



NHS BORDERS LASER MARKING CASE STUDY



AT A GLANCE

Challenges

- Meet GS1-compliant 2D barcode marking requirements
- Achieve single instrument traceability across a large multi-site operation
- Process large quantities of instruments efficiently
- Label-based system has proven unreliable

Benefits

- Permanent, indelible instrument traceability
- Detection of instrument migration between sets
- Faster and simpler process than labels
- On-site implementation and operator training
- Suitable for reusable hollowware (kidney dishes, gallipots) as well as instruments



"...As soon as I saw the system, I knew this system will make life much easier."

CDU Manager, NHS Borders

BENEFITS

Each surgical instrument is permanently laser-marked with a high-precision barcode, enabling full lifecycle tracking. After 2–3 years of operation, no degradation or pitting has been observed, confirming the process preserves the metal's passive layer. The system has given NHS Borders visibility into instrument migration between sets - previously undetectable with labels. Alphanumeric codes tie each instrument to its specific tray, allowing the CDU to quickly identify and correct any mixing, a critical benefit for patient safety and CJD protocol compliance.

Laser marking has also been extended to reusable hollowware, including kidney dishes and galla pots, reducing set mix-ups and supporting NHS Borders' sustainability goals by replacing single-use plastics. Marks survive the instrument repair and refurbishment process, maintaining traceability even when instruments are sent off-site.

OBJECTIVES

NHS Borders Central Decontamination Unit (CDU) is the main processing site for surgical instruments across NHS Borders, servicing 6 surgical theatres alongside every department that uses sterile reusable instruments, including Labour Ward and Outpatient Departments.

The CDU also provides decontamination services to approximately 30 Health Centres, Medical Practices, and Cottage Hospitals across the Borders region, as well as the Royal College of Surgeons.

Processing between 8,000 and 9,000 packs, sets, and trays per month — equating to 55,000–60,000 individual instruments — the CDU is required to comply with ISO 13485:2016, which mandates a programme of continual improvement. As part of this commitment, NHS Borders was working towards single instrument traceability, requiring GS1-compliant 2D barcodes to be applied to each instrument.

SOLUTIONS

Sciamed Ltd met with the decontamination team at NHS Borders to understand the challenge and identify a solution that met both the timescale and budget requirements. The ability to mark each instrument with a GS1-compliant barcode would allow the management system to track each instrument through the washing, disinfection, packing, and sterilisation processes, as well as identifying the instrument via a GS1 GTIN barcode unique to NHS Borders.

Sciamed proposed the Datalogic Ulyxe Laser Marking System with a safety enclosure and workstation, using Datalogic's "Lighter" software package for design and control of the laser marking system. An on-site demonstration was carried out, and a proposal was submitted that offered significant cost benefits over the existing label-based identification system — which required periodic replacement and was prone to failure.