

Engineering Case Study Briefings - 2020

1. **Issue: Screw recovery** – inefficient setting caused excessive component wear

- **Expectations:** improve cycle time AND eliminate premature component wear
- **What we did:** upsized 100mm screw to 125mm
- **Results:** cut cycle time by 1/3 while enabling recovery at a lower RPM
- **ROI: \$150,000** annual savings - \$50/hour machine bill rate; three-shift operation

2. **Issue: Defects** – several PC jobs

- **Expectations:** reduce or eliminate defect occurrence
- **What we did:** implemented custom screw design to correctly process PC resin
- **Results:** 20% reduction in scrap rate and 25% increase in output
- **ROI: \$250,000** annual savings - \$250/hour machine bill rate; two-shift operation

3. **Issue: Loss of cycle time and inconsistent feeding** – premature screw wear

- **Expectations:** eliminate recovery anomalies to increase throughput
- **What we did:** custom formulation to withstand corrosion; improved feeding on 25mm screw
- **Results:** 20% reduction in scrap rate and 25% increase in output
- **ROI: \$60,000** annual savings - \$50/hour machine bill rate; three-shift operation

4. **Issue: Excessive splay** – PC blend job; rework required an additional operator

- **Expectations:** eliminate extra operator through reduced defects
- **What we did:** implemented low inventory screw design [downsizing not appropriate]
- **Results:** reduced residence time which eliminated defects and the need for extra operator
- **ROI: \$80,000** annual savings - burdened labor cost

5. **Issue: Unwanted black specks** – color ABS part

- **Expectations:** eliminate or significantly reduce defect due to black specks
- **What we did:** downsized 115mm screw to 80mm; residence time reduced from 11 to 4 minutes
- **Results:** speck issue eliminated; scrap rate reduced by 10%
- **ROI: \$35,200** annual savings - \$80/hour machine bill rate; two-shift operation

Significant
and
Measurable
Results