EXCELLENCE INSIDE
IN MEDICAL ENDOSCOPY
Endoscopic visualization for minimal-invasive diagnostic and surgical applications.

For 40 years, SCHÖLLY has been a professional partner to OEMs when it comes to developing customized visualization systems with outstanding image quality and innovative product features. From endoscopes, camera systems, and light modules to complex visualization systems, we offer our customers a wide range of products and services as their partner for opto-electronic visualization.

In this context, we constantly invest in advancements to existing technologies and in the development of new technologies and product solutions. Doing so allows us to meet the extremely high standards in the field of medical technology. And this applies to patient safety as well as user-friendliness, image quality, reliability, and durability.

Our goal is to proactively meet our customers’ specific needs by supplying market-driven products and systems that can be manufactured cost-effectively. Thereby, absolute precision, outstanding quality, and the reliable availability of our products are the foundation of our mutual understanding of quality.

EXCELLENCE INSIDE in medical applications:

Our microendoscopes as well as 2D and 3D endoscopes are used in the following fields of medicine, among others:

- Urology
- Gynecology
- Laparoscopy
- ENT
- Neurology
- Drug delivery
- Arthroscopy
EXCELLENCE INSIDE
FROM COMPONENTS TO COMPLETE OEM SOLUTIONS.

SCHÖLLY is a reliable partner and experienced OEM manufacturer.

As a specialist for endoscopic visualization solutions, we offer our customers innovations for the future built on validated processes and extensive technological possibilities.

Whether implementing complex concepts or application-oriented specifications, we are the right partner and professionally cover every desired type of collaboration. The degree of design and product individualization can vary depending on the customer’s specific wishes.

Our offered packages in the field of Medical Endoscopy

- Private label products from our range of catalog products
- Customized features to differentiate from standard modules
- Customized visualization systems for one OEM customer
- Optoelectronic components
PRIVATE LABEL PRODUCTS
OUR EXPERTISE
Labeled with your name.

Our private label products are the perfect high-quality addition to your portfolio – competitive and available at short notice.

Even in small quantities we can design and label our endoscopes, light sources, as well as camera systems cost-effectively and according to your specifications. Our standard bodies and housing designs, which can be personalized according to your concept and corporate design specifications, serve as the basis for our private label products. We provide comprehensive advice and support in everything from the selection of the right product to the ideal design.

You can profit from our private label products immediately. On the one hand, they expand your portfolio by including high-quality standardized products. On the other hand, you eliminate time-consuming and costly development, production, and, in particular, registration processes, since our products are already registered in many countries.

Among other things, you can select different:

- Standard bodies
- Surface finishes
- Laser markings
- Ocular colors
- Front panel colors
  (for light sources and cameras)
- Front panel designs
  (for light sources and cameras)
Exclusive product features and solutions adjusted for your application.

In collaboration with our customers we develop exclusive features and solutions on the basis of existing products and components. Therefore we modify existing modules, for example in order to perfectly support a special or new medical application or we work together to develop new product characteristics that give our customers an unparalleled competitive advantage.

In this process we work in close cooperation on the specification and design of these features. That is why our product managers, design engineers, quality managers, and registration experts are all at the table when creating your customized solution.

Camera and light source combination with customized light guide

Exclusive adaptation for mobile examination unit

Exclusive endoscope probes for a wide variety of applications
You have a challenge or an idea, while we have the expertise to transform it into successful solutions.

Modern medicine continuously develops new and innovative treatment methods. In this context, one of the most important duties of endoscopy is to provide functional access and the best possible visualization of the affected organs. Thereby enormous potential exists in improving processes and, in doing so, breaking new ground technologically, economically, or ergonomically. We work with our customers to develop such advanced solutions.

Customers contribute their market knowledge while we provide a wide range of technologies and are responsible for implementing them into market-ready products. For applications in diagnostic and surgical medicine our qualified and motivated experts develop innovative solutions that stand out – from a technological as well as economical standpoint.

You can benefit from our clinical knowledge and many years of experience. We use this during the entire product life cycle to provide recommendations for components, further product generations, service opportunities, and areas with cost-cutting potential based on the latest technological possibilities.
SCHÖLLY realizes visions for minimal-invasive surgery of the future.

