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PRISMA

The WILD Group magazine

IN-VITRO DIAGNOSTICS

HIGH TECH FOR EVERY SAMPLE.

WILD PHOTONIC

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LIGHTING UP THE PATH TO PROGRESS.

Wolfgang Warum
Managing Director CTO
WILD Group

Be it in diagnostics, microscopy or endoscopy: when revealing details invisible to the naked eye, light is key. Its wavelength, intensity and control determines the quality of every result. This is why the WILD Group focuses on a combination of light, sensors and optics.

Such expertise is much coveted in several areas of medical technology. For in-vitro diagnostics, this translates into systems ranging from compact point-of-care devices to complex high-throughput installations based on intelligent sensors, digital image analysis and precise optical modules. The degree to which light drives innovation can also be seen in the field of surgery: SeeLuma™ is a fully digital 3D surgical microscope developed by MSI that heralds a new era in eye surgery. The entire system is manufactured at WILD. At the same time, PHOTONIC is already preparing the next generation in surgical visualisation: multi-spectral lighting, aimed at further enhancing precision in operating theatres.

Yet progress doesn't come from technology alone, it needs collaboration, trust and clear structures. Our recognition as one of "Austria's Best Managed Companies 2025" is further proof that the WILD Group combines all the above and perceives innovation as a common objective.

We are looking forward with excitement to COMPAMED 2025 in Düsseldorf, keeping an open mind for new ideas and the inspiration we draw from our customers' visions. We look forward to welcoming you in hall 8a, booth J19.

Wolfgang Warum,

CTO WILD Group

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READY FOR THE FUTURE OF SURGICAL VISUALISATION.

Already a reality in flexible endoscopy, multi-spectral lighting could revolutionise tomorrow's operating theatres. PHOTONIC contributes the necessary development know-how and manufacturing expertise to actively shape this change.

So far, the application of multispectral lighting has been limited to diagnostic endoscopy, especially to gastroscopy and colonoscopy, using flexible endoscopes. With this technology, which is currently available only in high-end systems, it is possible to highlight vascular structures with greater contrast, render subepithelial vessels visible, improve the detection of bleeding and penetrate into deeper tissue layers.

In contrast, surgical endoscopy overwhelmingly relies on white light, which can be supported or replaced by near-infrared light in certain stages of surgery. Meanwhile, this method has been established as the gold standard. Yet PHOTONIC firmly believes that this restriction to a dual spectrum has an expiry date. "Applying the principle of multispectral lighting from diagnostics to surgical endoscopy as an addition to established procedures opens completely new opportunities in intraoperative visualisation", says Business Developer Ingo Wiest. This can enhance the rendering of blood vessels and structures during surgery, further improving safety and precision in operating theatres.

Why is PHOTONIC already capable of venturing into this with potential customers? Because the company possesses the necessary knowledge, experience and clearly structured processes – from spectral analysis and the selection of suitable emitters and filters through optical design to prototyping and tests in its in-house laboratory. Up to 7-channel concepts have been developed here, flexibly combining LED and diode lasers.

During development, PHOTONIC simulates optical paths using raytracing, integrates digital twins of optical components and optimises imaging quality, stability and beam profile. An iterative control circuit with sensitivity and tolerance analyses ensures that critical parameters are stabilised and solutions are continuously fine-tuned. The result are state-of-the-art systems, which are at the same time designed to meet exact parameters like space, interfaces or costs. Moreover, having secured FDA registration for all its manufacturing sites, PHOTONIC also meets all regulatory requirements to implement projects for the US market.

A STEP AHEAD

Wiest points out to another major advantage: the company's close partnership with renowned manufacturers. "We get samples of the latest light sources before they officially reach the market. This secures a decisive headstart, allowing us to get our customers' products ready for the market much faster."

