

# PRISMA

The WILD Group magazine

Issue no. 2 • 2018

## PERFECTLY SHAPED

Beam shaping paves the way to new laser applications

▼ WILD

▼ PHOTONIC

Compact digital laboratory made by WILD Electronics.

WILD consolidates its position in additive manufacturing.

Precise solutions for highly complex measurement tasks.



**Stefan Werkl**

Head of Optical Technologies WILD GmbH

## CLUSTER KNOWLEDGE DIVERSITY FOR INTELLIGENT LASER TECHNOLOGY.

The range of applications opening up in laser technology is enormous. Just as laser radiation itself, however, many of the qualifications required to be able to provide this extensive spectrum of applications are not visible at first sight. In this latest issue of PRISMA, we would like to offer you an insight into WILD's wealth of competence in laser technology. The portfolio available is truly impressive, ranging from dental lasers to components for high-performance lasers. One of WILD's core competencies is beam shaping, which was behind the progress achieved in various applications in the first place. In addition, a unique advantage we offer is that we have perfectly adapted our development and production environment to the bandwidth of laser technologies. This includes everything from the handling of sensitive components at receipt of goods to separate safety areas for cleanroom assembly.

Moreover, the current issue describes how WILD has recently been contributing its know-how and ideas to the newly established AM Austria technology platform. The objective of this platform is to turn Austria into one of the world's most innovative pioneers in the field of additive manufacturing. You will also get the latest news from WILD Electronics: the company has recently begun producing a novel stand-alone electrolyte analysis system for EXIAS Medical, the performance and usability of which far exceeds those of similar devices.



CONTENT

An excellent analysis system.	3
A „jack of all trades“	4-5
Vision and comprehension.	6
The future is taking shape.	7
CE marked.	8

PRODUCTION

# AN EXCELLENT ANALYSIS SYSTEM.

WILD

**WILD Electronics has recently begun producing a novel stand-alone electrolyte analysis system for EXIAS Medical, the performance and usability of which far exceeds those of similar devices.**

These are small, fully digital miniature laboratories which are used in every emergency room, in decentralised laboratories and in many specialist practices on a daily basis: electrolyte analysers. Whether during routine examinations or in emergency cases, users must be able to easily operate the device at the point of care and patients usually require a quick diagnosis. The new stand-alone electrolyte analyser **e1** by EXIAS is setting new standards in both of the above aspects of usability and speed. Compared to the systems currently available on the market it requires less than half the time (25 seconds) and only one-third of the blood amount (20µl) to measure potassium, sodium, calcium, chloride or pH levels. From a technical point of view, this development leap has been made possible through the miniaturisation of the sensors and the integration of additional components into the measuring unit. „We put a particular emphasis on intuitive and easy usability, which is reflected in the device’s smartphone-like controls featuring a state-of-the-art touchscreen interface“ says Josef Hindinger, Managing Director and co-owner of EXIAS Medical. Moreover, **e1** is the first electrolyte analyser to have a fully automatic module for daily quality control measurement. This is a unique feature worldwide. At the same time, all consumables are combined in just one single cassette.

Initial production of this device series recently began in Wernberg. By the time the product is scheduled to be launched onto the market in September 2018, WILD

Electronics will have manufactured 80 complete systems. „We are a respected player in the development and production of in-vitro diagnostics devices and systems. Our know-how ranges from full product development to process-stable and valid production. We can cover all areas from requirement engineering to optics, electronics, and mechanics, to plastics engineering and application software“, says WILD Project Manager Markus Fontano, describing the range of services offered by WILD.

This is what convinced EXIAS Medical and encouraged them to take WILD on board early on at the industrialisation level. „What I appreciate about WILD are their committed and competent staff, their high level of flexibility in combination with very precise processes and, last but not least, the price levels“, Hindinger explains. For the Graz-based company it was clear from the very beginning that production would take place in Austria: „This guarantees top quality and reliability and allows us to react quickly to market requirements.“



## Your contact:

**Markus Fontano**  
markus.fontano@wild.at



# LASER LIGHT: A „JACK OF ALL TRADES“

▼ WILD

**Intensity, direction and form - no other tool is as flexible as laser light. WILD opens a huge variety of laser applications for its customers thanks to a special beam shaping.**

