



KODA: Advancing Laboratory Sample Management Through 2D Data-Matrix Readers

In modern scientific environments, the reliability of sample identification underpins the integrity of research, diagnostics and patient care. As laboratories continue to expand in scale and complexity, the demand for robust, accurate and scalable tracking systems has intensified. 2D Data-Matrix technology has emerged as a powerful solution, offering durable marking and seamless integration with digital workflows. Among the organisations driving this transformation is Steribar, a specialist manufacturer whose roots lie in both healthcare and industrial traceability. Through continuous innovation and a focus on practical solutions, Steribar has helped laboratories move confidently toward secure, data-driven operations.

2D Data-Matrix Specialists

Founded in 2003, Steribar emerged at the intersection of clinical practice and industrial tracking, with a clear purpose to develop robust solutions for environments where safety, accuracy and traceability are critical. By combining extensive knowledge from healthcare with proven technical expertise, the company initially set out to address the urgent need to track surgical instruments. Recognising the potential of developing barcode technology, Steribar adopted the 2D Data-Matrix standard for its compact footprint, exceptional data density and durability in demanding clinical settings. Dedicated scanners were engineered to decode these small, often low-contrast markings with consistent precision. This commitment to practical, high-performance systems ultimately expanded beyond surgical environments, shaping the advanced laboratory solutions that KODA provides today.



Story of Steribar

Steribar's origins can be traced to the late 1990s, when growing concerns around patient safety and infection control were driving profound changes in how medical equipment was managed. At the centre of this story is Director Liz Clynes, who began her professional career as a laboratory technician in the chemical industry before moving into clinical and later senior management

roles within the UK National Health Service. Her hands-on experience in laboratories and clinical environments gave her a deep appreciation of the practical challenges faced by frontline staff. This background would later prove influential in shaping Steribar's pragmatic and user-focused approach to technology.

During this period, the healthcare sector was grappling with the implications of Bovine Spongiform Encephalopathy (BSE) and Creutzfeldt-Jakob Disease (CJD). These fatal, neurodegenerative conditions are caused by prions that accumulate in the brain and induce abnormal folding of healthy proteins. Unlike bacteria or viruses, prions are exceptionally resistant to conventional sterilisation methods, including high temperatures, radiation and chemical disinfectants. This resilience raised serious concerns around surgical instruments potentially acting as vectors for disease transmission. As a result, a robust tracking system became essential to upholding patient safety and public health.

Whilst Liz was confronting these challenges within her clinical practice, a parallel strand of expertise had been developing close to home. Liz's husband, Mike Clynes, worked closely with Richard Byng to engineer bespoke traceability solutions for demanding industrial settings. Their work encompassed temperature monitoring on poultry farms, asset logging at the Sellafield nuclear facility and VIN tracking for Triumph Motorcycles. These applications required accurate reading of small, low-contrast and often imperfectly marked identifiers. Through this experience, they developed some of the earliest affordable 2D Data-Matrix readers capable of decoding "difficult" marks on metal surfaces.

In a coincidence that so often underpins meaningful innovation, these principles proved directly transferable to healthcare. 2D Data-Matrix codes appeared as the most robust and information-dense marking method suitable for surgical instruments with a limited surface area. Their compact footprint allowed unique identifiers to be permanently etched onto tools without compromising structural integrity or usability. By addressing this challenge, Steribar developed expertise in building readers for difficult-to-read codes. This capability soon attracted interest beyond healthcare, particularly from manufacturers of coded laboratory tubes and racks.

Today, Steribar is recognised as a world-leading designer and manufacturer of high-performance 2D Data-Matrix readers for smarter laboratory sample management. Although the company has long been something of an "industry secret" through OEM partnerships, its technology has been embedded in large laboratories and automated systems for decades. With the launch of the KODA range, Steribar is now bringing its specialist support directly to laboratories of all sizes.

Laboratory Sample Management

Modern laboratories are handling increasing volumes of samples, driven by advances in genomics, diagnostics,

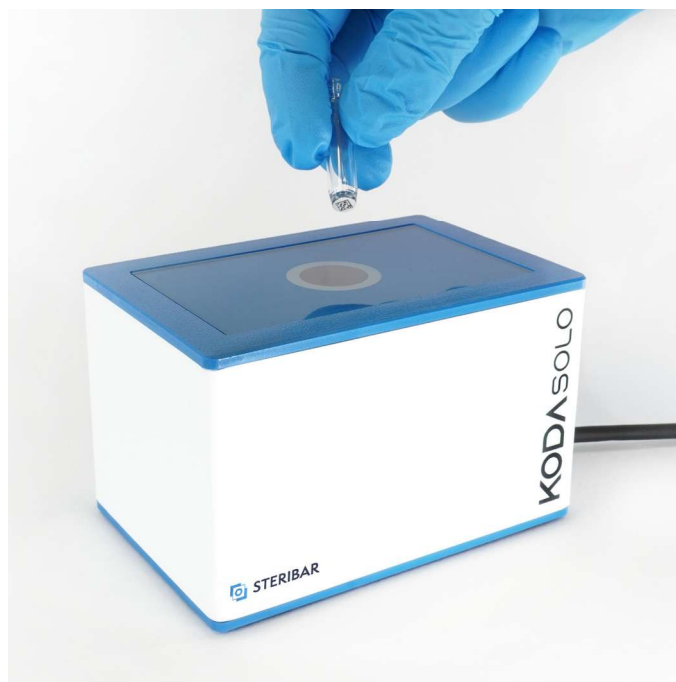


drug discovery and biobanking. Despite this growth, many laboratories still rely on paper-based processes or manual data entry to track samples. These approaches are inherently vulnerable to transcription errors, misplaced records and incomplete audit trails. Even small mistakes can have significant consequences, ranging from wasted time and resources to compromised data integrity. In regulated environments, such weaknesses may also jeopardise compliance with international standards and accreditation requirements.

