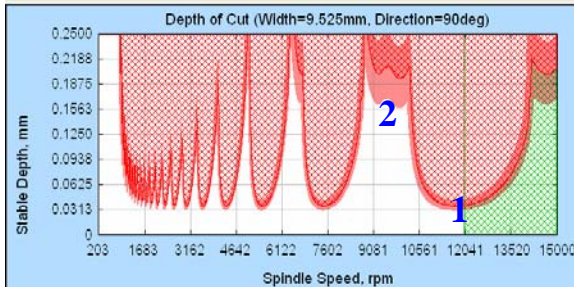


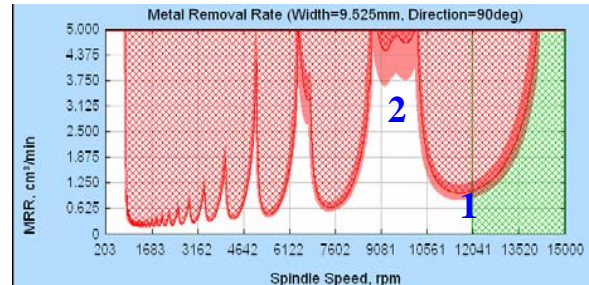
## Case Study: Small job shop, Aluminum, MAX RPM MAX PRODUCTION???

ROI ~ 37 days

Depth of Cut vs. RPM



Metal Removal Rate vs. RPM



Spindle: Cat 40  
 Max RPM: 12000 rpm  
 Material: 7075 AL  
 Max SMM: unlimited

Tool Diameter: 3/8"  
 Tooth count: 2  
 Tool Material: Carbide  
 Feed per tooth: 0.100 mm

Initial Problem: Low DOC because 11:1 L/D, but throughput is limited as current RPM is 12000

Initial Process (1): 12000 rpm, 0.03 mm Depth of Cut

New Process (2): 9500 rpm, 0.15 mm Depth of Cut

Throughput Improvement = 400% =  $(3.125 - 0.625) / 0.625$

Quality Improvement = None

Time Savings = 0.133 hours/pocket = 0.166 hours/part \*  $[400\% / (1 + 400\%)]$

Cost Savings = \$99/week = (10 parts/week \* 0.133 hours/part \* \$75/hour)

{ ~\$4980 savings/year }

Other Savings = Investment in higher speed equipment

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