Prof. Dr. med. Hanns-Peter Knaebel, Chairman of the Board of Aesculap AG

“The third visual dimension is the future of surgical endoscopy – our long-term partnership with SCHÖLLY allows us to offer innovative and successful products in this field.”

Dr. Rakesh Sinha, Department of Gynecological Endoscopic Surgery, BEAMS Hospital, Mumbai

“The Einstein Vision System is awesome. The clarity, accuracy and precision of the surgery with its incredible image quality makes it one of the best technological advances in laparoscopic surgeries. The depth perception is brilliant and there is virtually no learning curve. I have been using this system since September 2011 and have completed 1,000 laparoscopic surgeries. I visited the SCHÖLLY company premises in Denzlingen and was amazed at the set-up.”

Augusto V. Castello, Senior Vice President, Product Operations, Intuitive Surgical, Inc.

“We appreciate SCHÖLLY as a long lasting, innovative and trustful partner and supplier since the early times of our company. Outstanding image quality paired with consistent delivery performance makes them a prime supplier for 3D endoscopes, cameras and the worldwide service we require.”
OPTOLECTRONIC COMPONENTS
CERTIFIED QUALITY CAN BE FOUND IN EVERY LAST DETAIL.

Reliable and matching components, functional modules, and assemblies from SCHÖLLY.

The high-performance visualization systems that SCHÖLLY supplies for a wide range of applications can only be created with top-quality components and assemblies. Wherever such microoptical components and optoelectronic systems are needed, and whenever precision and high expectations of overall performance are what matter most, SCHÖLLY is your reliable partner. This applies for the development, production, and assembly of high-precision microlenses and microoptical assemblies by SCHÖLLY MICRO OPTICS in Biebertal, Germany. Independent of our complete solutions, customers are able to purchase individual components for their specific application.

Whatever the task in hand, we can always provide the right contact for you at SCHÖLLY. Starting from design to the creation of sample and series production all the way to professional assembly and performance measurement. We offer innovative technology modules in the areas of microoptics, fiberoptics, micromechanics, and electronics, all of which can be incorporated into our components taking into account medical requirements.

In order to insure outstanding quality and patient safety at all times, relevant certification as well as registration and validation documents for our components are available upon request.
EXCELLENCE INSIDE ALL THE WAY TO A MARKETABLE PRODUCT FROM ONE SOURCE.

Ready to use systems or modular services – we will take care of it.

Our work always begins by giving thorough consideration to a product idea, including our customer’s needs and wishes. An interdisciplinary team of specialists works with the customer to come up with the best product concept from both a technological and economical standpoint. Taking the entire product life cycle into account the focus is on clinical relevance and practicality, benefit, and cost efficiency. After defining the process steps and timing together, nothing stands in the way of moving on to the next stage. The goal is the mutual preparation of an initial specification document.

Conception

Our experts develop and implement tailor-made solutions to meet your requirements. You can request a complete package or decide on just those modules from our portfolio that suit your particular needs, from the initial design to a global after-sales service. Our product and project managers, design engineers, quality managers and registration experts are involved during the entire process in order to develop the ideal solution for you.

Prototyping

A special fast-track production process and a hand-made manufacture allow us to work faster and prevent severe concept errors, which would not be viable with normal processes. This head start in the product’s time to market provides our customers with an important competitive advantage. Using rapid prototyping techniques in this stage, we create models that reinforce the product concept and technical design with feasibility studies.

Functional Testing

In this step, prototypes are tested in a clinical environment. The feasibility of the product concept is tested in its specified application, what verifies the basic idea once again. Tests with prototypes are also conducted in a medical environment in order to recognize possible additional features. To complete this stage, we work with our customer to define the engineering process with milestones as well as a final specification document that includes a service and registration concept for the specific product.
Based on the approved specification document, a team of specialists in the fields of microoptics, mechanics, electronics, and software develop the product in our development center in Denzlingen. In this context, our main focus is on highest quality and the ability to produce large and small quantities in a cost efficient process. Sophisticated industrial engineering and internal jig manufacturing make reproducible qualities, increased process reliability, and the adherence to specific certification and registration procedures possible. At this point in time, we also start conducting material-compatibility tests in our own certified testing laboratory, which saves time when registering the product.

