



Company Endomag
Student/Degree: Elizabeth Yallop
Manager: Kevin Lorimer
Project Title: Magseed2 Performance Review

Project summary

My placement was in R&D, working on the next generation of implantable medical device (the Magseed marker). The Magseed product is used to mark breast cancer tumours for guide excision during surgery. Last year approximately 50,000 devices were purchased worldwide, and the new generation is expected to be on the market for at least the next ten years.

At the start of my biggest project, I used a 3D printer to iteratively design and prototype test fixtures. I then refined tests using these fixtures to review the performance of several batches of markers, and used the data to demonstrate the possibility of a design change. The main challenge was the need for tight tolerances, which demanded precisions of 0.05mm – barely more than the finest setting of the 3D printer.

Project Results

Before the review, 50% of the markers produced were being wasted due to not meeting the tight physical tolerances. Through testing and investigation, I demonstrated that the markers outside of the tolerance met the performance requirements, allowing the physical tolerances to be opened via a formal design change process.

The impact of this was a reduction in rejected (waste) devices from about 50% to <1%, effectively halving the production cost of the marker. The data also key in demonstrating that the existing manufacturing process is capable of producing markers with an excellent yield, thus eliminating the need for further refinement of the process.

What have you gained from your placement?

Before my placement, I didn't have a strong sense of which engineering areas I was interested in. After working in the mechanical engineering team, I gained a strong enthusiasm for mechanical engineering and view it as a core part of my degree course. I've also been able to talk to people in many different roles across the company and improve my understanding of how the company works and the different career options available.

Company Manager's Comment

Starting her placement during the pandemic could have been challenging but Elizabeth has settled easily into her role. In her role Elizabeth is carrying out work on the next generation of Endomag's surgical guidance and implantable products. Our industry is highly regulated, and the accuracy of the work is of critical importance to the safety and efficacy of our products. Elizabeth's work has been performed to the standard required to meet these needs.