

Finding the right parts

By Simon Dawson, managing director, Dawson Precision Components

The medical industry expects its components to be very high precision, made on time and to specification. The temptation is to reduce costs to compete with ever cheaper competition from abroad, but these strict standards can't be met by cutting back on staff and equipment.

Despite the tough climate, we have found that there are still plenty of medical manufacturers who are willing to pay for quality products and quick turnarounds. Ensuring we are able to meet these ever increasing expectations has required continued investment in new technology and staff, but it has paid off in new business wins.

In the last few years we have invested in a range of technology, for example the Citizen range of multi-axis sliding head lathes. The Citizen L20 is used for parts from 1mm-20mm and its 16 rotary tools allow for parts to be created to complex specifications in a single run. It has allowed us to quickly create large batches of parts such as bone screws which require complex and accurate turning and milling of a small bar. It offers short cycle times and, once programmed can be left overnight to complete a batch of parts, allowing for quick turnaround times without risk of inaccuracies.

The Citizen machines are versatile and ideal for a range of components in small or large batches, but where real precision is needed, machines such as the Hardinge Conquest GT are required. Parts often need to be manufactured individually, but with a trained operator it can produce parts with features down to 5 microns (0.005mm).

The Conquest GT has been used to produce cone assemblies for mass spectrometers, used for determining the chemical structures of molecules. Samples passing through the cones need to be very closely regulated to ensure accurate analysis. Such parts must therefore be manufactured to very high precision, including a perfectly circular hole drilled into the top, less than 0.2mm wide.

All such advanced machinery, from production to inspection, requires a great deal of skill to set up, program and operate. Ensuring our engineers have across the board competence by continuing training has paid dividends, both in terms of customer confidence and in our ability to carry out larger workloads, because everyone can do everything, so we don't have to wait for our one expert to finish one job before starting the next.

This has been achieved through a mixture of in-house and external training. Where possible we have put people through courses which lead to independent certifications, such as the National Physical Laboratory's dimensional measurement course and the Business Improvement Techniques NVQ, all of which give customers an added level of confidence, and increase staff motivation as well as ability.

Underpinning all this is traceability. Manufacturers ordering parts which may be used in life saving equipment need to be assured of traceability throughout the production process, from material to finishing. This needs to be guaranteed through certificates of conformity, material test certification, records of every run, and, where absolute precision and consistency is critical, bespoke inspection reports.

Our approach of high quality, trained staff, and traceability throughout has allowed us to carry out many successful contracts for the medical industry. One such recent example is Surgical Innovations (SI), a manufacturer of innovative devices for minimally invasive surgery.

SI approached DPC earlier this year, when it needed a batch of extremely precise parts produced at very short notice. The first order was for 200 parts, some as small as 0.8mm in diameter, which went outside SI's own extensive manufacturing expertise. The order came in on a Friday with a request that they be completed by the following Monday.

DPC utilised its built in machine capacity on the Citizen multi-axis turning centres, working through the weekend to complete the order. Our ability to respond so quickly lead to further orders, taking the total to 3000 screws, 10,000 pins and 10,000 rivets over the following few weeks.

All this was possible because we have spent the time and money ensuring we have the right expertise, equipment and material that medical manufacturers need.

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