All of our critical components like lenses, software and cables are developed and produced within SCHÖLLY or by certified partners. This high level of vertical integration gives us the ability to conduct continuous quality controls with short lead times for small, medium or large quantities. Modern machinery, the 5S workplace organization method practiced around the world, and regular training all serve to safeguard our high quality standards. Our production facility in Bulgaria operates in accordance with German standards, giving us the ideal combination of quality and cost-effectiveness when producing large quantities.

A team comprised of approximately 20 experts ensures, that the product fulfills all internationally required regulatory standards. The goal is to achieve a market entrance as smoothly and quickly as possible. Processes defined and documented within the scope of a comprehensive and certified quality management system ensure that the required documents – for example for ROHS, REACH, material compatibility, biological evaluation, or IEC reports – are available in a timely manner. This is beneficial for certain registration processes specific to products and countries, such as CE, FDA, SFDA, Anvisa, and UL. Active assistance from our customers in carrying out these regulatory duties helps reducing the project’s duration and, as a result, the time to a successful market entry.

Attractive offers for the technical service of our products round out our portfolio. Our worldwide service network offers a high-level customer service and modular service concepts, tailored to local conditions. From repair to exchange programs, our service is prompt and reliable. Regular audits of our service centers ensure highest quality with uniform processes, equipment, and tools. We also conduct regular training at our headquarters, which ensures that all those in contact with customers are always up to date on the current state of technology.
EXCELLENCE INSIDE
IN THE ENTIRE RANGE OF TECHNOLOGICAL POSSIBILITIES.

3D HD ENDOSCOPES

MICROLENSES AND LENS ASSEMBLIES

RIGID HD ENDOSCOPES

We have successfully manufactured serial 3D endoscopes for 15 years. We were, and remain today, the driving force in the transition from 2D to 3D visualization. As technological leader, we offer our own video platform with camera, endoscope, and the corresponding light source. Our systems do not cut corners when it comes to image quality and offer key benefits to the user for the best possible, intuitive working in three-dimensional space. We offer devices with classic rod lenses as well as modern chip-in-tip and chip-in-scope systems. The relevance of these technologies is undisputed, since it is estimated that in 10 years 80% of all minimally invasive operations will be carried out in 3D.

Our activities range from raw glass to the finished objective lens. In this context, we develop, manufacture, and coat lenses from 0.25 mm to 19 mm in size and assemble complex objective lenses and assemblies. When developing objective lenses, we have the ability to optically calculate and simulate them. When assembling complex objective lenses, we adjust lenses and image sensors in six axis to achieve the highest level of precision. This expertise is consolidated at SCHÖLLY MICRO OPTICS and is thus available to the entire corporate group. In our integrated manufacturing facility for lenses and objectives, we can carry out reliable feasibility studies.

HD image quality is state-of-the-art at SCHÖLLY and available for all endoscopic applications, whether in 2D or 3D. In this context, HD quality applies to all functional units, which means endoscope, endocoupler, and camera. As one of the pioneers in this technology, we can refer to many years of experience and are already working on the next technological leap today – 4K image quality.
Decreasing image sensors are allowing the endoscope and camera to increasingly grow together into one unit. Current 2D and 3D chip-in-scope and chip-in-tip systems are making use of this development. In this context, the placement of the image sensors always presents new challenges to our design engineers, such as the smallest possible objective lenses or thermal management. Combined with intelligent and affordable cables for light, communication, and data transmission, these systems represent one more benchmark for the entire industry.

The development of powerful light sources and the corresponding fiberoptic cables have been one of SCHÖLLY’s core area of expertise since the company’s foundation. Lighting possibilities range from xenon to LED to laser light, regardless of whether they are built in close to the endoscope – for example, directly into the handgrip, into the camera unit, or in a separate lighting unit. We can offer the right mixture and wavelength for every medical application. Our own fiber applications and a wide range of products – from standard fiber optics to complex, integrated light and data transmission cables – provide optimal lighting, even with smallest diameters.

Through the development of open, integrated SCHÖLLY interfaces, we have the ability to logically and efficiently integrate our products into existing operating room procedures. Device controls using third-party systems or tablet computers are just as possible today as professional video management and the easy storage of images and videos. This allows operating room processes to be perfectly tailored to one another and significantly increases user and patient safety.
We offer microendoscopes and customized camera systems starting at a diameter of 0.35 mm for special minimally invasive procedures. In this context, we place great importance on the devices quality, a robust design, and ideal ergonomics. All endoscopes can either be sterilized (reposable) or are available as disposable systems. These microsystems have opened up completely new possibilities in diagnostics and treatment – for example, through tiny natural ports like a tear duct or in local drug delivery, particularly in cancer treatment.