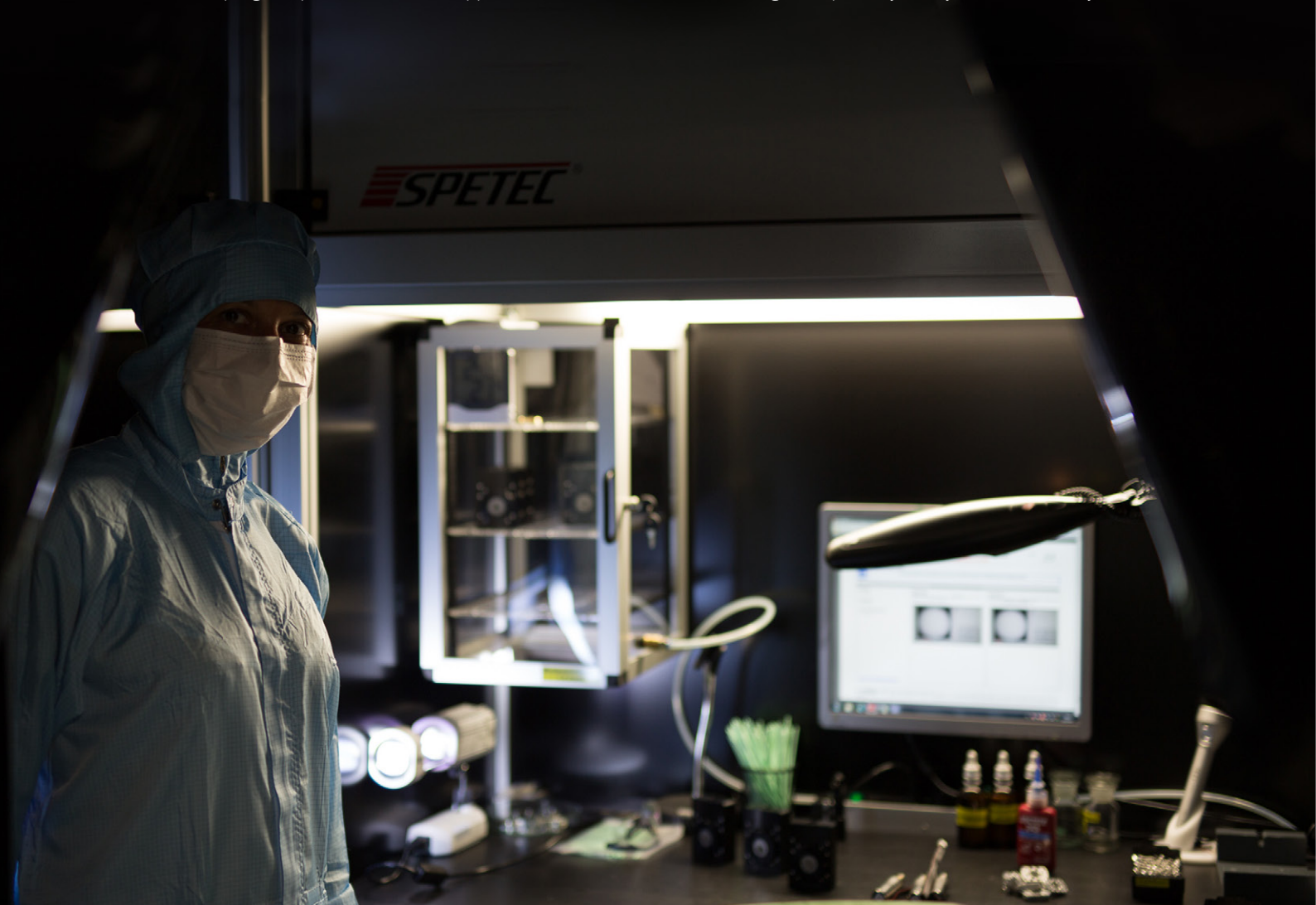
Ablation, drilling, cutting, structuring, bonding, metallurgical processing, roughening surfaces, burnishing or cleaning: there are hardly any limits to what laser can do in material processing. The same is true for the type of the material. Whether metal, glass, plastic or even skin: a bundled laser beam is a universal tool for both industry and medicine. Lasers have also made significant progress in measurement technology or photobiomodulation. But what is the real secret behind the boom in laser applications? In many cases, they are simply the result of improvements in laser beam shaping.

