

Blade Sharpening Jig Case Study

ReThink Manufacturing · Evidence-led manufacturing improvement

- Summary:** While I was working on a contract in a textile company, I was asked to investigate a bottleneck on a cutting line just over 12 months old. The cutting blade kept jamming, which caused the motor shaft to shear into pieces. A new motor was installed, then the bearing on the cutting shaft failed. Each time a new blade was installed, the problem repeated. The line was a significant bottleneck.
- Problem:** The blade was struggling to cut the material, causing excessive stress on the motor and shaft.
- Approach:** I designed a jig for the grinder that allowed me to change the pitch of the blade and sharpen it. I used the old sheared shaft that had been replaced and modified it to fit on the grinder — turning scrap into a precision tool. I then iterated through two more versions of the jig, improving it each time (three versions total).
- Outcome:** Overall downtime reduced by 50% initially, improved to 80–85%. Cutting-related downtime reduced by approximately 90% (blades still blunt naturally but can now be sharpened rather than replaced). The line ran noticeably quieter — operator remarked on this. Less stress on motor and shaft. Old blades previously discarded could now be salvaged and reused — ongoing cost saving.