

The Challenge of INNOVATIONS FOR MACHINE VISION **Light.**





The Challenge of Light.

In deep obscurity where no light penetrates – there we seek our inspiration. There lies the fruitful soil of new, innovative ideas. There we find the solutions which transform darkness with light!



*Fit for the future:
The new development and competence centre provides ultra- modern working conditions and the best possible preconditions to develop, manufacture and sell innovative industrial image processing products.*

VISION & CONTROL – INNOVATIONS FOR MACHINE VISION

As a technology leader, our company develops, produces and sells an optimally attuned modular system worldwide. It ranges from complex image processing systems such as vision sensors, intelligent cameras and multi-camera systems to individual high-performance LED lighting and precision optics.

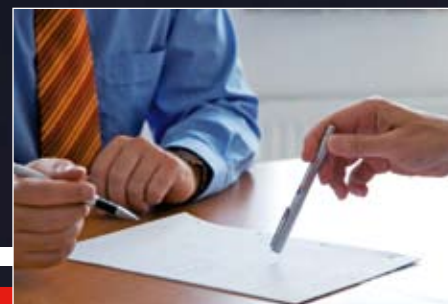
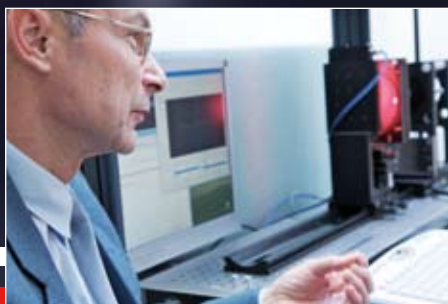
We can therefore let our customers choose the right components and individually combine them in their image processing systems. We guarantee the perfect interaction and reliable performance of all components.



*Dr. Jürgen Geffe,
Managing Director*

To master challenging image-processing tasks that would overtax standard components, we offer our customers tailor-made image capturing and processing solutions.

Leading machine builders, OEMs and system integrators have banked on state-of-the-art design by Vision & Control for almost 20 years. Our products and services are the first choice wherever top priority is assigned to flexibility, speed, reliability and industrially robust construction. Prominent references in an extremely wide variety of applications and sectors demonstrate the high reputation of our products. International cooperation, individual consultation, competent support, motivated personnel and an innovative product range make Vision & Control a strong partner in the field of machine vision.



Our Milestones:

Early 1990's

Telecentric for industrial image processing presented

Mid-1990's

Introduction of LED lighting for machine vision applications

1997

Market launch of the "Vision & Control-Component System"

1998

First megapixel measuring system based on the intelligent camera pictor®

First generation of machine vision sensors for pattern and mark recognition, image comparison

2001

Establishment of Vision Academy, first German training centre for machine vision

2004

High-performance extension: Individually configurable vicosys® multi-camera systems

2005

Adaptive LED-lighting allowing flexible adjustment of brightness distribution to time and location

Patent for a new generation of drill hole inspection systems

2006

Major breakthrough: Intelligent cameras with Gigahertz signal processors

2007

Strategic co-operation with SCHUNK Spann- und Greiftechnik, Lauffen / Germany, in the field of robot vision

Market launch of third generation of camat® vision sensors

Tenth anniversary of the "Vision & Control-Component System": more than 20,000 applications in operation with Vision & Control components

2008

Introduction of fourth generation camat® vision sensors with remote sensor heads

Completion of the new development and competence centre



*Intelligent complexity:
Our highly complex systems offer our customers compact intelligence with unrestricted individuality and flexibility. They enable us to find optimal answers to every kind of challenge!*



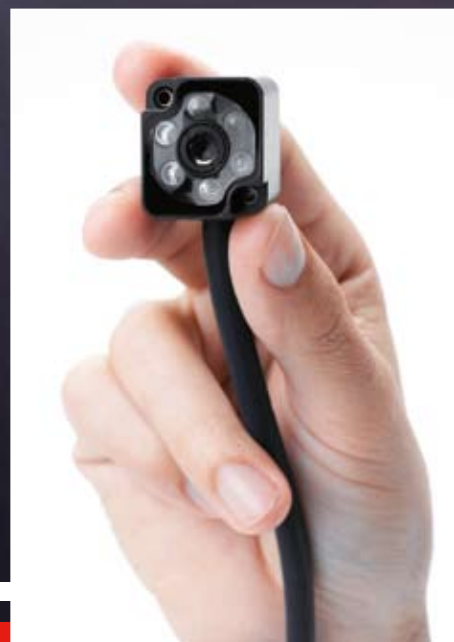
VISION & CONTROL – PIONEERING VISION.