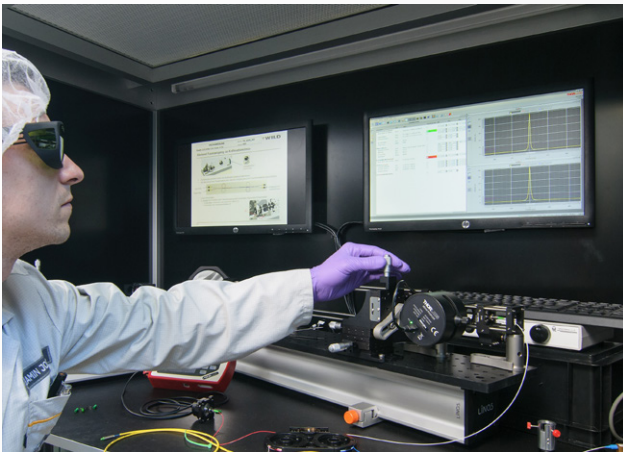
## **Beam shaping opens new possibilities**

In material processing targeted laser beam modulation was what made progress possible in several applications in the

first place. Solid-state lasers, especially laser diodes, created a completely new range of possibilities. They created laser light in different wavelengths with ever increasing intensity, less space required, and decreasing costs. As a result, more and more applications are now being created for lasers in medicine and technology. That is, provided there is success in shaping the laser in such a manner so as to allow a perfect adjustment to the respective requirement.

WILD has been focusing precisely on this challenge for over 25 years: making the potential of laser technology specifically usable for its customers' requirements. The company's core competence lies in the shaping of the laser beam using optomechatronic elements. „Only after you guide a laser beam through an optical system you will eventually obtain





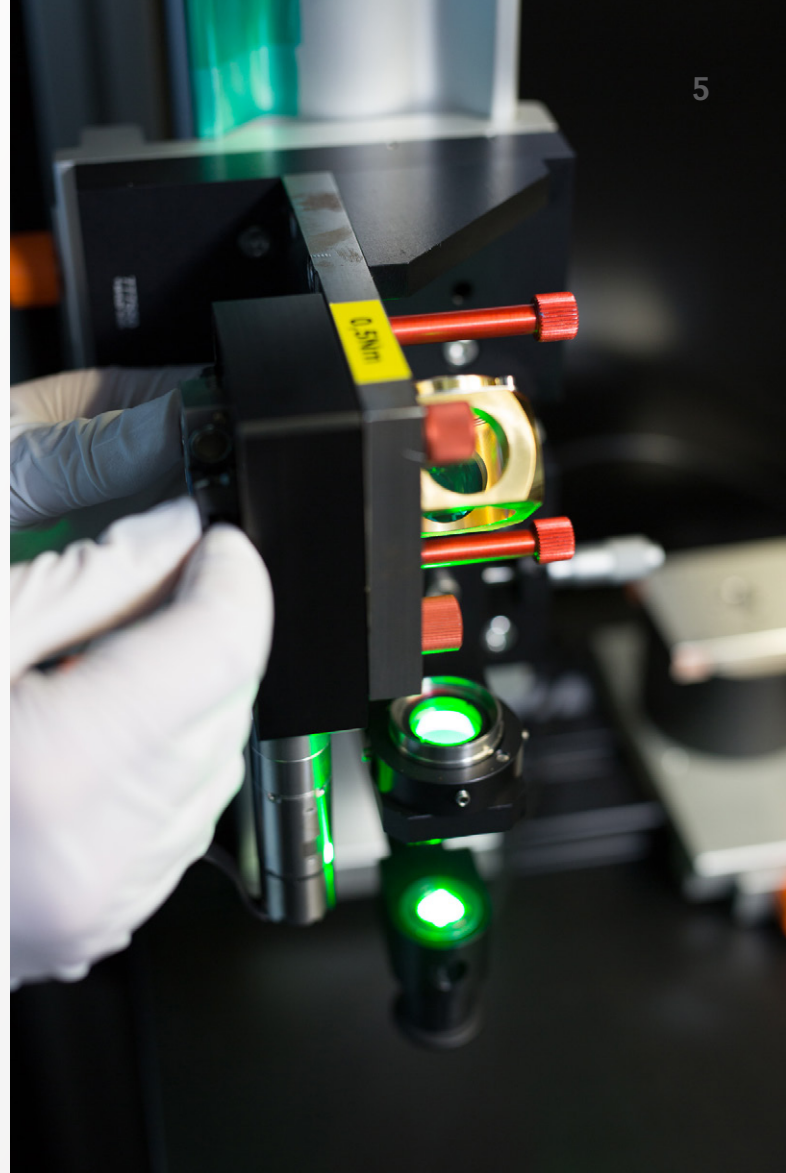
the characteristics required for the respective task. So our work begins where the laser beam leaves the source“, explains Stefan Werkl, Head of Optical Technologies at WILD GmbH. The systems partner develops and manufactures lens systems that modify the beam accordingly, ranging from laser mirrors and prisms to laser beam expanders or splitters, laser windows and laser filters.

