 1 hour/week

Cost Savings = \$175/week = (\$100 inserts + 1 hour/week \* \$75/hour machine time)  
{ ~\$8750 savings/year }

Other Savings = Reduction in spindle wear and tear, and employee hearing!!!



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