We have formatively influenced industrial image processing during the past 20 years by setting important benchmarks with our innovative, future-oriented products.

The team led by Managing Director Dr Jürgen Geffe has always kept ahead of the pack with achievements ranging from the introduction of telecentric lenses and the pioneering use of LED lighting in industrial environments to the first intelligent cameras.

We will continue to blaze new trails in our future product development too. The strengths we rely on are teamwork, the personal achievements of every individual and our many years of experience and close cooperation with our partners. Our aim is to offer our customers a high-quality, flexibly applicable modular system of components for machine vision tasks. We pursue this goal by tackling every challenge, generating new ideas and finding the solution for your task in keeping with our company slogan – **pioneering vision.**

We laid the foundation for our own vision sensor platform as early as the mid-1990s, when we became the world's first vendor to offer intelligent cameras with high-performance operating software. These vision sensors successfully combine our know-how in the fields of optics, lighting, hardware and software design and mechanical construction. We have meanwhile presented the fourth generation of our vision sensors to our customers. Our development work continues – so be prepared for our next moves!



SYSTEMS FOR MACHINE VISION

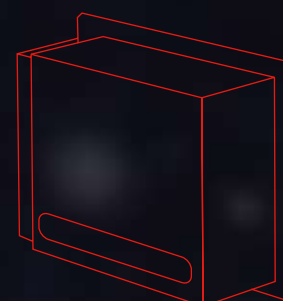
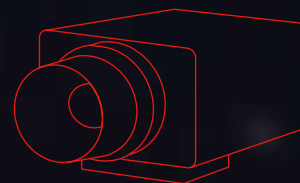
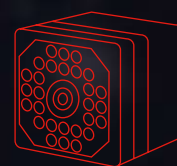


*Reliability through quality:
Certificated quality standards and com-
petent personnel are the foundations
of ultra modern vision components
which reliably solve demanding image
processing tasks during industrial
operation.*

Our extensive range of industrial image processing systems – from vision sensor to high end image processing types – gives users just the right flexibility and performance to meet their image processing tasks. Our systems are supported by our vcin® graphic operating software. This user interface is perfectly adapted to the camat® series of vision sensors, the pictor® product family of intelligent cameras and the vicosys® range of multi-camera systems. It guarantees rapid parameterisation and successful image processing.

All systems are designed for very heavy duty, industrial operating conditions. They can be quickly integrated into the process environment to operate with proven reliability and durability in tandem with the high-performance software algorithms.





The Challenge of Complexity.

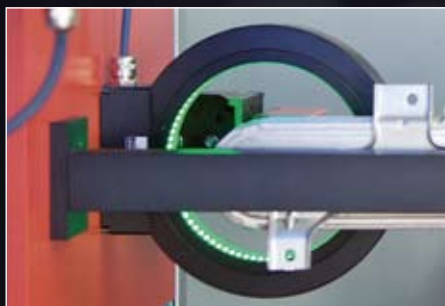
We see complexity as the fusion of challenging tasks with intelligent solutions. We integrate light and innovative technology for a new standard of system performance. This is our key to unlocking what lies seemingly hidden.

The Challenge of Individuality.

We use light to create individuality. Our solutions are adapted to scenarios which allow the light to freely explore widening dimensions of expression. Their purposeful variations of form and intensity bring the hidden meaning to light.



Light makes all the difference: High performance light sources, precise light guidance and modern electronic controls ensure fulfilment of the lighting requirements posed by image processing tasks.



LIGHTING FOR MACHINE VISION

The performance of image processing systems is vitally influenced by the form of light guidance used. The right choice of lighting is therefore one of the most important criteria for the reliability of the entire system. To realise a widely varying range of applications, the lighting must therefore be optimally attuned to the optics and the image processing system.

We meet this demand by supplying an extensive range of high performance LED lighting with widely varying configurations and functions for nearly unlimited combinations and illumination scenarios.



