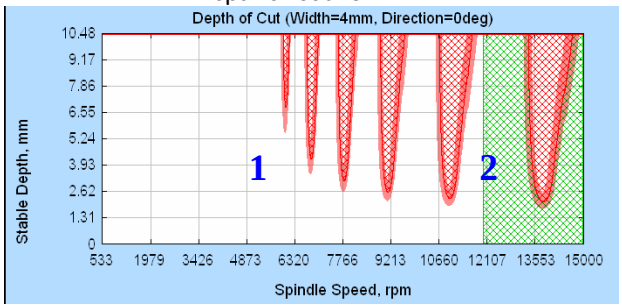
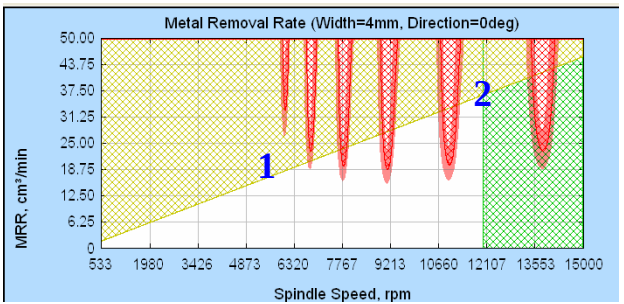
Case Study: Small prototype shop, 6061 Aluminum

ROI ~ 2 parts

Depth of Cut vs. RPM



Metal Removal Rate vs. RPM



Spindle:	HSK 100	Tool Diameter:	4 mm
Max RPM:	12000 rpm	Tooth count:	2
Material:	6061 Aluminum	Tool Material:	Carbide
Max SMM:	Unlimited	Feed per tooth:	0.1 mm

Initial Problem: Interested if throughput could be improved without affecting quality

Initial Process (1): 5200 rpm, 1040 mm/min, 3.8 mm Depth of Cut, no chatter
New Process (2): 12000 rpm, 2400 mm/min, 3.8 mm Depth of Cut, no chatter

Throughput Improvement ***= 131 %*** *= (2400-1040)/1040*
Quality Improvement *= None*
Time Savings ***= 7.94 hours/part*** *= 14 hours cutting * [131%/(1+131%)]*
Cost Savings ***= $595/part*** *= ($75/hour * 7.94 hours)*
{50 part run ~ ***$29750 savings****}*

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