2D Data-Matrix barcoding offers a powerful solution to these challenges by linking each physical sample directly to its digital record. A single scan can instantly capture a unique identifier and populate a spreadsheet, database or Laboratory Information Management System (LIMS) with accurate information. Unlike handwritten labels, Data-Matrix codes remain readable even when very small, partially damaged or exposed to harsh laboratory conditions. This makes them particularly well-suited to tubes, vials and cryogenic storage formats where space is limited and durability is essential. By replacing manual transcription with automated capture, laboratories dramatically reduce the scope for human error.

In high-throughput laboratories, hundreds of samples may be received, processed and stored every day. Manually labelling and tracking these samples is not only inefficient but also impractical at scale. Barcoded tubes and racks allow samples to be identified, located and retrieved quickly and unambiguously at any point in their lifecycle. This end-to-end traceability also reduces the risk of sample mix-ups and cross-contamination, which is critical in clinical and research settings.

Barcode systems also support seamless coordination among laboratory teams and collaborators. Samples are often shared across multiple experiments, departments or even organisations, each with differing users and workflows. With a consistent barcode-based system, any authorised user can immediately identify a sample, check its status and update its record after use. This clarity reduces disruption, avoids



duplication of effort and supports a more structured and transparent workflow. Ultimately, 2D Data Matrix readers enable laboratories to move away from fragmented, paper-heavy processes toward integrated, digital-first operations.

The KODA Readers

Building on decades of expertise in unlocking codes, Steribar developed the KODA range to address the diverse needs of modern laboratories. Each reader is engineered to solve specific workflow challenges while sharing a common emphasis on reliability, ease of use and seamless integration.

- KODA Sense serves as the flagship rack reader for routine laboratory use. Designed for SBS-format racks, it features automatic rack detection, triggering immediate scanning upon placement. Orientation correction algorithms ensure accurate decoding even when racks are inverted. Capable of scanning an entire rack in under one second, KODA Sense supports high-throughput laboratories, research institutes and biobanks where speed and reliability are essential.
- KODA Cryo addresses the unique challenges of frozen sample workflows. Conventional scanners often incorporate protective glass windows that become obscured by frost and condensation when exposed to temperature differentials. KODA Cryo employs an open, glass-free design that eliminates these issues, allowing racks and cryoboxes to be scanned directly from freezers. By removing the need for thawing prior to identification, this approach preserves sample integrity, reduces handling time and maintains cold-chain continuity.
- KODA Slim is optimised for automation and space-constrained environments. With an SBS-compatible footprint, it integrates seamlessly into robotic systems and automated liquid-handling platforms. Its design permits racks to be scanned slightly above the reader surface, facilitating efficient robotic arm operation. Compatibility across multiple rack formats ensures flexibility.
- KODA Solo provides a compact, plug-and-play solution for single-tube scanning. Supporting 2D Data-Matrix, 1D barcodes and QR codes, it offers visual and audible confirmation of successful scans. Affordability and simplicity make it particularly suitable for bench-top workflows, academic laboratories and smaller facilities seeking to transition from manual to digital identification.

The KODA readers are compatible with all tube manufacturers and integrate with any known Laboratory Information Management System (LIMS) platforms. KODA Capture software provides live scan feedback and multiple viewing modes for verification. Devices can be moved between workstations with minimal configuration, supporting flexible layouts. By combining decoding performance with usability, the KODA range translates technical expertise into accessible, laboratory-ready solutions.

Innovation & Customer Support

Innovation at Steribar is driven by close collaboration with customers and partners. All KODA products are designed, built and tested at the company's UK facility, granting the team



complete control over quality and performance. Hardware and software development are carried out in-house, enabling rapid iteration and continuous improvement. Feedback from real-world laboratory use is actively encouraged and carefully evaluated. When a suggested change genuinely improves usability or performance, it is often adopted as part of the

standard product evolution.

Customer support is viewed as an extension of the product rather than an afterthought. From initial consultation through installation and ongoing use, Steribar works closely with laboratories to ensure readers are configured correctly and integrated smoothly. Licence-free software allows devices to be moved easily between computers, reducing administrative overhead. Clear documentation, intuitive interfaces and minimal training requirements further lower barriers to adoption.

Ultimately, Steribar's journey from surgical instrument tracking to advanced laboratory sample management reflects a consistent focus on safety, traceability and usability. The same principles that once helped address concerns around BSE and CJD now underpin solutions for modern, data-driven laboratories. Through the KODA range, Steribar aims to make high-quality 2D Data-Matrix reading accessible to organisations of all sizes. By combining technical expertise with genuine customer engagement, the company continues to support laboratories in building safer, more efficient and more resilient workflows.



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