### **New laser scanner generation**

WILD currently produces the optics module of a new 3D laser scanner generation for a leading provider of 3D measurement technology. Specifically, the systems partner has been responsible for the development, production and assembly of the adjustment systems, which guarantee that the emitted laser beam is precisely adjusted in the  $\mu\text{rad}$  range. To guarantee high functionality of the module in the smallest of spaces, it is necessary to apply extreme precision during assembly. „Despite the extremely demanding geometries, we must meet tolerances in the 0.01mm range. To ensure a 100-percent quality level, we have built automated laser measuring equipment that tests every module.“

### **Particle measurement using laser technology**

A highly precise optical sensor that records and detects ultra-fine dust particles smaller than 0.2 micrometres. This is another laser application developed by WILD using optics know-how and special skills such as optical and mechanical tolerance analyses, precision manufacturing and miniaturisation in optomechanics.



„For the prototypes already available, we have developed an optics concept that meets the tight tolerances (divergence  $> 35$  degrees and beam alignment  $< 3$  degrees) at signal generation even under serial production conditions. To achieve this, we had to redesign the laser module using reverse engineering. We applied alignment turning for the extremely precise assembly of the components. We also had to create the necessary measuring environment for that purpose“, explains Stefan Werkl.

### **Highest particle cleanliness for lasers**

WILD has been a strategic partner for laser specialists for industrial applications for several years. A particular feature of these is that the corresponding security areas must be established in a cleanroom. WILD meets the high cleanliness requirements in the  $\mu$  range using bespoke cleaning processes and product-specific particle analyses.

### **Your contact:**

**Stefan Werkl**  
stefan.werkl@wild.at



# VISION AND COMPREHENSION.

## ▼ WILD

**It takes an enormous bandwidth of know-how and a special production environment to develop and manufacture precise optical measurement instruments. WILD has acquired both over decades.**

Optical measurement technology is considered the shooting star among the measurement methods of the fourth industrial revolution. Increasing automation demands one thing in particular: valuable data providing insight into current production. Be it quality errors or process derogations, visual measurement technology will deliver the necessary information quickly without physical contact and with ever increasing precision. Moreover, it does so directly within the manufacturing process.

Technologies in this sector has undergone major development leaps in recent years. Today, optical measurement systems and sensors can capture millions of surface points in under one second. They are becoming more and more powerful while also shrinking in size. Special assembly skills and a huge bandwidth of optics know-how are required to develop and produce such systems. WILD has acquired both over decades.

### **Bespoke cleanliness requirements**

As regards the production environment itself, the systems partner meets the highest standards of precision and cleanliness. WILD offers customised levels for the latter depending on the project - ranging from assembly in special flow boxes, in which the lasers are adjusted in the  $\mu$  range, to precision cleaning and cleanroom manufacturing. A separate laser protection area has been integrated into the cleanroom.

„It is also important to test optical measurement systems according to the intended application and to develop corresponding final tests that can be documented in a traceable manner. This requires highly diversified test equipment and customer-specific solutions“, stresses Stefan Werkl, Head of Optical Technologies at WILD GmbH. At the Völkermarkt site, for instance, a 15-meter-long test track has been integrated into the assembly hall in recent years. It guarantees laser safety and is equipped with a fully-automated measurement system with digital data collection. A 360° calibration room has also been installed on the site, in which the targets are periodically measured to perform a 3D calibration of camera systems. In addition, a specially adapted site is located outside the factory building which is used, among other things, to test the UltraCam Panther, a high-end rucksack for mobile measurements.

The WILD optics laboratory is not only equipped with state-of-the-art measurement devices but also with various optics simulation tools, imaging systems and a modular set for cinematic systems. „Therefore, we are also ideally positioned from a development point of view and can support our customers from the very beginning“, Werkl explains.

