

Sill
OPTICS

CUSTOMIZED
SOLUTIONS

IMAGING
OPTICS

LASER
OPTICS

**HIGHEST PRECISION
FOR AEROSPACE AND DEFENSE**



Sill Optics GmbH
Johann-Höllfritsch-Straße 13 | 90530 Wendelstein, Germany
T +49 9129 9023-0 | info@silloptics.de | silloptics.de



Sill
OPTICS

Version 1.0 11/2025

silloptics.de



PRECISION IN EVERY MISSION

In-house manufacturing and large lens production

Customized Optical Solutions – Made in Germany

Absolute precision is essential in safety-critical applications – it forms the basis for strategic decisions. That’s why you need a partner who can offer you cutting-edge technology, first-class quality, and full control over every step of the manufacturing process.

At Sill Optics, we combine decades of experience with comprehensive in-house production of optics and mechanics – all under one roof in Germany. Our independence guarantees the highest quality, flexibility, and reliability in every phase of production.

Our specialty: large optical components – in particular large-diameter spherical and aspherical lenses manufactured with uncompromising precision. Whether for advanced image processing systems, laser range-

finders, or other demanding defense applications, our products meet the highest optical and mechanical requirements.

Our experienced team, state-of-the-art machinery, and fully integrated production enable us to respond quickly and efficiently to your specific requirements – from individual prototypes to series production. We accompany you from the initial consultation and planning through development and prototyping to series production, ensuring that every component leaves our factory as a reflection of German engineering excellence.

Rely on Sill Optics – your partner for in-house precision and large-scale optical manufacturing, made in Germany.

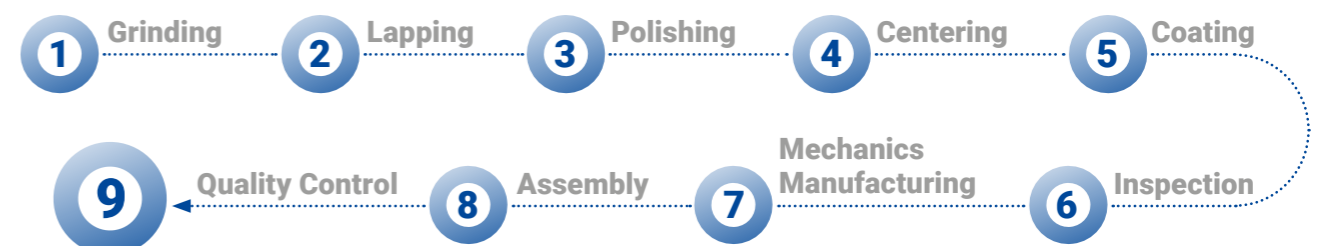
WORKFLOW CUSTOMIZED SOLUTION

Step by step to the perfect product

- Feasibility Study** Analysis of feasibility and evaluation of all requirements for the optimal implementation of your individual solution.
- Optical Design** Development and simulation of the optical system to ensure maximum performance and precision.
- Mechanical design** Design of mechanical components for stability, integration, and protection of optics – tailored to your operating conditions.
- Prototyping** Manufacture and testing of prototypes to validate design, function, and quality under real-world conditions.
- Mass Production** Efficient and standardized series production at the highest quality level, including seamless quality assurance and traceability.



Our production cycle guarantees the highest quality



Designed for multispectral analysis

Color corrected design



High precision assembly

Alignment turned sub assemblies for high resolution imaging

Broadband AR-Coating from UV to NIR



VISION SYSTEMS

Optical solutions for maximum performance

Whether at dusk, in bad weather, or in complete darkness: with our high-quality optics for night vision technology, you remain in control and maintain an overview in every situation. Our innovative solutions ensure optimum visibility and reliability when it really matters.

Technical highlights for your night vision systems

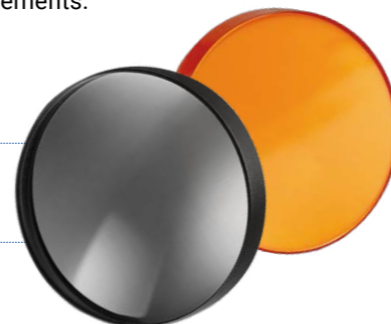
- **High transmission in the visible and near-infrared range**
Best possible light output for efficient night vision (600–900 nm up to 2500 nm possible)
- **Low distortion, high image quality**
Sharp, clear images – crucial for orientation and target identification
- **Anti-reflective coatings (e.g. magnesium fluoride, multilayer systems)**
Minimization of light loss and reflections for maximum efficiency
- **Custom manufacturing**
Tailored to your night vision applications
- **Durable and robust**
Perfectly suited for use in extreme conditions



Material expertise for the infrared range – high performance for thermal imaging

In the infrared range, choosing the right material is crucial for the function, precision, and longevity of your systems. Our optical solutions for mid-wave IR (MWIR, 3–5 μm) and long-wave IR (LWIR, 8–14 μm) are specially developed for demanding applications in the defense sector and meet the highest requirements.