Combining high-quality visualization systems and perfectly matched disposable accessories is the best choice for many fields of medicine. Today, SCHÖLLY offers many disposable solutions that perfectly fulfill the latest regulations governing hygiene in hospitals. This is the only way to combine top image quality with economical use of resources. New ways of making sterile tools available and lower maintenance costs offer additional benefits and help reduce general cost pressure.

Our controllable, flexible, and semiflexible endoscopes stand out thanks to being incredibly ergonomic and easy to handle, as well as for their wide variety of innovative features. Working channels, light sources integrated into the hand grip, exporting video and images at the touch of a button, our patented Deep-View-Technology, and 2D or 3D chip-in-tip systems are only a few examples. Specially mixed lighting fibers make defined spectral applications possible using flexible endoscopes.
In the field of micromechanics, SCHÖLLY carries out nearly all production and processing steps in-house, even with the high standards for medical devices. This means we have an outstanding position in terms of flexibility, speed, and quality. As a result, our experienced production specialists can mill, cut, weld, deform, and assemble whenever necessary. In addition, we use every material imaginable that is suitable for use in medical technology. Our own jig manufacturing, even for adjusting the smallest of optics, rounds out our range of services.

SCHÖLLY’s own camera-board platform and the company’s close scientific relationship with hospitals and surgeons from all over the world allow us to offer users and OEM partners many new clinical features using special video algorithms.

Ergonomic considerations have long been an important aspect of the working world. Simple and comfortable handling and an appealing product design not only make it easier to use the devices, but also increase the user’s feelgood factor when doing so. That’s why we actively involve users, industrial designers, and engineers in the development process. In our in-house operating room, we test our rapid-prototyping design models to analyze intended handling in a realistic setting.

From simple color adjustments to customized housing designs on the basis of existing functional units – when it comes to individual customer design, almost anything is possible. Existing modules ensure that validation and registration times remain short, which ultimately accelerates the time to market. We can also implement further changes through the use of exclusive functional parameters. Internal validation options and our long-term experience in drawing up internationally valid IEC reports make faster product developments possible, even with a customized design.

Some of these additional features are:

- Dynamic contrast enhancement
- Selective video color enhancement
- Color and shape correction
- Selective wavelength illumination
- UV-Vis and IR imaging
- Image rotation in HD quality
- And many more
Innovations for the future with strong partners and successful partnerships.

SCHÖLLY continuously invests in the improvement and development of technological solutions. In addition to our close and often long-term cooperation with OEM partners, we also collaborate with leading universities and research institutions.

With access to basic developments, we are today already working on the development of applications for the future. We thus offer our customers an enduring, visionary partnership. We do this with the goal to develop new technologies and meaningful solutions that support real progress in the fields of surgery, diagnostics, and treatment.

Our success is based on many years of experience, the quality and reliability of our work, and the enthusiasm of all those involved in the development process. The continuous search for new solutions is clearly visible in our open culture of innovation, which is firmly established in the heads of all employees. By questioning existing processes and structures and making advancements to existing products, we succeed in working in a structured manner while still remaining flexible. Skilled and motivated teams are a key requirement in this regard, and this is an aspect that we pay considerable attention to. This is because we can only meet our EXCELLENCE INSIDE standard by working together.

Some of our strategic partners are:
- Department of Microsystems Engineering (IMTEK), Freiburg
- C.R.S. iiMotion, Villingen-Schwenningen
- HSG-IMIT, Villingen-Schwenningen
- Fraunhofer Institute for Physical Measurement Techniques (IPM), Freiburg
Our comprehensive understanding of quality goes far beyond the product itself.

As a manufacturer of medical products, we must meet the highest standards of product safety. In order to fulfill these standards, we in turn need to have high standards in the fields of quality management, product registration, and regulatory affairs. This is why we constantly strive to further improve our processes and put emphasis on our mutual quality understanding.

