

20 years of success

Scanlab is celebrating 20 years of providing scanning technology for use in laser systems, as **Warren Clark** discovers

In a world where diversification is a buzz phrase, it is refreshing to find a company that is prepared to find its niche and become the very best at supplying the technology within that market. Scanlab, which is celebrating its 20th anniversary this year, has been ploughing its own furrow in scan head technology over two decades. Such dedication and devotion means it is now a leader in its field.

Scanlab was founded in 1990 by Dr Langer, who was a major player in the European rapid prototyping field, a technology that used lasers to make – at the time – prototype parts for a whole range of manufacturing. A key element of the laser system (alongside the laser source) used in these prototyping machines is the galvanometer scanner and associated scanning solutions.

Essentially, scanning technology uses moving mirrors and optical elements to position laser beams accurately and quickly in three dimensions. This is vital in rapid prototyping applications; 20 years later, it's worth noting that the technology and materials used in rapid prototyping have evolved to such an extent that the resulting products are of a high enough quality to be the finished item, rather than merely a prototype. This has seen the evolution of the term 'e-manufacturing'.



Developing scanning technology... Georg Hofner



Scanlab's range of scanning technology

Dr Langer saw that the field was opening up, and recognised an opportunity to start up a company that focused on scanning technology. The company continues to retain that focus today, and Langer still serves on the supervisory board.

Georg Hofner is the current chief executive officer. He joined the company as part of the sales team in 1995, before moving to CEO in 2001. 'From the outset, Scanlab has developed scanning heads dedicated to particular markets,' he says. 'In the first instance, it was for rapid prototyping, because that is where Dr Langer's expertise was, but another early market was for laser marking systems. Since that time, we have adapted this technology to serve a wide variety of applications in markets all over the world.'

Scanlab's products can be found in many of the products manufactured by major laser systems suppliers. 'It's much like a gearbox in a car,' says Hofner. 'You don't necessarily know who made the gearbox, but it will most likely have been made by a company that specialises in making gearboxes. That's how we see ourselves – specialising in a particular subsystem of a laser system so that others can achieve the results they need. Very often, we develop the scanning technology with the customer so that our component suits the way they want their laser system to operate. We have a standard set of specifications, and we'll work with the customer to see how much we can do for them with our standard components. We'll discuss the levels of customisation required, and

potentially develop a new product, more or less, which we'll produce either on an exclusive or non-exclusive basis.'

The company's customers cover a broad range in terms of size and volume. 'Our customer base is reasonably evenly split into three,' says Hofner. 'We have high-volume customers, who will use our scanners in a product that is replicated hundreds of times; mid-volume customers, who are delivering short-run products to niche markets; and then custom-specific clients, where we'll make just one unit for a unique application.'

As with laser technology in general, the driving factors behind the development of Scanlab's products over the past two decades have been speed, precision and power. 'Speed has increased by a factor of five,' says Hofner. 'In 1995, the average speed was around 200 characters per second [an industry-wide accepted measurement, relating to the number of 1mm-high single-line stroke characters that a laser system could mark in a second]. Now, that's in excess of 1,000 characters per second.'

'Accuracy has improved by a factor of two or three, depending on the application, thanks to a range of technology advances, including the advent of digital encoders a while ago, while power has increased from an average of around 100W to multi kW. As lasers have become more powerful, so scanners have had to evolve to cope with the demands placed on them.'

In any industry, companies can expect a level

of churn on their customer base. Not so with Scanlab, which has retained its early customers, while adding new ones as their products are developed for certain niche areas. 'It is a general goal of the company to have long-lasting, stable relationships with our customers,' says Hofner. 'In terms of application areas, we have grown beyond rapid prototyping and laser marking to other markets, such as medical (including ophthalmology and dermatology), semiconductors and electronics, photovoltaics, flat screen production and many more.' Indeed, customer retention coupled with market expansion has helped the company grow to a turnover of €35m and a total staff of 110.

Scanlab's expertise extends beyond the scan heads themselves to the associated PC interface and control software. 'A basic task of this interface board is to synchronise the movement of the scanning system and the laser,' says Hofner. 'So, our competence in this board and software is an essential part of the overall solution we present to the customer.'

Hofner believes the success of the company is down to its focus. 'We do scanning solutions, and the electronics and software controls that support

them – and nothing else. We work solely on our field of laser deflection with great intensity and at great depth.'

While there is a US-based sales office in Chicago and an engineering group in Boston, the majority of employees are based at Scanlab's head office in Puchheim, near Munich, Germany. 'Although we have customers around the world, we keep our sales team here at our headquarters,'

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says Hofner. 'We have native speakers from all the major territories, but basing them here means they remain close to our R&D and logistics departments, which actually enables them to keep up to date with what we can achieve as a company, and feed back to the customer information that comes directly from the R&D teams. Our business is not selling products out of a catalogue; our R&D departments have to work closely with customers.'

In the 20 years since Scanlab began, competition has inevitably intensified. 'For sure, there are more people involved in scanning technology than there were when we first started,' says Hofner, 'but we remain one of the only specialists. Some have added it to a portfolio of technologies they offer, but we believe we are the most knowledgeable resource in our field. We have more than 30 engineers in our R&D team dedicated to scanning technology.'

'Not only do we have the technical expertise, but we are also a secure and financially stable company on which customers can rely. This helped us negotiate our way through the tough economic climate of 2009. We have a simple company structure, and we are always dedicated to our customers to help them get ahead.'

Looking to the future, Hofner says that developments in scanning technology are fuelled by new laser sources. 'The market is widening and becoming ever more complex,' he concludes. 'The laser industry as a whole will continue to gain market share in areas dominated by classic technologies, as more and more people realise the benefits of laser technology and how it can be applied to their industries.'



Since its founding in 1990, SCANLAB manufactures high-performance galvanometer scanners and galvanometer-based scanning systems for the deflection and positioning of laser beams. By precisely moving mirrors and optics, our products guide and position laser beams in up to three dimensions. SCANLAB products and services are used for laser material processing (e.g. for marking, welding, cutting, drilling, rapid manufacturing) and medical and biomedical technology (e.g. ophthalmology, dermatology, confocal microscopy). SCANLAB develops solutions optimized for each of these highly varied markets and demanding applications.

The SCANLAB product range includes high-performance galvanometer scanners, 2D- and 3D-scan heads, high-precision scan solutions (e.g. for micro machining), ultra-compact scan heads for high-speed applications (1,200 cps), complex scan solutions for high-power lasers (multi-kW range), intelligent scan solutions based on the *iDRIVE*® technology, customized systems, advanced control electronics (also on-the-fly), laser processing software, laser optics and accessories.