- **IR-transmissive materials**
High-performance materials such as Ge, ZnSe, ZnS, Chalcogenides and Silicon
- **Special anti-reflective coatings**
Optimized for MWIR and LWIR
- **Low self-emission**
Minimal IR emission from material and coating



LASER RANGE FINDER

Powerful for laser applications

Our optics for the defense sector set standards in efficiency, precision and reliability, specially developed for demanding laser applications such as Laser Range Finders or target acquisition – ideal for mobile systems.

Key features

- **High transmission and low dispersion**
Wavelength from 905 to 1550 nm, Optical Glass, Fused Silica and CaF_2
- **Optimized anti-reflective coatings and filters**
For transmission and reception wavelengths, narrowband filters for stray light suppression available on request
- **Excellent image quality**
Precise performance, even at long distances
- **Robust and compact**
According military and industry standards



MISSILES DOMS

Perfect for the most demanding requirements

Our domes and components offer ideal solutions for demanding infrared applications – specially developed for harsh operating conditions, maximum transmission, and maximum mechanical stability. Materials such as ZnS, Si or Sapphire are the first choice for advanced systems in defense, aviation and measurement technology.

Key features

- **Excellent transmission in the MWIR and LWIR range**
Ideal for applications from 2–14 μm
- **Extremely durable and robust**
Suitable for protective covers in harsh environments
- **Mechanical and optical precision**
Stable even under extreme temperature fluctuations and high mechanical stress
- **Wide range of applications**
 - IR domes for protection and cover systems
 - IR windows for thermography and sensor technology
 - Optical lenses for infrared cameras and laser systems



OUR EXPERTISE AND TECHNOLOGIES

Precision and reliability for military optical requirements

We offer a comprehensive development and manufacturing process that combines state-of-the-art technology, experienced teams, and quality standards tested to military specifications. Our solutions meet the highest requirements for precision, resilience, and documentation – down to the last detail. By closely integrating all competencies under one roof, we ensure short communication channels, maximum flexibility and optimal coordination with your individual requirements.

See our strengths for yourself

Material expertise

- Processing of special glasses: Quartz (e.g. Corning 7979, 7980), ZnSe, ZnS, Ge, Sapphire
- Alternative material: Chalcogenides as a substitute for Germanium
- Selection according to UV, VIS, NIR, MWIR, LWIR, SWIR
- Expertise in radiation-resistant, thermally stable materials

Optical design and simulation

- Geometric and physical optics expertise
- Simulation and optimization with Zemax, Code V, SYNOPSIS™
- Military-specific design (shock, temperature, and vibration resistant)

Precision manufacturing

- Grinding, polishing, and centering optical components
- Manufacturing spherical, aspherical and freeform surfaces

Coating technology

- Thin-film process for AR, mirror and IR coatings
- High damage threshold and environmental tolerance, military-grade specifications

Installation and alignment

- Precision assembly under clean room conditions class 5 and 6
- Centering, bonding techniques and active alignment (e.g. for laser systems)

Metrology and test laboratories

- Interferometers, profilometers, UV-VIS-IR spectrometers
- Wavefront measurement, MTF tests
- Mechanical stress and thermal shock test
- Tests according to military standards

Quality assurance and measurement technology

- Interferometry, wavefront and MTF measurement
- Testing in accordance with military standards and complete documentation

Production planning and traceability

- ERP systems with batch tracking
- Documentation systems for verification and traceability
- Quality assurance in accordance with ISO 9001

Standards and regulations

- Knowledge of ITAR, EAR (export control), DIN, ISO
- Experience with military requirements in environmental, temperature, and shock resistance



HIGH-ENERGY LASER SYSTEMS

Tailor-made for laser applications with the highest energies

Our special optics are specifically designed to meet the requirements of direct energy weapon systems and high-power laser applications. They enable safe and precise handling even at extremely high laser powers in the kW range and feature robust, high-precision components.

Key features

- Safe handling of high laser powers
- For measured beams and high-energy lasers with several kilowatts of power
- Large optical diameters can be achieved to minimize thermal lensing
- Specially developed for extreme energy loads and demanding application scenarios
- Reduction of intensity and energy density on the optical surface – for maximum power



MULTISPECTRAL AND HYPERSPECTRAL OPTICS

Precision for every wavelength range

Our specially developed multispectral lenses combine an exceptionally wide spectral range from 350 nm to 950 nm with an apochromatic design that ensures razor-sharp, color-accurate images. Thanks to high-precision manufacturing, we achieve centering tolerances of less than 4 μm, enabling solutions of the highest quality.

Key features

- Broadband anti-reflective coating from UV to NIR
- Designed for multispectral analyses
- Different glass substrates for specific requirements
- Alignment turning and active alignment for high resolution imaging
- High-precision assembly for optimum overall performance