Our vicolux® lighting range features maximum brightness, homogeneous light distribution and intelligent temperature management. The lighting range supports wavelengths typically required for industrial image processing in the ultraviolet-to-infrared spectrum. This ensures that only the desired feature will be made visible for recognition and processing by the machine vision system.





*Detailed precision:
Our manufacturing of optical systems
under clean room conditions guaran-
tees the high quality required to mas-
ter challenging image processing tasks.*



OPTICS FOR MACHINE VISION

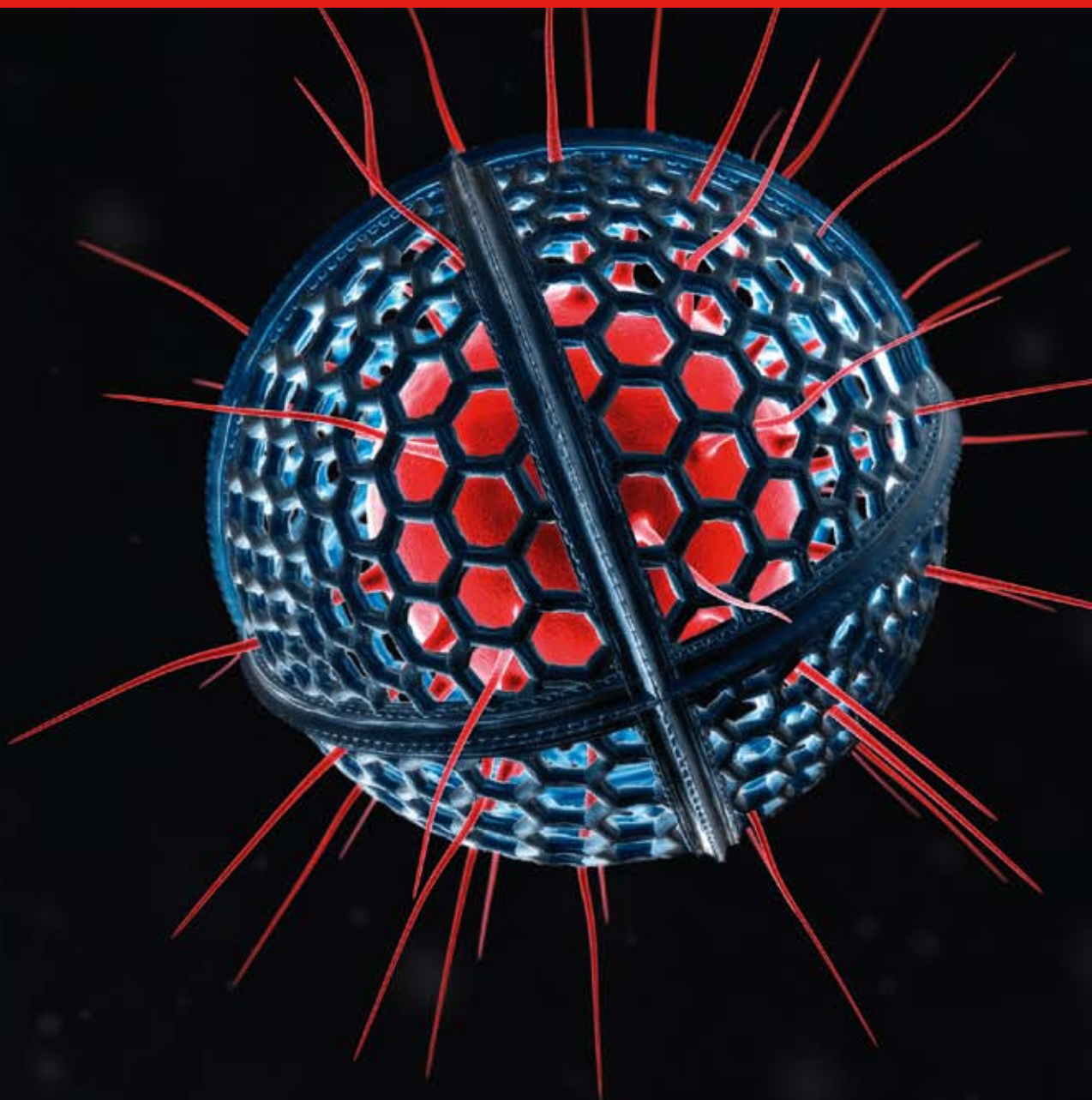
The quality of the optics in an image processing system is a key factor of its performance capability. Our optical systems are built to interact with the chosen lighting to achieve the required performance of the overall system – particularly in tough industrial environments.

