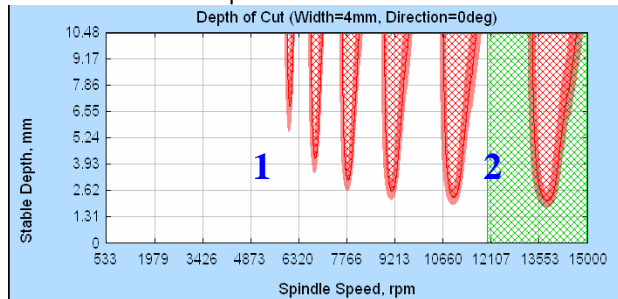


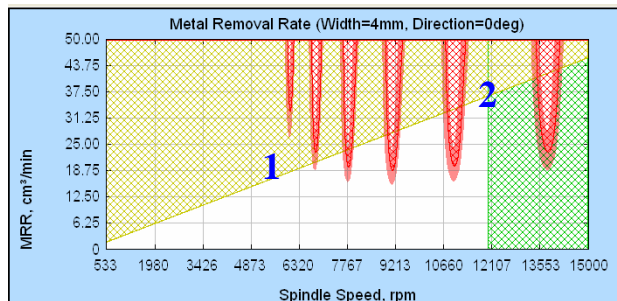
Case Study: Small prototype shop, 6061 Aluminum

ROI ~ 2 parts

Depth of Cut vs. RPM



Metal Removal Rate vs. RPM



Spindle: HSK 100
Max RPM: 12000 rpm
Material: 6061 Aluminum
Max SMM: Unlimited

Tool Diameter: 4 mm
Tooth count: 2
Tool Material: Carbide
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 = $(\$75/\text{hour} * 7.94 \text{ hours})$

{50 part run ~ \$29750 savings}



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