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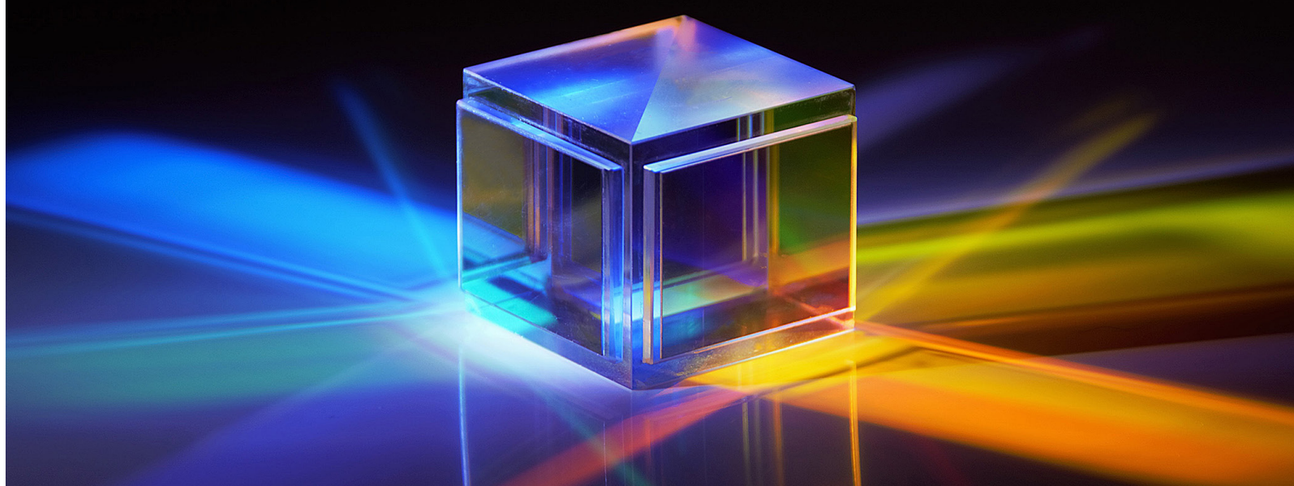

A DIGITAL BREAKTHROUGH IN EYE SURGERY.

Munich Surgical Imaging (MSI) has developed SeeLuma™, a fully digital 3D surgical microscope featuring the world's first digital binoculars – an innovation that redefines ergonomics and image quality in eye surgery. Equally, it is a perfect example of WILD Group's ability to reliably bring extremely complex optical systems to serial maturity.

A surgical microscope that frees the mind: with the first-ever digital binoculars, an intuitive user interface and a design that enables surgeons to view the monitor straight ahead of them, SeeLuma™ heralds a completely new way of working. The difference to analogue - or the more popular hybrid - models is stunning: in the latter, optical and stationary binoculars force operators to constantly adapt to their position. "In contrast, the digital binoculars by SeeLuma™ display their image on a monitor that can be flexibly positioned. The result: surgeons can operate in an upright, natural position without having to constantly move their heads. This makes SeeLuma™ a true game-changer in eye surgery", explains Dr. Jurek Nordmeyer-Maßner of MSI. In addition to the ergonomics, this fully digital microscope offers amazing image quality. Its high focus depth helps reduce constant refocusing, while digital processing improves both colour accuracy and contrast. Surgeons can display additional information directly in their field of view, enhance contrasts or use picture-in-picture features.

NEXT INCREMENT TO INCLUDE OPTICAL COHERENCE TOMOGRAPHY (OCT) UNIT

"This microscope offers a platform for the integration of various future technologies, including AI-based features. Another exciting add-on is the intraoperative OCT module integrated in SeeLumaTM, which offers the distinctive high image quality typical for Heidelberg Engineering", Benedikt Wurm explains. MSI expects the module to be certified in early 2026. By having an OCT feature in their field of view, surgeons will be able to assess tissue layers in almost histological quality as they operate. This advantage will set new standards.

SeeLuma™ is considered a technological milestone, not least because of the close collaboration between MSI and the WILD Group. WILD has been involved in the project since the beginning of its industrial scaling in 2019 and played a significant role in the conception and design of the system's centrepiece: the optical block. "Implementing the optical design only became possible because of the high manufacturing expertise we provide. Skills like alignment turning, combined with our experience in handling highly complex optical assemblies are at the foundation of the system's success" says Manfred Gallé, Head of the Medical Technology Business Unit. WILD's contributions included the assembly and adjustment concept, including the design and construction of the device required for its implementation. "SeeLuma™ is one of the most technically demanding facilities we have built in recent years. It many respects, it is a product situated in the high-level segment, from the complexity of the entire system and the required cleanliness and precision to the necessary surface engineering and assembly know-how. Therefore, we are all the more proud that our experienced team supplies the entire surgical microscope - including electronics, all adjustments, the stand and - in future - the OCT unit as well", says a pleased WILD Group CTO Wolfgang Warum.