### **Your contact:**

**Stefan Werkl**  
stefan.werkl@wild.at



➤ PRODUCTION ➤ DEVELOPMENT

# THE FUTURE IS TAKING SHAPE.

▼ WILD

**Additive manufacturing has heralded a technology reform in several sectors. The AM Austria technology platform is instrumental in determining which opportunities will emerge from this reform in Austria.**

Additive manufacturing technologies have become indispensable in all of those areas where parts with complex shapes need to be produced quickly and more cost effectively and then marketed on an individual basis. In many sectors, they are rewriting the rules of industrial product design. When using these layer-upon-layer techniques, complexity no longer plays a role. The choice of materials is already quite extensive, though there is also a lot of room for further improvement. As of recently, the future development of this technology in Austria is greatly determined by those companies that joined forces to establish the AM Austria technology platform. In order to position itself and network from the very start, WILD has been part of this initiative on day one. „We will actively contribute ideas and know-how and jointly determine and shape the future of this Austrian AM technology platform“, says WILD Business Developer Wolfgang Stiegmaier. „This initiative has great potential and could become a lighthouse project far beyond Austria’s boundaries.“

WILD has been developing and producing generative manufacturing systems for over six years. Its customers include both startups and renowned market leaders. As a result, additive manufacturing is no longer just a vision but an already mastered technology for the systems partner.

## **The process chain of additive manufacturing requires great know-how**

Its optomechatronic competences, combined with its longstanding laser technology know-how, make the WILD Group a sought-after partner for the development and production of additive manufacturing devices. WILD offers both the production of complete devices as well as engineering packages for upgrading existing products or adding new features such as more precise laser optics, multiple laser systems or in-process control systems.

In this respect, the group of companies benefits from its expertise in the areas of optics design, digital imaging and software. „The quantities we produce are variable and may range from a few units for prototypes to small series starting at 40 units per year; of course, we can flexibly upscale production to several hundreds up to a thousand units per year“ assures Wolfgang Stiegmaier.

### **Your contact:**

**Wolfgang Stiegmaier**  
[wolfgang.stiegmaier@wild.at](mailto:wolfgang.stiegmaier@wild.at)




 ↗ INTERN

# CE MARKED.

▼ PHOTONIC

The F5000 Med fibre optic LED light source is now available with CE marking.

LEDs are increasingly becoming the dominant lighting solution. Their diverse range of applications and apparent simplicity may lead to the false conclusion that safety characteristics play a subordinate role. Especially with regard to the CE marking of medical products, however, compliance with strict legal and technical guidelines must be observed.

This means, for instance, the requirement to implement a reporting system, including the corresponding documentation. Since this procedure results in a considerable effort for many dealers and OEM customers, there is an increasing demand for light sources with CE marking. Photonic has reacted to this trend and, following its 'ATO Light for Life' surgery lights, it also recently certified the F5000 Med. The benefit: the approval for the overall device is both easier and quicker.

„It is successfully used in medical endoscopy, surgical microscopy, in-vitro diagnostics and phototherapy, and is available both as a complete device and as an F5000 Med-M module for OEM applications. Interchangeable adapters guarantee compatibility with all endoscopic systems“, explains Photonic Product Manager Christoph Csekö. Both types are characterised by a long service life.

„Xenon lamps lose their brightness very quickly. A 50% drop in brightness after 500 hours is not uncommon. In contrast, our LED technology drops to 70% only after approx. 20,000 hours. Therefore, it is possible to save up to EUR 20,000 in maintenance costs for each light source throughout the entire duration of its use“, says Csekö. In addition, it is possible to use an LED with a colour rendering index of 90 where necessary, which corresponds to the colour temperature of a xenon lamp.

#### Publishing information

Owner and publisher: WILD GmbH,  
Wildstraße 4, 9100 Völkermarkt,  
T +43 4232 2527-0, Fax-DW 218, E-Mail: sales@wild.at  
Responsible for the contents: DI Dr. Josef Hackl, Wolfgang Warum  
Redaktion: Pressestelle WILD, Andrea Patterer & Sabine Salcher  
Layout & graphic design: STERNENKLAR GMBH  
Photos: WILD, Photonic, Thinkstock, Trevor Palin, shutterstock-FabrikaSimf

#### The WILD Group

The WILD Group comprises the WILD brands based in Völkermarkt, Wernberg (Austria) and Trnava (Slovakia), and the Vienna-based Photonic. We are your reliable partner on a path of continuous growth. We generate an annual group turnover of 91 million euros with a staff of 442 highly qualified workers and employees.