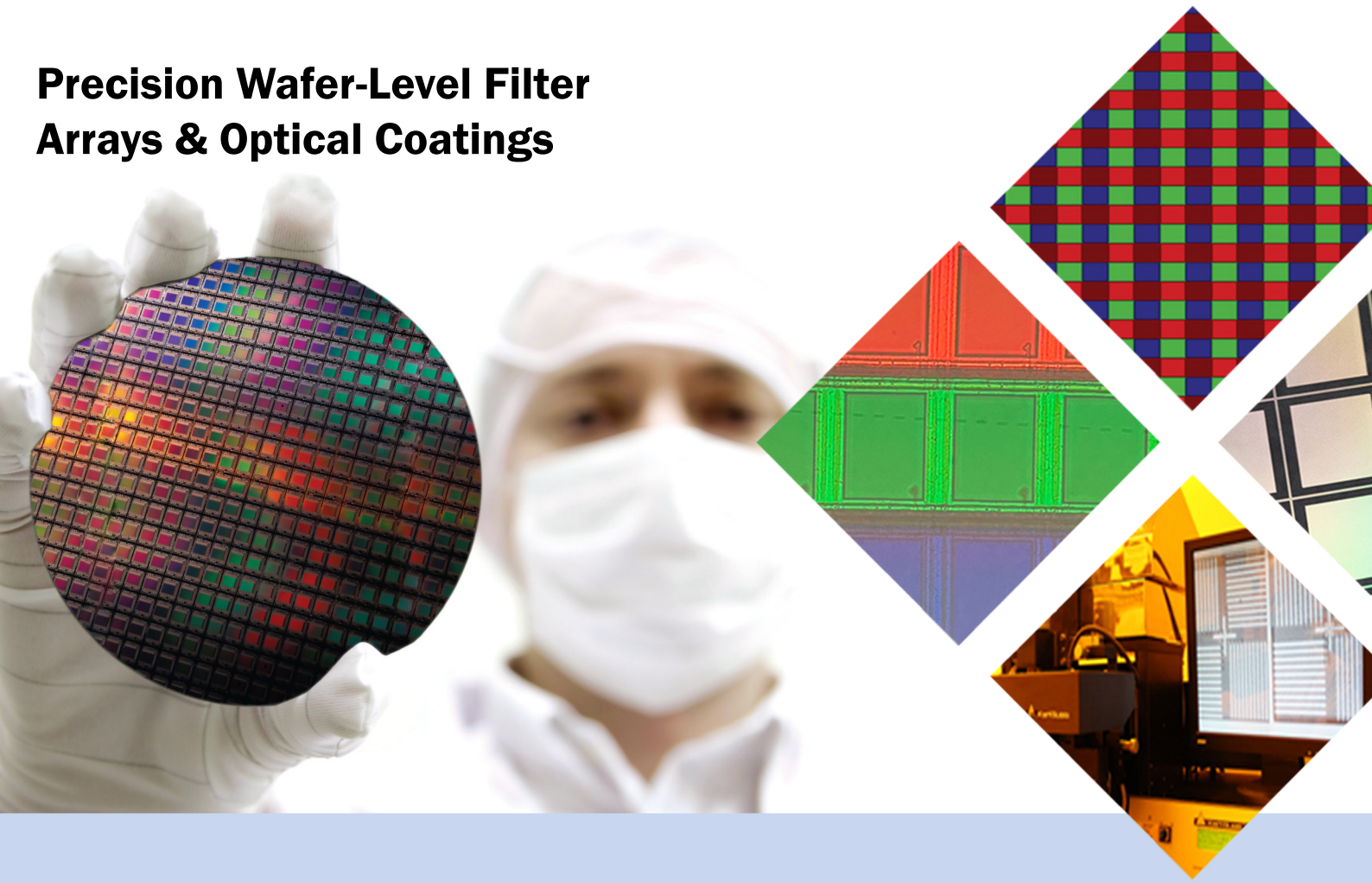
Photolithography Patterned Filters

Precision Wafer-Level Filter Arrays & Optical Coatings

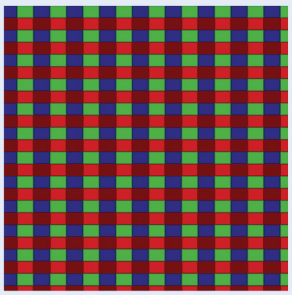


Salvo Technologies micro-patterned optical coatings combine patented microlithographyexpertise with state-of-the-art coating technology to enable smaller and simpler optical designs for portable or complex optical systems.

