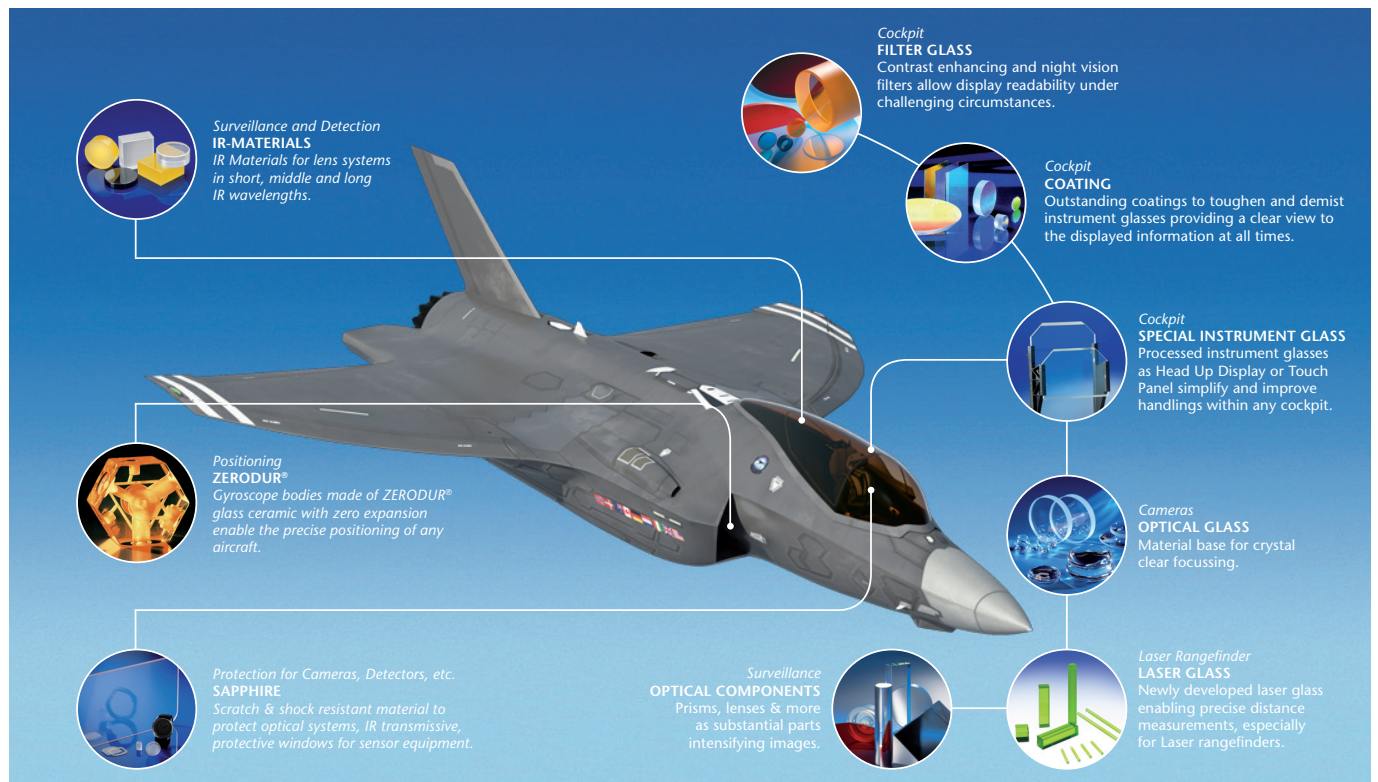


# Advanced Optics in Safety & Security

SCHOTT Advanced Optics has a broad portfolio of optical materials and components for applications in various industries. A wide range of its products are being used in the field of SAFETY & SECURITY in Land, Air and Sea. SCHOTT supplies reliable products as key elements for trustful performance of the used devices and enables solutions in flight systems associated with navigation, guidance, display, illumination and other needed functions such as surveillance, targeting and protection.

SCHOTT has a strong focus on industrial components, knows the demands for high quality, reliability and consistency and has been a qualified supplier e.g. to the Avionics industry for many years. All our sites in our global production network are ISO 9001, EN 9100 and ISO 14001 certified.

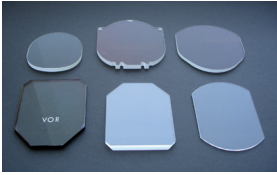


## Main Products and its Applications



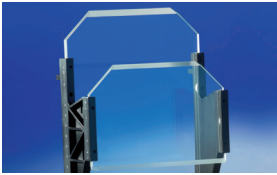
### Optical Filter

Filters from SCHOTT utilizing optical filter glass, clear glass and sophisticated coatings are being used for contrast enhancement on cockpit displays. Interference filters are designed for customer needs. In addition, night vision compatible filters allow cockpit illumination and display readability under challenging circumstances. Toughened optical filter glasses are also used for external lighting and identification.



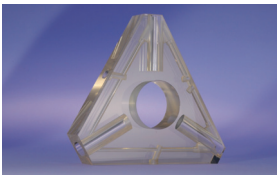
### Instrument Glasses

are used as covers for analog and LCD instruments in the aircraft, especially in the cockpit, and enable a non-distorted view. Due to outstanding coating capabilities, new touch screen designs can be realized, such as demist coating which provides a clear view to the displayed information at all times.



### Special Head Up Displays (SHUD)

semi-reflecting instrument glass produced, coated and assembled by SCHOTT enables the projection of the instrument data to the cockpit window. Supporting the view of surroundings and all flight data at the same time, HUD's are a key element to touch down under difficult weather conditions.



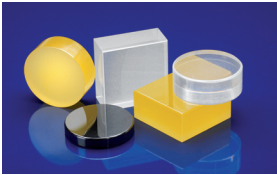
### Gyroscopes

are the key elements of the inertial reference for precise position measurement in any aircraft and face challenging demands with respect to temperature and pressure resistance. Thus ZERODUR® from SCHOTT with a zero coefficient of thermal expansion is the material of choice.



### Sapphire

as one of the hardest, most durable and scratch resistant materials offers a broad transmission range from UV to mid infrared wavelengths (250 – 5000 nm). The material is able to withstand extreme environmental conditions and temperature changes. SCHOTT offers sapphire windows in different supply forms, dimensions (with diameters up to Ø 300 mm) and in customized processing stages (e.g. coatings).



### IR-Materials\*

Chalcogenide glasses as well as Zink Sulfides (ZnS FLIR / ZnS CLEAR) with their excellent transmission, low thermal change in refractive index and dispersion, available in large sizes, custom shapes and formats (windows, domes, lens blanks), can be combined, and are used for military and industrial applications e.g. IR optical systems with low thermal defocusing. \*IR-Materials partly provided by our partner Vitron Spezialwerkstoffe GmbH.



### Laser Glass

SCHOTT offers active and passive glass-based materials for laser applications with the gamut from Neodymium-doped laser, Erbium-Ytterbium-Chromium doped phosphate glass and special filter glasses for use as laser pumping cavity for laser applications requiring highest precision such as Laser-range finding or dermatology.

Further information available on detailed product flyers.

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