We make the many years of experience we have gathered in globally registering our products in all medical product classes available to our OEM customers. That’s why we take necessary steps early in a project to ensure that nothing will hinder the medical products from moving swiftly through a smooth registration process. This obviously includes evaluating registration options, related risks and developing solutions. Furthermore, we incorporate information on schedules and fees into this process.

Our regulatory team is ready to assist customers in drawing up international licensing documents.

Our regulatory services encompass:

- 510(k) forms for FDA approvals
- STED – Summary Technical Document Preparation
- Technical documents for the CE mark required in the EU
- International licensing and registration for medical product classes

In this context, an internal testing laboratory for conducting relevant preliminary tests of material compatibility, sterilization, and suitability for practical application gives us an additional head start in the validation and certification processes.

What quality means to SCHÖLLY:

As a result of our high responsibility to offer customers, patients, and users the highest standards of quality in all our areas of business, this issue is a top priority for SCHÖLLY.

- The name SCHÖLLY stands for innovation, reliability, and quality both in Germany and around the world. Our approach to business and our actual operations are centered entirely around the needs of our customers.
- The high quality of our products and our aspiration to constantly improve ourselves are one of the many reasons that SCHÖLLY has proven to be a competent partner in different areas.
- Our internal standards of quality are determined by our customers, our own benchmarks, as well as national and international standards.
- The purpose of these standards is to ensure that our products are safe and reliable to use.
We believe a consistent customer focus also means offering our customers high-quality services. Individual service packages that we define with our customers in the early stages of the development process along with the creativity, expertise, and the high standards of quality that our service professionals possess all guarantee our customers’ satisfaction. Within our worldwide service network, we offer customers competent local assistance and support in their native language. As a result, we guarantee prompt and reliable service, uniform quality across the globe, and a matching price level.

Customers benefit from the process cycle in a modern company that operates in accordance with the highest standards. We not only repair and maintain SCHÖLLY products, but also offer an exchange program for endoscopes from other manufacturers or otherwise attractive terms for an upgrade to the latest SCHÖLLY quality. We carry out all repairs using original parts. Functionality and safety are tested using the latest technologies, such as optical measuring stations, helium-leak test systems, and devices for measuring electrical safety according to DIN/ISO standards.
ClassicRepair

With our ClassicRepair program, SCHÖLLY demonstrates its high level of flexibility and expertise. Our technical service offers detailed error analysis and repair concepts, yet always keeping cost-efficiency in mind. Customers can choose between a repair – if it is advantageous and safe to do so – or an exchange program. Our focus is on customer needs, and we therefore develop service concepts that meet these specific requirements.

FlexiLine

FlexiLine is an exchange program that covers almost all standard medical endoscopes used for minimally invasive surgery. By restricting the service to most standard endoscopes and offering optimized delivery and production processes, we can offer an exchange concept with an unbeatable price-performance ratio.
EXCELLENCE INSIDE explains what SCHÖLLY is all about.

A family business operating worldwide as a corporate group.

SCHÖLLY stands for the expertise to make concealed structures visible and accessible for minimally invasive treatment or non-destructive inspection using microoptics, fiber optics, mechanics, software and electronics. We design, manufacture, and distribute all components dedicated to that purpose ourselves – from our classic endoscopes to highly complex visualization systems.

SCHÖLLY is active in the following business fields:

- Medical Endoscopy
- Visual Inspection
- Optoelectronics

We are driven by the goal to use our experience and technology modules to develop the best products for our customers and their specific needs. In this context, what distinguishes us is a combination of superior technology, customer orientation and strategic foresight, along with the strong sense of responsibility of a family-owned company that actively puts its innovative spirit and enthusiasm into action.

To optimize profit, not to maximize it, is our guiding economic principle.

Our philosophy is built on responsible corporate ethics when interacting with employees, customers, partners, suppliers, and our home city of Denzlingen.

Reliability, expertise, creativity, fairness, and an open, cooperative style when interacting with customers and employees have formed the foundation of our company’s success for over 40 years. As a global family business, SCHÖLLY places great importance in these values and, in doing so, not only ensures sustainable growth for the company, but also preserves its own identity.

EXCELLENCE INSIDE stands for:

- Our high expectations towards ourselves, our products, and our services
- The area of application for our products
- The quality of our components
- Our enthusiasm for what we do
- The skills and motivation of our employees
- The implementation of our values in the family business
- The ability to understand the needs of our customers
- The way we do things, not what we do