We meet these demands with a broad product range of telecentric and entocentric precision optics, including relevant accessories.

Customers are assured of the high quality imaging characteristics and excellent optical parameters of our vicotar® optics. The high-speed and high-resolution capabilities of our lens designs and our low distortion, colour corrected lens

systems enable the image sensor to capture every detail faithfully, ensuring successful recognition and evaluation of the inspected feature.





The Challenge of Precision.

We cast light on a hidden multitude of forms and complex geometries to give them a hitherto unfamiliar transparency. Excellent optical parameters provide the precision required to make their special characteristics and identity visible!

OEM SOLUTIONS FOR MACHINE VISION

The trend in the development of industrial equipment products is to couple miniaturisation with an increased performance range. OEMs and machine builders are offering increasingly integrated, faster and more efficient systems and machines. An image processing system which ensures 100% automation and quality control is a key plant component.

We offer our customers individually tailored image capturing and processing solutions – especially when limited scope for integration, performance capability and economic efficiency presents a difficult challenge. Our core competencies in all areas of machine vision technology – from

lighting, optics and hardware and software design to mechanical construction – enable us to respond optimally to customer demands. Our team collaborates with the customer to define the task and develop solutions which are easy to integrate and start up as the core component of the overall system. Above all, we make it work reliably – 24 hours per day, 365 days per year. We look forward to solving your task!



*Individual solutions:
We successfully combine our know-how
in the fields of optics, lighting, hardware
and software design and mechanical
construction in our OEM products.*



The Challenge of Flexibility.

When ideas and visions encounter intelligence in the hidden depths of the mind, complexity, individuality and precision merge into unique innovations and sophisticated solutions. Light finds the way to emerge and expand into a completely new dimension and quality.





VISION ACADEMY – KNOW-HOW FOR MACHINE VISION

Our training partner Vision Academy was established in 2001 as the first facility for basic and advanced training on industrial image processing. It regards itself as a service provider to communicate practice oriented know-how about machine vision and technical background regardless of manufacturer or product.

Its multilingual, modular courses are systematically structured. They offer a rapid, effective form of advanced training in the field of industrial image processing to users, system integrators, image processing specialists and variously pre-informed interested customers. They also prepare participants optimally for their future daily work.

The courses are subject to key quality standards imposed by ISO certification

and the academy's scientific and technical advisory council. The training is constantly optimised and its content is kept up to date by means of targeted requirement surveys before and satisfaction analyses after each course. In the process, the instructors also accommodate suggestions and requests by their trainees. In-house courses for customers complement the programme. The range of the know-how transfer comprises optics as well as light, illumination and system technology, informatics, mechanical studies and communication and automation technology.

By taking charge of training the specialist personnel of tomorrow, the Vision Academy makes a vital contribution to the successful use of image processing systems in industrial environments.



The Challenge of Knowledge.

We regard technological know-how as the departure base for innovation and future oriented solutions. We project the light of knowledge into darkness by stimulating new ideas and indicating solutions. The most exacting technical challenges become soluble once obscurity is banished by the power of light.

Practice oriented image processing: The Vision Academy specialises in communicating knowledge of all branches of machine vision technology – from optics and light to illumination and systems technology and finally to informatics. Mechatronics and automation technology complete the comprehensive range of subjects taught.





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Current information, data sheets and 3D CAD data on our extensive portfolio of systems, lighting and optics for industrial image processing are available at

www.vision-control.com.

• **camat**® Vision Sensors

• **pictor**® Intelligent Cameras

• **vicosys**® Multi-Camera Systems

• **vcwin**® Operating Software

• **vicolux**® Lighting

• **vicotar**® Optics

The ocean depths have sheltered the development of unique forms of life for many centuries. No ray of sunlight ever reaches those realms. Yet the deep sea creatures have adapted perfectly to absolute darkness. Many of them have light organs in which they either harbour fluorescent algae or produce their own light.

The phenomenal ability of these deep-sea creatures to utilise the potential of light inspires and motivates us in our daily work. At Vision & Control, we too respond permanently to **The Challenge of Light**.