> **"This product is the quintessential example of what we stand for: We accompany customers from the first idea through industrial scaling to serial productio.**
> *Manfred Gallé, Head of Business Unit Medical Technology*

LIGHTING: ACHIEVING PRECISION UNDER DIFFICULT CONDITIONS

PHOTONIC was entrusted with the manufacturing of an equally demanding part of the microscope: the lighting unit. "One of the greatest challenges was the small and complex installation space", Managing Director Stefan Zotter explains. "Here, thermal management proved to be a central issue. It was extremely difficult to accommodate the optical system within the available space without making compromises with regard to performance." Another decisive factor was the dynamic range required for surgical interventions. Though conventional continuous-wave (cw) setups deliver a constant camera image, they result in a drift in colour rendering and colour temperature of the LED. This can be solved by using pulse-width modulation (PWM). "According to this method, the LED is rapidly turned on and off at high frequency, regulating the averaged intensity with the on/off period. The colour rendering values remain constant as a result. This method, however, may cause irritating image artefacts to appear on the camera. Therefore, we opted for a solution involving a hybrid combination of cw and PWM, which we carefully adjusted to the entire system. We thus managed to reach the necessary brightness with a stable colour rendering, and without disturbing effects.

A third, central issue is the topic of safety. Because the light is emitted directly into the human eye, the energy supplied must not exceed the defined thresholds. PHOTONIC therefore integrated a monitoring unit which permanently controls output and adjustment, thus ensuring compliance with medical standards.

FDA AND MDR COMPLIANT DOCUMENTATION

Another reason why MSI opted for the WILD Group as a partner: "Our processes are both FDA and MDR compliant, and we supply all required documents in coordination with the customer", says Manfred Gallé. Moreover, our expertise in industrial engineering ensures that the system can be continuously developed and improved. The SeeLuma™ devices are currently being completely assembled and tested at WILD's sites. They are subsequently shipped to MSI, where they are prepared for final configuration. Since its introduction in 2023, SeeLumaTM has been met with great interest. The response to the planned OCT unit is particularly strong. The platform has managed to prove that purely digital microscopes can replace hybrid systems. At the same time, it is becoming evident that innovation power and manufacturing competence are closely interlinked: MSI as the developer with a clinical focus and the WILD Group as the technology partner with the process and production strength to master the step toward industrial reality.

"This product is the quintessential example of what we stand for: We accompany customers from the first idea through industrial scaling to serial production", summarises Manfred Gallé. The entire value chain - optics assembly, lighting, electronics, software integration and quality assurance - comes from a single source.

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THE TECHNICAL PRECISION BEHIND MODERN DIAGNOSTICS.

Automated systems, miniaturised modules and smart analysis are rapidly transforming in-vitro diagnostics. The WILD Group has been part of this development for decades, actively shaping the future of diagnostics.

Faster, more precise, more networked: In-vitro diagnostics no longer takes place exclusively in laboratories but wherever data can save lives. Point-of-care systems, molecular rapid tests and AI-based analysis are transforming the way diseases are detected and treated. Whether blood count, PCR tests, allergy analyses, tumour markers or genetic profiles for personalised therapy: all these require complex technologies like optical measurement systems, microfluidics, kinematic components, temperature management, sensors and digital image evaluation. WILD is one of only a few technology partners with decades of expertise in all these areas, which the company combines in individual package solutions.

ENTIRE DIAGNOSTIC SPECTRUM

Hardly any other company can cover the entire bandwidth of diagnostics as comprehensively, ranging from clinical chemistry and haematology to immunology and molecular or veterinary diagnostics. Even in the case of special tests, e.g. for the detection of dengue fever or hospital pathogens, the WILD Group is part of the supply chain. "Our customers appreciate the fact that we take a holistic approach to systems, from optics development through lighting to software integration", CTO Wolfgang Warum explains.

FROM THE LABORATORY LINE TO THE HOSPITAL BED

Numerous large laboratories are using analysis devices that evaluate hundreds of samples every day in a completely automated process: from the identification and quantification of pathogenic agents, through real-time PCR determination to gene expression analysis and complex metabolic analyses. To ensure that these systems will continue to deliver reliable results after thousands of cycles, their makers employ precise optical modules manufactured by WILD. These form part of the photometric measurement path and are designed to reliably detect even the smallest concentration differences.

Fully automatic platforms, which combine different test procedures in one common analysis interface, are also used for blood grouping and infection screening. They determine various parameters like blood groups, antibody profiles or infectiological evidence in parallel, according to a standardised procedure and without any manual intermediate steps. WILD supplies precise measurement modules for these. Regardless of throughput or sample density, these systems detect reactions on a microarray basis and ensure that each sample is precisely analysed.