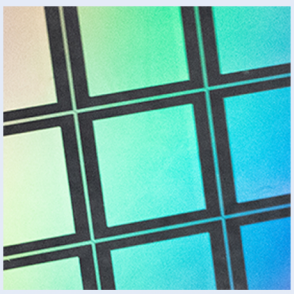
The exclusive technology enables patterning of multiple dielectrics, metal, and color filter array on a single substrate. Standardized processes have been developed and are used today to manufacture these devices in a new, world-class optical semiconductor waferfab specifically designed for this purpose. The process is scalable to wafer-level glass or semiconductor volume production, with tens of millions of custom micro-patterned optical devices delivered annually.

Salvo Technologies patterned coatings are used to enhance performance in a multitude of biomedical, industrial, and aerospace OEM applications that are more compact, robust, and cost-effective.

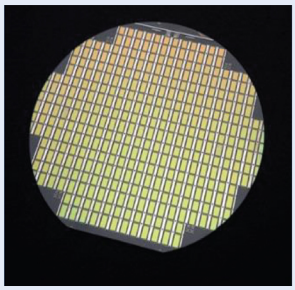
Contact our enginners to discuss your application | 727-544-3736 | sales@salvotechnologies.com | salvotechnologies.com



Custom Geometric Array

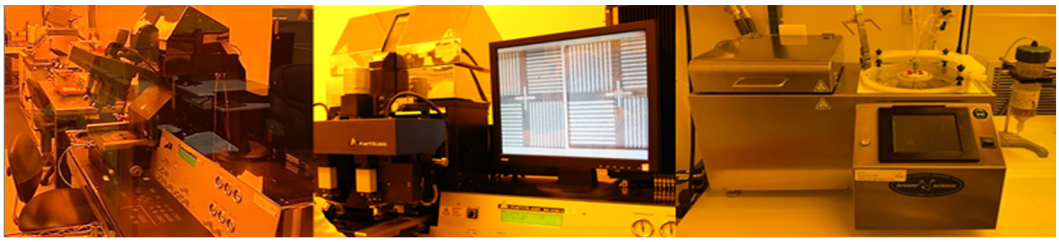


Transmissive Grating



Active Wafer Deposition

Precision Reticles



Discreet Patterning Division machinery and capabilities include:

Lithography process units
- 1 deep UV displacement Talbott lithography tool
- 3 mask aligner exposing systems
- 1 Reactive ion etching process chamber, glass and silicon etch
- 3 Spin deposition tools, automated dispense and edge bead removal
- 2 Wet benches, batch development, lift, and strip process

Measurement equipment
- MicroXAM non-contact white light interferometer
- Ellipsometer film transmission optical modeling software
- Diode array spectrophotometer

At Salvo Technologies, we focus our operations to support customers in developing their next-generation imaging and sensing equipment. With a toolbox of processes and technologies, we can quickly design the most effective way to develop products based on your application or product functionality. Our application engineers work with you to quickly assess your requirements and provide a proposal of technical feasibility. Custom geometry patterns including Bayer and Stipe commonly onto semiconductor substrates or glass substrates with interference filters, or absorption filters.

Some of the design parameters and decisions are based on:
- Substrate: Semiconductor wafers, optical-grade glass, fused silica, or other materials
- Numbers of filters bands combined on one substrate (multispectral sensing)
- Filter design parameters: Transmission Bands, blocking specifications.
- Filter selection & approach (interference or absorption)
- Feature geometries: smallest size, tolerance in position
- Alignment accuracies and available alignment markers
- Defined (e.g. ESD) handling, dicing, finishing, testing, and packaging
- The equipment in our Class 100/1000 wafer fabrication cleanrooms has been selected and custom-designed for micro-patterned coatings, enabling us to support ultra-small(um) pixel-level features for imaging applications. We use the latest coating technology, including IAD evaporation, magnetron sputtering, and ion beam sputtering techniques. In the lithography fab, semiconductor-style mask aligners are used to handle wafers up to 8 inches.

Currently, we can implement and combine the following designs and materials:
- Custom Wavelength Bands | UV, VIS, NIR, SWIR
- Dichroic | Bandpass, Short-wave pass, Long-wave pass, BBAR & more
- Metallic | High reflector, Dark Absorber, Apertures, Neutral density & more
- Color Filter Array | RGB, CMY, & Absorptive Dyes

Optical Technology Utilization	Multiple Industry Applications
Multispectral sensing for spectroscopy	Non-invasive biomedical imaging
Multispectral imaging with Custom CCD & CMOS sensors	Remote sensing for satellites, Defense & Precision agriculture
Precision reticles & alignment patterns	Industrial quality control sensing & Imaging
Patterned pixels & apertures	Color mixing for entertaining lightings
Focal plane array (FPA)	Light intensity control in industrial equipment
Color mixing & dimming	Sensing for consumer wearables
Variable/gradient filters	Integrated custom optics for scientific devices

Contact our enginners to discuss your application | 727-544-3736 | sales@salvotechnologies.com | salvotechnologies.com