SYSTEMS FOR ROUTINE CLINICAL DIAGNOSIS

WILD is also on board when it comes to compact analysis devices for clinical chemistry and haematology, e.g. in systems that automatically measure routine parameters such as enzymes, lipids or electrolytes and analyse blood counts in a single pass. These devices are employed in medical practices, smaller labs and hospital departments, carrying out tasks previously reserved to large laboratories.

A current example is a fully automatic point-of-care device by a leading European medical technology company. It is based on a platform for molecular diagnostics and can detect respiratory diseases and urogenital and nosocomial infections in a very small time - completely automatically and without any laboratory equipment. WILD was entrusted with the transition to serial production and the development of the high-volume production with a focus on utmost precision at the lowest unit cost.

Analysers used in microbiology can identify bacteria or fungi in patient samples in a matter of minutes. "The products we manufacture in this area include a fully automatic dispensing system capable of identifying micro-organisms on the basis of their molecular footprint. Hospitals, for instance, use these devices for a rapid detection of infections and to identify pathogens", explains IVD Sales Manager Stephan Payer.

LIGHT IS THE KEY TECHNOLOGY

One key element all these IVD systems have in common is light. In clinical chemistry, numerous methods are based on principles such as luminescence, absorption or fluorescence. Modern analysis systems – so-called microplate readers – combine all these methods in a single device. They measure biochemical or physical reactions in microplates consisting of several individual wells. Each of these wells is an independent test field, meaning that hundreds of reactions can be performed and analysed in parallel or in quick succession.

State-of-the-art systems even go a step further and allow for multiplex analyses, where several fluorophores can be assayed in parallel by illuminating them with different light spectra. This makes it possible to determine different target molecules at the same time, thus increasing efficiency while reducing the demand for sample material. However, the risk of signal overlapping increases as a result, posing greater technical challenges for lighting. This is exactly where PHOTONIC comes in: "We develop lighting solutions tailored exactly to the requirements of clinical-chemical systems and our customers' architecture. Our modules combine spectral precision, high stability, and minimum heat generation, ensuring that even long and complex measurement series can be reliably analysed", Business Developer Ingo Wiest explains. Thanks to their compact size and precise integration, these light sources fit seamlessly into every target application, significantly contributing to the reliability and efficiency of modern diagnostic systems.

TECH-DRIVEN DIAGNOSTICS

WILD is also a strong player in optical measurement technology, microfluidics or sensory and kinematic systems too. This technological foundation is further enhanced by ISO 13485-certified manufacturing processes, which also comply with demanding regulatory regimes like IVDR or FDA.

KEEN TO FIND OUT MORE ABOUT THE TECH BEHIND MODERN DIAGNOSTICS?
VISIT US AT COMPAMED 2025 IN EXHIBITION HALL 8a/BOOTH J19.

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Austria's Best Managed Company 2025.

The WILD Group was one of 18 enterprises to be named Austria's Best Managed Company 2025. The programme is internationally recognised as a benchmark for outstanding corporate governance.

The jury not only focused on economic figures but they also assessed strategy, innovation power, financial structure and corporate culture. Topics such as sustainability, leadership and future viability also played a key role in the ranking.

CLEAR LEADERSHIP. COMMON OBJECTIVES

"This external assessment of our management methods and their impact is hugely important when trying to navigate the right course in a sea of measures," explains WILD CTO Wolfgang Warum. Together with COO Arthur Primus and CFO Michael Wratschko, he is part of a leadership team that shares responsibility and perceives innovation as a common objective. It is essential that the entire group is pulling in the same direction. For this reason, collaboration between the individual sites has been deliberately strengthened of late.

Today, processes, ideas and developments emerge across sites, with clear responsibilities and a common aspiration for quality and efficiency. "We are grateful that our team actively supports this process. Therefore, this distinction belongs to all WILD staff members", says Warum, happy to pass on the positive feedback.

RECOGNITION FOR CONSISTENT WORK

The distinction, awarded by Deloitte and Raiffeisen, shows that WILD stands out for a corporate governance that thinks strategically, invests in research, development and digitalisation, and involves its people. "In a culture of togetherness and familiarity, we can learn from each other. Trust is our foundation. It creates room for innovation, growth and a quality that's palpable", stresses Arthur Primus.

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THE WILD GROUP

The WILD Group is comprised of the WILD brands which are established in Völkermarkt and Wernberg (Austria) and Trnava (Slovakia), as well as Vienna-based PHOTONIC. The technology partner develops and produces optomechatronic systems for medical and industrial applications as well as optical technologies exclusively on behalf of its customers. Approximately 500 staff members are always the first choice whenever precision and reliability are called for and wherever innovation takes place.